

**APALACHICOLA BAY SYSTEM INITIATIVE  
COMMUNITY ADVISORY BOARD**



**PHASE IV MEETING 5 — 18 OCTOBER 2022  
FACILITATOR'S SUMMARY REPORT**

**APPROVED UNANIMOUSLY 30 NOVEMBER 2022**

**APALACHICOLA NATIONAL ESTUARINE RESEARCH RESERVE  
EASTPOINT, FLORIDA**



**PROCESS DESIGN, MEETING FACILITATION, AND REPORTING BY JEFF A. BLAIR**

**APALACHICOLA BAY SYSTEM INITIATIVE COMMUNITY ADVISORY BOARD  
18 OCTOBER 2022 FACILITATOR'S MEETING SUMMARY REPORT**

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**APALACHICOLA BAY SYSTEM INITIATIVE COMMUNITY ADVISORY BOARD  
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*Oyster Boats – Eastpoint, Florida*



**OVERVIEW OF APALACHICOLA BAY SYSTEM INITIATIVE COMMUNITY ADVISORY BOARD'S KEY ACTIONS**

**TUESDAY, OCTOBER 18, 2022**

**I. MEETING SUMMARY AND OVERVIEW**

At the 18 October 2022 meeting conducted at the Apalachicola National Estuarine Research Reserve (ANERR) in Eastpoint, Florida the Apalachicola Bay System Initiative (ABSI) Community Advisory Board (CAB): received an overview of the updated Project Workplan and Schedule including the Phase V (2023) Workplan and Schedule; received reports and updates from the CAB Successor Group Subcommittee, Restoration Funding Working Group, and Community Outreach Subcommittee; and received an update on FWC's NFWF funded restoration project. Specific activities included: reviewing and discussing Fisheries Model simulation results; and agreeing on the next suite of scenarios, including new scenarios and combinations of scenarios, for simulation by the Fisheries (Socioecological) Model. Of note, the CAB is scheduled to adopt their final recommendations for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan at the 29 November 2023 meeting, and the CAB Successor Group is scheduled to formally convene in early 2024.

## II. WELCOME AND INTRODUCTIONS

Jeff Blair, ABSI CAB Facilitator, opened the meeting at 8:30 AM and welcomed all participants.

### SOCIAL SCIENCE SURVEY

The ABSI CAB members are participating in a Social Science Survey that is conducted at the beginning of each meeting to gauge participants' perspectives and attitudes regarding science and data, and stakeholder relationships throughout the ABSI CAB process. Ed Camp, University of Florida, is conducting the Survey that was first administered during the October 2020 meeting and will be continued throughout the duration of the ABSI CAB process. There was a Social Science Survey administered for the 18 October 2022 CAB meeting.

## III. ABSI CAB MEETING PARTICIPATION

The following CAB members participated in the Tuesday, October 18, 2022 meeting conducted in-person at the Apalachicola National Estuarine Research Reserve in Eastpoint, Florida:

Georgia Ackerman, David Barber, *Frank Gidus*, Anita Grove, Chad Hanson, Jenna Harper, Shannon Hartsfield, *Becca Hatchell*, Gayle Johnson, Erik Lovstrand, Chuck Marks, Mike O'Connell, Steve Rash, Devin Resko, Portia Sapp, *Chad Taylor*, and *Paul Thurman*.

*\* Members who participated virtually are italicized.*

(16 of 20 members participated — 80%).

*Absent CAB Members:*

Mike Allen, Katie Konchar, Alex Reed (Jenna Harper is also representing DEP), and TJ Ward.

### PROJECT TEAM MEMBERS PARTICIPATING

Jeff Blair, Sandra Brooke, Ross Ellington, Jared Fuqua, Madelein Mahood, and Joel Trexler.

*(Attachment 2 — Meeting Participation)*

### MEETING FACILITATION

Meetings are facilitated and meeting reports prepared by Jeff Blair of Facilitated Solutions, LLC. Information at: <http://facilitatedsolutions.org>.



### PROJECT WEBPAGE

Information on the Apalachicola Bay System Initiative project and the Community Advisory Board, including agenda packets, meeting reports, draft Plan frameworks, and related documents may be found at the ABSI CAB Webpage. Located at the following URL:

<https://marinelab.fsu.edu/the-apalachicola-bay-system-initiative/>

#### **IV. AGENDA REVIEW AND APPROVAL**

The ABSI CAB voted unanimously to approve the agenda for the 18 October 2022 meeting as presented. Following are the key agenda items approved for consideration:

- ✓ To Approve Regular Procedural Topics (Meeting Agenda and Summary Report)
- ✓ To Review Updated Workplan and Meeting Schedule
- ✓ To Receive Science and Data Collection, and Restoration Updates
- ✓ To Receive Reports from RFWG, Community Outreach, and CAB Successor Group
- ✓ To Review Fisheries Model Scenario Simulation Results and Acceptability Rate Scenarios as Needed
- ✓ To Identify and Agree on the Next Suite of Scenarios, New Scenarios, and Combinations for Modeling
- ✓ To Identify Next Steps: Information, Presentations, Assignments, Agenda Items for Next Meeting

*Amendments to the Posted Agenda:*

None were offered.

*(Attachment 3 — 18 October 2022 ABSI CAB Agenda)*

#### **V. APPROVAL OF THE 27 JULY 2022 CAB MEETING FACILITATOR'S SUMMARY REPORTS**

The ABSI CAB voted unanimously to approve the 27 July 2022 CAB Meeting Facilitator Summary Report as presented.

*Amendments:* None

#### **VI. REVIEW OF UPDATED PROJECT WORKPLAN AND SCHEDULE**

Jeff Blair provided the CAB with a review of the updated Project Workplan and Schedule and answered members' questions. The 18 October 2022 meeting represented the CAB's fifth meeting of Phase IV which focused on the evaluation of the Draft Adaptive Management and Restoration Plan Framework's prioritized restoration and management strategies, restoration projects selection and implementation, and funding planning.

The CAB will work with available and emerging research and data, which will be incorporated into and evaluated by decision support tools including predictive models. These tools will be used to evaluate the CAB's recommendations relative to specific performance measures and expected outcomes by forecasting the effects of policy actions on the likelihood of achieving oyster management and restoration objectives with the goal of implementing the best combination of management and restoration approaches, and priority restoration projects for achieving the Apalachicola Bay System Initiative's overarching goal of restoring the health of the Apalachicola Bay System.

In addition, Phase IV includes a significant public engagement initiative. The next CAB meeting is scheduled for 30 November 2022. Jeff reported as follows:

- At the October meeting the CAB evaluated an initial set of scenarios (strategies) towards the goal of determining the best combination to achieve restoration and management objectives for the Bay using

decision support tools including predictive models generally, and the Fisheries (Socioecological) Model specifically, coupled with available and emerging data and research. The CAB will vet their draft recommendations with restoration and management agencies, evaluate the priority and efficacy of strategies and actions, and identify specific recommended restoration projects and management approaches.

- The CAB’s Community Outreach Subcommittee has initiated a community feedback initiative by soliciting and reviewing community input on the Plan Framework. The Community Outreach Committee will continue to communicate and meet with community stakeholders providing them with information and updates regarding the purpose and progress of the Apalachicola Bay System Initiative. The CAB’s prioritized strategies are being vetted with the larger ABS community through multiple formats including a questionnaire administered through a variety of methods including Facebook, online via the ABSI website, and direct mailings. In addition, public workshops are being scheduled and will be held in-person.
- The CAB is conducting planning for transitioning to a Successor Group whose role will be to organize a group of key stakeholders committed to working collaboratively for the long-term once the CAB process is complete to ensure that the Plan is implemented, monitored, and adaptively managed over time with the support of the Community. The CAB is scheduled to finalize their recommendations for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan at the 29 November 2023 meeting, and the CAB Successor Group is anticipated to formally convene in early 2024.
- In addition, the FSU ABSI Project Team continues to work with the Restoration Funding Working Group to seek resources and political, governmental, and organizational support for the CAB’s priority recommendations.

Jeff reported that Phase V (2023) will consist of six meeting and conclude with the final CAB meeting on 29 November 2023 when the CAB will adopt their final package of recommendations for inclusion in the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan. The CAB Successor Group is expected to initiate in early 2024 to ensure that the Plan is implemented, monitored, and adaptively managed over time with the support of the Community.

Jeff noted that the Project Team will keep the CAB updated and share additional information as it becomes available.

*\*The Draft Plan Framework is available at the following URL: <https://marinelab.fsu.edu/absi/cab/>*

*(Attachment 4 — Workplan, Schedule, and Project Flowchart)*

## **VII. PROJECT BRIEFINGS AND REQUESTED PRESENTATIONS**

### **ABSI SCIENCE AND DATA COLLECTION UPDATE**

Sandra Brooke, FSUCML Faculty and ABSI Principal Investigator, provided the CAB with an update on ABSI science and data collection. A science and data update is provided at all CAB meetings.

Presentations are available on the project webpage: <https://marinelab.fsu.edu/absi/cab/>.

## Summary and Overview of Presentation

The 18 October 2022 Science and Data Collection update was focused on updates including restoration experiments and the associated monitoring of the results.

### Objective of Restoration Experiments

- Identify optimal location, materials and configuration for restoration success

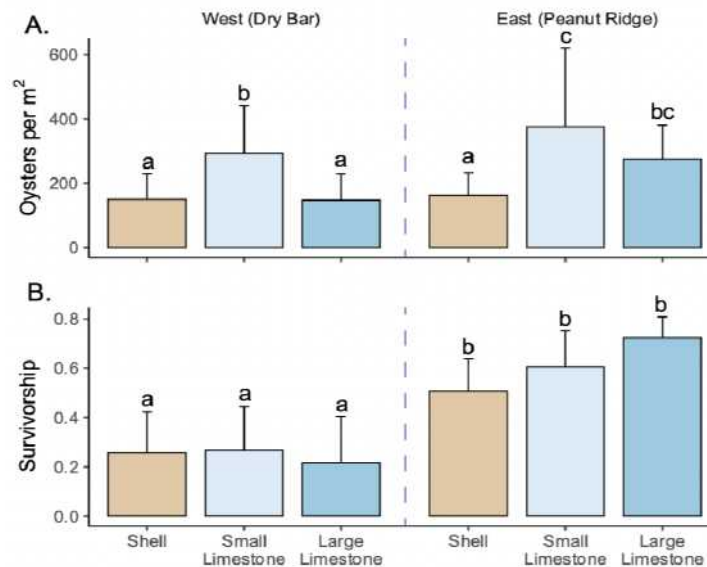
### Reefball and Layer Cake Modules

- Stable substrate with high habitat complexity will support community development.
- 4 Reefballs + 4 Layer Cakes and instruments to measure water quality are planned.
- Reefballs photographed and 3-D models created.
- Reefballs deployed in April 2022.
- Reefballs recovered and photographed Sept-Oct 2022.
- Layer Cakes photographed and 3-D models created July-Aug 2022.
- Layer Cakes currently being deployed.
- Data will be analyzed to compare oyster growth rate on each substrate and among sites.
- Photography and modeling will be repeated every 6 months.

### Diver Sampling of ABSI Restoration Experiments

- Conducted August 2022.
- Five x 0.25 m<sup>2</sup> quadrat samples per reef.
- Volume: Rock, dead shell, live oysters.
- Counted and measured live oysters and boxes.

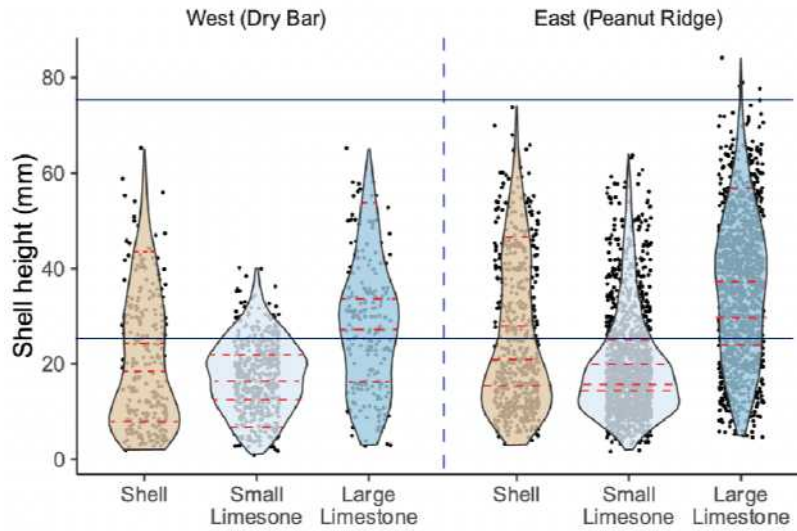
#### *Restoration reefs – 14 months post-deployment Density and Abundance*



- Figure Above: Abundance and (B) survivorship of oysters on experimental reefs constructed from different materials at sites in the western (Dry Bar) and eastern (Peanut Ridge) regions of the Bay.



*Restoration reefs – 14 months post-deployment Shell Height*

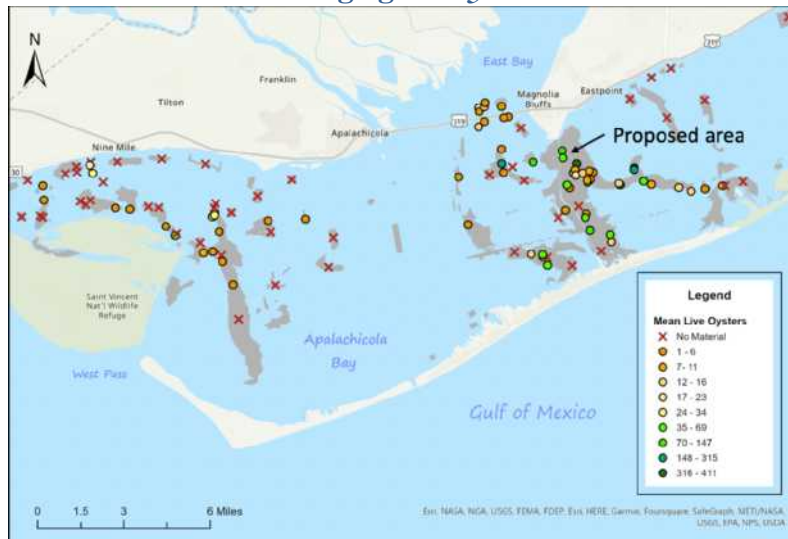


- Figure Above: Violin plots showing the distribution of shell heights of live oysters on experimental reefs constructed from different materials in the western (Dry Bar) and eastern (Peanut Ridge) regions of the bay. Solid black points are individual measured heights. Dashed red lines are the predicted heights based on quantile regression beta coefficients for the 0.25, 0.5, 0.75, and 0.95 quantiles.

**Tong Sampling**

- Conducted August – September 2022.
- Restoration experiments at Peanut Ridge and Cat Point sampled.
- 99<sup>th</sup> percentile of Current Speed at the 9<sup>th</sup> layer for year 2019.
- Salinity measurements taken.
- Median, 25<sup>th</sup> percentile, 75<sup>th</sup> percentile corresponding to wet (1998), normal (2019), and dry (2012) March.

*Subtidal Tonging Survey 2021-2022*



## ABSI Restoration Experiment Fall 2022

### *Proposed Location for ABSI Restoration Experiment*



- **Hypothesis:** Benefits of increasing reef height will reach an asymptote.
- **Objective:** identify optimal (cost-benefit).
- Reef height.
  - 15 cm (6 inches)
  - 25 cm (10 inches)
  - 50 cm (20 inches)

### **Material Size and Height**

- **Hypothesis:** Material size and type will influence oyster recruitment, survival and growth.
- **Objective:** identify optimal material.
- Material Size Options
  - 5 cm (2 inches) = Small
  - 15-20 cm (6-8 inches) = Medium
  - 30 cm (12 inches\*) = Large
- Material Type Options
  - Limerock = occurs naturally in NW Florida, relatively stable.
  - Granite = natural stone, not found locally, heavy, stable, more expensive?
  - Concrete = not natural, readily available, less expensive.

### **Proposed ABSI Restoration Experiment Fall 2022**

- **Option 1: Examine reef height.**
  - **Location:** NE Cat Point: 4 treatments, 5 replicates = 20 reefs (15 x 15 m)
  - **Reef Height:** 25 cm (10 inches), 50 cm (20 inches).
  - **Material Size:** 15-20 cm (6-8 inches) = Medium.

- **Material Type:** Limerock = occurs naturally in NW Florida, relatively stable.
- **Option 2: Examine different materials**
  - **Location:** NE Cat Point: 4 treatments, 5 replicates = 20 reefs (15 x 15 m).
  - **Reef Height:** 25 cm (10 inches).
  - **Material Size:** 15-20 cm (6-8 inches) = Medium.
  - **Material Type**
    - Limerock = occurs naturally in NW Florida, relatively stable.
    - Concrete = not natural, readily available, less expensive.

### **Summary of Questions, Responses, and Comments:**

*(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)*

- Cost of concrete? SB- \$10/ton.
- Concrete comes in a lot of shapes and sizes. SB: There is a shape and size criterion for cultch that we will use.
- How accurate is the data when sampling the same sites? SB: explained how this is accomplished.
- JB: Concrete has a high carbon footprint, is this factor taken into account? SB: footprint is limited if material is taken from a demolished structure (recycled concrete), not so if we were to use new material.
- Regarding reef balls, how can you make use of the data since the deployment times were different? SB: take each unit as is own dataset. Over time, the time asymmetry will even out.

## **FWC (NFWF PHASE 2) RESTORATION PROJECT UPDATE**

Devon Resko, FWC Division of Marine Fisheries Management, provided the CAB with an update on the FWC restoration project funded by the National Fish and Wildlife Foundation (NFWF). Devon reported:

### **Summary and Overview of Update**

- Workshop to discuss FWC restoration activities was held in Tallahassee on Sept. 7<sup>th</sup>, which included NFWF, FWC scientists and management, FSU, UF, and other state management agencies.
- NFWF expressed preference to FWC testing multiple treatments during pilot study à 1) reef height and 2) material size
  - NFWF understands that testing multiple treatments will increase the pilot study's budget significantly.
- Pilot study's general framework is to test two rock sizes (6-8 in. & 12-14 in.) and two reef heights (1-1.5 ft. & 2-2.5 ft.) with each treatment being a 1-acre reef. Each replicate will consist of 4 1-acre reefs. Number of replicates will be dependent on budget, but we'd like to get 5-7 total.
- General consensus on testing multiple reef heights. Only issue is to avoid navigational hazard risks. FWRI will begin scoping out potential reef locations soon.
- Issues were brought up regarding the larger rock size.
  - Oystermen discussed issue with using non-tongable rock. FWC discussed the general need to build the oyster reefs back up off the bottom. If no difference is seen between rock sizes, FWC would of course utilize tongable sizes for larger-scale restoration, by "covering" larger, non-tongable rock with the smaller rock.
  - FWRI discussed potential issues with sampling large rock. Divers would be unable to extract such large material off the reef and onto the vessel for analyses. UF and FWC HSC (habitat and species

conservation division) staff suggested different sampling techniques for large rock. FWRI is discussing methodology for large rock sampling, and will updated FWC this month.

### **NFWF Gulf Environmental Benefit Fund – \$20,057,000**

- National Fish and Wildlife Foundation funded.
- Apalachicola Bay and Suwannee Sound
- Oyster restoration
- Develop oyster management plans
- Multiple partnerships
- Important to stress collaboration with management agencies, universities, and local, public stakeholders

### **Stage 1 – \$3,277,029**

#### **Approach**

- Data collection
- Harvest management system
- Compile information
- Data workshop
- Habitat restoration decision

#### **Data Collection**

- Mapping of hard substrate important to determine current reef heights: Informs restoration efforts.
- Apalachicola Bay: 3-D mapping, Bottom profiling, Ground truth tonging,
- Suwannee Sound: 3-D mapping
  
- Baseline oyster community sampling
- Apalachicola Bay
  - Oyster densities
  - Oyster spat densities
  - Sedimentation rates
  - Predatory snail densities
- Suwannee Sound
  - Oyster population survey

#### **Harvest Management System**

- Develop regionally-specific oyster fishery management plans.
- Stakeholder-informed
- Apalachicola Bay
- Suwannee Sound
- Statewide Strategic Oyster Fishery Management Plan.
- Will continue to progress through later stages of program.

#### **Compile Information and Data Workshop**

- Meet with state management agencies, university researchers
- Discuss previous restoration and research
  - What's worked? What hasn't worked?
  - How to be better informed moving forward.
- Habitat restoration decision

- Where?
- What materials?
- Densities - how high?
- How much (acres)?
- Meet with public to discuss preliminary plans

## **Stage 2 – Oyster Restoration in Apalachicola Bay**

- Restoration
  - Where?
  - What materials?
  - Densities-how high?
  - How much (acres)?
- Monitoring
  - Inform management

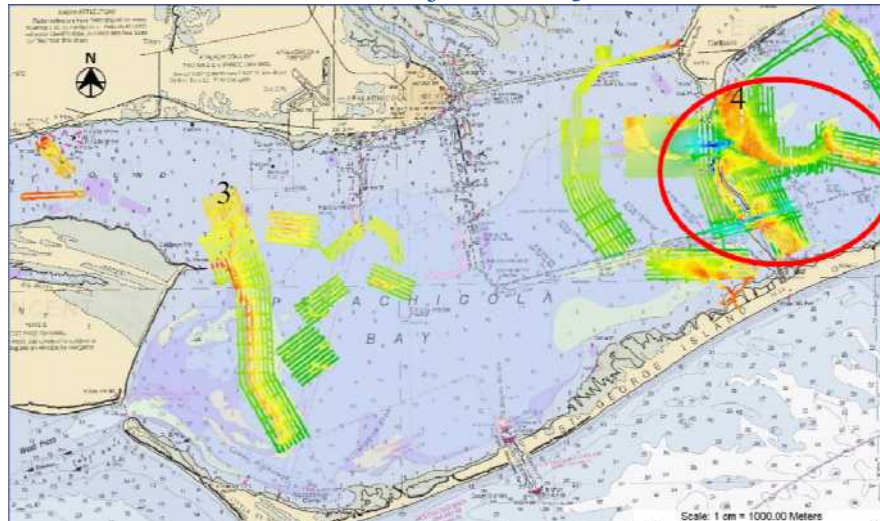
## **Data and Restoration Workshops**

- Data collection
  - ANERR
  - ABSI
  - FWRI
- Data workshop – June ‘22
- Restoration workshop – Sept. ‘22
  - Where?
  - What materials?
  - Densities - how high?
  - How much (acres)?
- NFWF has expressed concerns over approving the remaining \$16M for restoration activities.
  - Past restoration operations in the Bay did not perform as well as expected.
  - *“The definition of insanity is doing the same thing over and over again and expecting different results.”*
- Large number of unknowns still present.
- Perform a large-scale pilot study.
  - FSU will conduct complementary study.
- FWRI will conduct sampling and monitoring oversight.
- Utilizing these studies, FWC will have more data to construct and perform larger restoration activity.

## **Pilot Study Details**

- Reef height treatments: 1 ft (low) and 2 ft (high).
- Material size: 6” (small) & 12” (large) FL limestone.
- Location: East side of Apalachicola Bay.
- Reef size: 1.0 acre.
- Replicates: 5-7.
- Monitoring criteria: 1) density of live oysters/m<sup>2</sup>, 2) size classes, and 3) cultch weight and/or volume.
- Monitoring effort: *Before, After, Control* design for shell budget, diver-excavated sampling, environmental monitoring equipment.
- Cost: \$6.97 M for scientifically-sound study that produces ~24 acres of treated oyster habitat.

### Location of Pilot Study



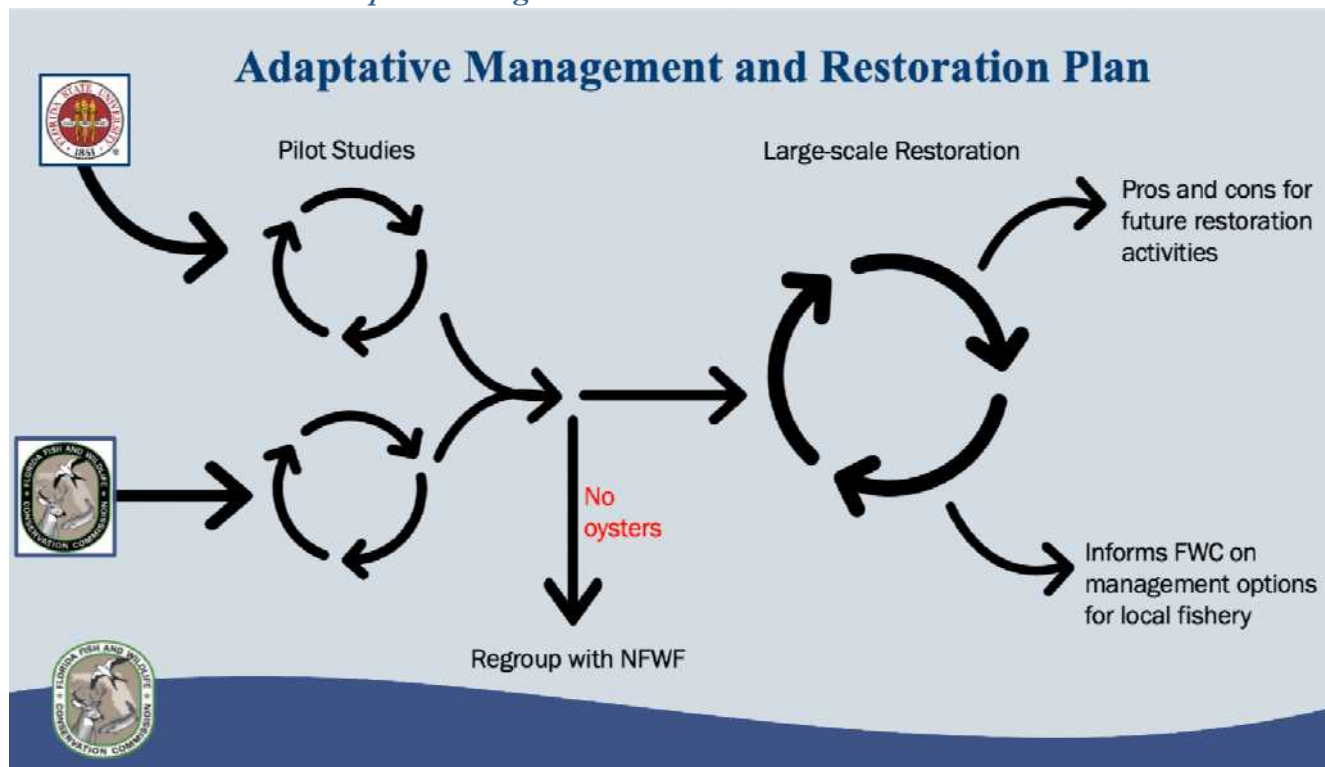
#### Material Size

- Material size: 6” (small) & 12” (large) FL limestone.
- Major concern is overall degradation of the Bay’s reefs.
  - “Flattened out and looks like a parking lot.”
- Utilizing large-sized material if an effective strategy to rebuild reefs off bottom.
- Testing two sizes is scientifically important, strongly encouraged by funding partner.
- If no significant difference is observed between sizes, tongable material would be used for harvestable reefs during future large-scale restoration.
- Proposal to layer smaller, tongable size rock over the 12” foundation.
  - May benefit local stakeholders.
- Use 12” pilot study reefs as sanctuary reefs, closed permanently to oystering.

#### Reef Locations

- Location: East side of Apalachicola Bay, near current oyster populations.
  - Replicates: 5-7.
- 6 → Approximately 24 acres for restoration.
- Important to control for ecological conditions.
- Main steps in choosing sites for pilot study:
  - Map all recent restoration work, mapping data from University of New Hampshire.
  - FWRI will select potential locations to ground truth.
  - Listen to recommendations from local stakeholders on historically productive areas.

## Adaptive Management and Restoration Plan Flowchart



### Next Steps

- Oystermen, Community workshops this week.
  - Potentially additional FWC outreach events in near future.
- Continued internal, external coordination in drafting pilot study design.
- Design, methodology, spend plan will be publicly available for review.
- FWC will submit to NFWF for approval.
- Goal is to have contractor, material in water Summer 2023.

### Conclusion

- \$20 M+ for preliminary data gathering and analyses, restoration efforts, stakeholder-informed, regionally-specific oyster management plans.
- Although past restoration efforts did not meet biological objectives, still helpful takeaways, roadmap to springboard off.
- Pilot study testing multiple reef heights, material sizes beginning Summer 2023.
  - Inform FWC for large-scale restoration.
- Successful Apalachicola Bay oyster restoration through the culmination of work from management entities, university researchers, and local stakeholders.

### Current Oyster Conditions in Apalachicola Bay

- Recent mapping suggests approximately 2,000 acres of potential oyster habitat remain in Apalachicola Bay.
- The oyster habitat over most of this 2,000-acre area is degraded to a point where the cultch (shell hash) does not support oyster spat settlement.

- Currently, the east and central east sides of the Bay, where recent restoration has been focused, are the main areas supporting oysters and likely represents the core of the oyster population in the Bay.
- Since 2015, \$5.8 million in Deepwater Horizon oil spill funds have been spent in attempts to restore approximately 400 acres of oyster reef.
- To date, only 56 acres from one project (FDEP-RESTORE) have densities of oysters that meet a traditional threshold (300 bags/acre) used to identify areas suitable for harvest.
- Considerations regarding opening commercial harvest:
  - If harvest were to reopen, it might delay the implementation or reduce the potential success of the upcoming NFWF restoration. Commercial tonging on restored areas could undo recent gains from restoration.
  - Removal of oysters in the harvest and habitat degradation from commercial activities will likely increase the time needed to restore oyster populations in the Bay.

### **Summary of Questions, Responses, and Comments:**

*(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)*

- Why is west Bay having so much trouble? DR: Not sure, only areas that has seen restoration show promise. SB: oyster drills present in high numbers on the west side; it may be driven by environmental conditions. ABSI has lost reef balls perhaps to trawling.
- DR: Oysters generally, and the Apalachicola Bay specifically now have a higher visibility in FWC leadership.
- Will you put 12” in on Cat Point? I have concerns about navigation hazards. DR: will be very careful about placement and navigation issues.
- Some areas with oysters are not shown on your data? DR: that may be a sampling artifact. We will do more intensive and systematic sampling going forward.
- What is the duration of pilot project? DR: 18 month duration of pilot study (2025); we will need to discuss with NFWF (restoration) and FWC leadership (fishery) about the future of the Bay (opening).
- Will this presentation be presented to oystermen and community? DR: yes much of it but not all.
- Should FSU’s distribution data be superimposed on FWC’s data? DR: possible. JB: both Sandra and Devin will provide the oystermen and community with a presentation.
- Which restoration sites are shown on the map? DR/SB: only NFWF restored sites. The disaster funding restored sites are probably not included.
- The fossilized shell deployed from disaster funding is gone. Questions accuracy of estimates of area restored. DR: I will seek clarification and get back with you.
- Which entity implemented the \$6M restoration done in 2015? DR: I will clarify this as well.
- ACFS and Tri-Rivers are a potential resource for the CAB and the Successor Group.
- Who will meet with FWC leadership to present the ABSI Plan? SB: We will have a small group of CAB members and the ABSI Team meet to present to FWC at the appropriate time.



## VIII. WORKING GROUP AND SUBCOMMITTEE UPDATES AND REPORTS

### A. CAB SUCCESSOR GROUP SUBCOMMITTEE

Shannon Hartsfield and Anita Grove reported that to date the Subcommittee has discussed the type of members needed (stakeholder representation) and the structure, format, and key issues for the Subcommittee. In addition, the Subcommittee is collecting ideas and information for use once they are convened at the conclusion of the ABSI CAB process.

In addition, the Subcommittee met with the FSU Leadership Team on September 2, 2022 to discuss timing and logistics for initiating the CAB Successor Group.

The CAB Successor Group will be ready to convene when the CAB completes their work on the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan. The Successor Group's role will be to organize a group of key stakeholders committed to working collaboratively for the long-term, once the CAB process is complete, and to ensure that the Plan is implemented, monitored, and adaptively managed over time and has the support of the Community. Of note, the CAB Successor Group is anticipated to formally convene in early 2024 subsequent to the CAB's adoption of their recommendations in November 2023.

#### **Summary of Questions, Responses, and Comments:**

*(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)*

- Jeff Blair, CAB Facilitator, noted that there was no expectation for any specific action from the CAB Successor Group Subcommittee since it is premature to move forward at this point in the ABSI process.

*(Attachment 8 — Stakeholder Resources in Support of ABSI)*

*(Attachment 9 — Proposed Leads, Partners, and Resources for Strategies)*

*(Attachment 10 — ABSI Overarching Message Initial Ideas)*

### B. RESTORATION FUNDING WORKING GROUP

**Overview.** The ABSI proposal contemplates a 15-year commitment from FSU, 10 years beyond the 5 years of funding provided by the TRIUMPH Board. The Restoration Funding Working Group (RFGW) will be a team of local, state, private, and NGO stakeholders focused on developing plans for long-term funding of the broader effort; the goal at the end of the 5-year ABSI period is to have a funding pipeline for restoration secured. Joel Trexler, RFGW Lead, previously reported that the RFGW has met three times, has broad representation, has identified the specific strategies and related actions that would require funding, agreed to a charge, are mapping actions with potential funding sources and approximate funding amounts needed, and understand that it is critical to identify gaps in funding and work to fill the gaps before the Plan is final. In addition, there are potential funding sources for some CAB recommended actions.

Joel reported as follows for the 18 October 2022 CAB meeting update on the RFGW:

- The RFGW will meet within 2 weeks to focus on funding for CAB Successor Group. They anticipate having this in place by the third quarter of 2023.
- They plan to identify sources and drafting proposals for funding the Successor Group.
- The RFGW has compiled a table listing strategies and action requiring funding.

## Summary of Questions, Responses, and Comments:

*(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)*

- Be aware of agency funding cycles when soliciting funding.
- Enhanced monitoring as well as the CAB Successor Group will require funding.
- ACFS and Tri-Rivers are meeting this week and would be a good resource for the CAB, ABSI, and the CAB Successor Group.
- Before the conclusion of the CAB process, we need to explore the possibility of presenting the Plan to the FWC commissioners, perhaps late next year?
- DR: Panhandle FWC meeting in 2023 will likely occur at the end of the year. We are exploring options for ABSI/CAB to present to them.
- The timing of the CAB Successor Group is not clear to me. AG/SH: We need more information prior to our next meeting to discuss substance/structure of Successor Group.
- JB: The Successor Group has discussed representation and mission. By next summer they will be in a position to organize and be ready to initiate January 2023. The RFWG is working on finding funding so the group can function.
- How is FWC being kept up to date with ABSI's effort? DR: The Commissioners are being kept minimally informed at this point. I have been told by higher-up FWC leadership that it is not necessary to provide extensive updates at this point. However, it is expected that oyster harvest advocates may attend Commission meetings so some bullet points are being provided to ensure they have the facts as we go forward.
- It is critical that FWC's leadership is kept aware of the CAB's work and recommendations. DR: I will explore this. JB: Remember FWC has a seat at the table on the CAB, this is by design.
- It is very important to get the word to FWC leadership as implementation of the Plan will be highly dependent on FWC. DR: I have been updating division leadership. Once the pilot is initiated there will be more opportunities to increase the information flow to FWC leadership.

## C. COMMUNITY OUTREACH SUBCOMMITTEE

### Subcommittee Charge:

- To work with ABSI leadership to inform the public of who we are and what we are doing.
- To create outreach and community engagement strategies that attract stakeholders and the public to actively inform the public about the Apalachicola Bay System Initiative's goals and actions.
- To measure effectiveness of these strategies through direct participation in achieving actions (as well as web analytics and media stories).

Chad Hanson reported that the Community Outreach Subcommittee (COC) has been active and they are working on a variety of initiatives. Chad reported as follows for the 18 October 2022 CAB meeting update on community outreach initiatives:

- The Subcommittee is planning to host a Community Workshop on October 19, 2022 at the Eastpoint Firehouse. The goal is to have Sandra, Devin Resko, and/or Dan Ellinor (also FWC) there to present, answer questions, and for the team to distribute the questionnaire. Sandra feels that at this point there will be a more solid ABSI research plan to present.
- Sandra published a new Op-Ed that corresponded with the timing of the public workshops to help with outreach.
- The Subcommittee has a FAQs page for ABSI and FWC on the project website.

- Maddie and Jared are working on a series of short videos to detail the aspects of ABSI on social media. The Subcommittee began working on their first demo in August. It will focus on either “FAQs” or a brief introduction to the different teams that work on ABSI.

#### **Public Presentations Update:**

- Plan to meet with Franklin County Commissioners as needed.
- The Subcommittee is planning to host a Community Workshop on October 19, 2022 at the Eastpoint Firehouse. Questionnaire will be distributed during the workshop.
- The Subcommittee is planning additional presentations at the Eastpoint and Carrabelle library branches, and the Apalachicola Library.

#### **Summary of Questions, Responses, and Comments:**

*(Note initials are only used to identify ABSI Team members and partners, presenters, and state agency representatives)*

- Condense the ABSI Plan so it is easy to communicate to the Community and stakeholders.
- Send the FAQs link and the Op-ed to the CAB members.

## **IX. REVIEW AND DISCUSSION OF MODELED SCENARIOS**

Based on Ed Camp’s recommendations regarding what is currently feasible to model, at the 27 July 2022 meeting the CAB agreed to the following initial scenarios for simulation by the Fisheries (Socioecological) Model:

- An Active harvest management scenario similar to the Alabama approach using monitoring and an oyster abundance minimum density threshold.
- Different management strategies under a range of different assumptions to see what works best.

#### **Scenarios Modeled for the 18 October 2022 Meeting:**

- Depensation, Collapse, Restoration.
- Restoration and Sustainable Fishing.
- Alternative Fisheries Management Approaches.

**For the 18 October 2022 meeting Ed Camp reported as follows:**

#### **Overview of Key Issues Reviewed**

- **Depensation.** A major component of what does or does not happen with restoration efforts. In population dynamics, depensation is the effect on a population (such as a fish stock) whereby, due to certain causes, a decrease in the breeding population (mature individuals) leads to reduced production and survival of eggs or offspring.
- **Restoration Decisions.** Possible outcomes of different management actions like closures, effort reductions, restoration, as related to depensation.
- **Sustainable Fisheries.** What does “sustainable” fisheries mean in the oyster fishery context? Basically a detailed look at the effects of different limited entry [used because it’s the easiest to control and thus convenient] levels [how much fishing & harvest] on metrics we care about.
- **Alternative Management Actions.** Exploring a range of alternative management actions like limited entry and active harvest management.

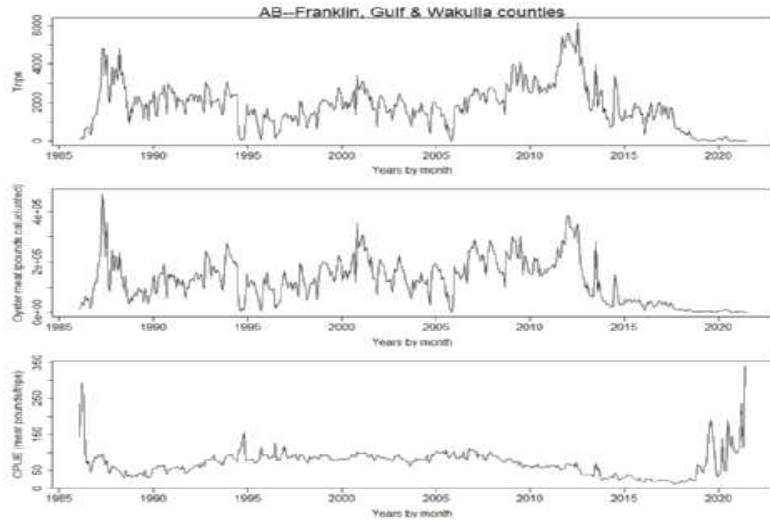
### Caveats and Setting and Realistic Expectations

- The data estimated from the stock assessment model was used to guide the simulation model.
- Scaling was reduced to use only a part of an oyster bar and not a larger bar such as Cat Point.
- Scaling down was done to replicate what is more likely to be funded for restoration projects.

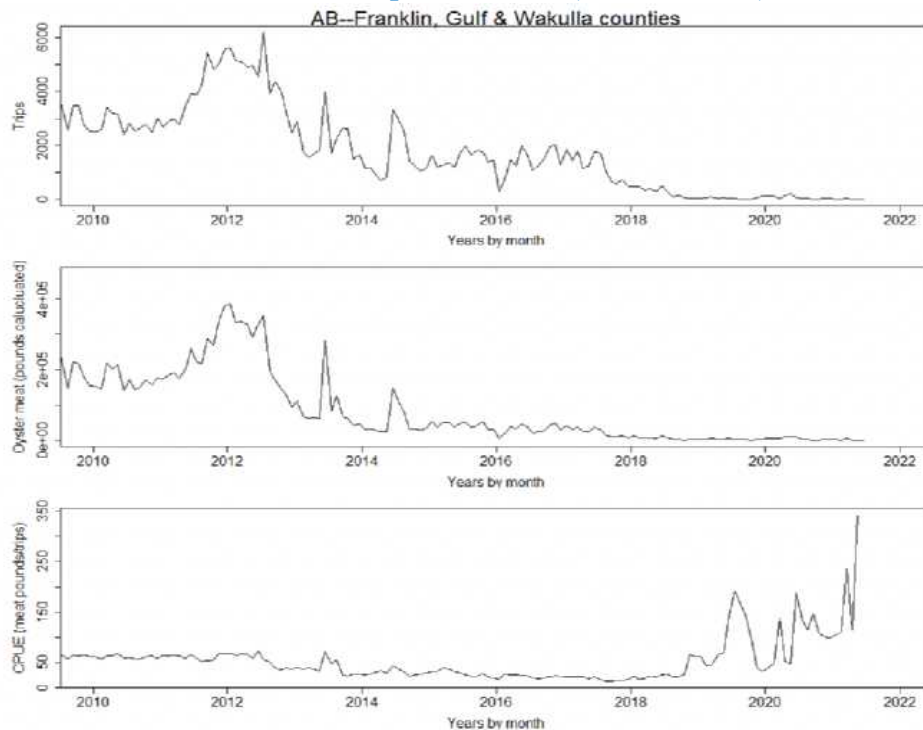
### There are Three Types of Data that the Model Will Use

- 1) Prior information about oysters and fisheries in general (things like growth, env. relationships)—stuff that has either been already published or will be assessed as part of the Triumph project.
- 2) Fisheries data, which refers to landings, effort, and catch-per-unit effort from the oyster fishery.
- 3) Fisheries independent data—from the old FDACS and current FWRI surveys.

#### Data: Fisheries Dependent Data



#### Data: Fisheries Dependent Data (2010 Forward)



## Summary and Overview of Presentation

### Topics Discussed

- Disclaimer/disambiguation.
- Background on shell dynamics.
- Why we built depensation into simulation models.
- Assumptions of simulation models shown today.
- Simulation results: depensation, collapse, restoration.
- Simulation results: restoration and “sustainable” fishing.
- Simulation results: alternative fisheries management options.
- Options for future modeling.

### Disclaimer Regarding Models

- Model results are draft—they will change.
- Models shown today are more useful for comparing (across assumptions and strategies) than for predicting absolute values.
- There is massive uncertainty in what is being shown. Evidence for depensation but we don’t know what drives it. That changes everything.

### Disambiguation Regarding Models

#### Multiple Different Types of Modeling

- Stock assessment models—estimating parameters.
  - Initially traditional fisheries (i.e., no shell dynamics explicit, subsumed with recruitment anomalies).
  - Extended to (try to) estimate shell dynamics (2-stage estimation, not ideal but necessary).
- Simulation models— “what if?” analysis.
  - Detailed shell dynamics, but how to inform?
  - Best guesses (literature, data).
  - Inform from newer assessment models.
  - \*The results shown during the meeting are from simulation models that have been informed by stock assessment models. More formally statistically fit models in future.\*

### Shell Dynamics

- Oysters create shell as they grow.
- Oysters leave shell if they die (and aren’t removed).
- Small oysters recruit on shell.
- Reef growth requires shell accumulation.
- Substrate (shell on reefs or other) required for recruitment.
- Recruitment required for population sustainability.

### Possible Implications for Shell Dynamics

#### Shell dynamics (as defined)

- Imply oysters create their own recruitment habitat.
- More oysters → more recruitment habitat.
- More recruitment habitat → more oyster recruits → more oysters.
- Less oysters → less recruitment habitat.
- Less recruitment habitat → less oyster recruits → less oysters.
- Dynamics have different names.

- Depensation, positive density dependence, etc.
- Dynamics can lead to different things.
  - Alternate stable states, hysteresis, “fold catastrophe.”

## **Evidence of Depensatory Shell Dynamics**

### **Previous Papers**

- Wilberg et al. 2013 (autogenic ecosystem engineers).
- Colden et al. 2017 (reef height drives threshold dynamics in restored oyster reefs).
- Moore et al. 2018 (oyster rest. w/ positive density dependence).
- Johnson et al. 2022 (management implications of critical oyster fishery transitions).

### **Data and estimation (stock assessment models)**

- Use data to estimate recruitment anomalies (annual deviations in survival rate of young oysters).
- Look at pattern of recruitment anomalies.
- Worth doing because these models don’t include shell dynamics.
- The project is working to support revised cooperative oyster management at estuarine scales that considers not only ecological but also socioeconomic needs.
- This is purposefully designed to mesh well with the emerging Comprehensive Oyster Management Plan project that TNC is leading.

### **Fisheries Model Parameters of Interest**

- Shell dynamics.
  - Unfished shell.
  - Inflection point (when does depensation start).
  - Steepness of decline (standard deviation of logistic).
  - Threshold “safety”— what minimum.
  - “Mortality” or decay (with respect to recruitment potential) rate of shell.
- Scaling parameters.
  - $R_0$ ,  $q$ , etc.: ballpark informed from assessment, but represents a smaller reef right now.
- Management actions.
  - Type of effort (fixed), effort closures and reductions.
  - Restoration options (amount, timing, decay rate).

### **Other Fishery Issues**

- Some discard mortality, but assumed very light (1%) for now.
- Illegal harvest only represented by few sub-legal oysters with vulnerability.
- Assumes oysters in all months but Aug. and Sept.
- (based on landings data, can easily change assumptions)
- Currently assuming 5 bag/person/day
- Matters most of active harvest mgmt.
- Assumes effectiveness of unit (hour) fishing goes down as oyster population falls.
- None of these, in Ed’s opinion, are major things to worry about right now.

### **Simulation Results: Depensation, Collapse, and Restoration**

- Simulation results Ed showed and why.
  - Plots of oyster population metrics.
  - Why not catch metrics? Focus on effects of depensation, effort, restoration.

- Key assumptions constant through figures
  - Constant effort (monthly, yearly), not completely realistic but useful
  - Depensatory shell dynamics
  - Length of fishing closures
  - Effectiveness and “type” of restoration
  - NO stochasticity (randomness)!
- Key things that change.
  - Amount of annual effort—fixed, and rather low (limited entry, why?).
  - Decrease in effort after decline (including closures).
  - Amount of restoration.
  - If restoration simulated, 5yr closure AFTER restoration was simulated.

### **Simulation Results: Depensation, Collapse, Restoration**

- Null model, no fishing.
- Fishing, but no collapse.
- More effort, collapse.
- Collapse with effort reduction, 5 year closure, 50% effort thereafter.
- Collapse with effort reduction, 10 year closure, 50% effort thereafter.
- Effort Reduction, 5 year closure, major restoration (~900k ‘units’), post-restoration effort 10% original.
- Effort Reduction, 5 year closure, major restoration (~1.1m ‘units’), post-restoration effort 10% original.

### **Caveats and Notes**

- That relationship between shell and habitat suitable for recruitment is critical, and very uncertain.
  - Hard to estimate (statistically tricky).
  - No near-unfished data.
  - No measurements quantifying habitat change, only anecdotal.
- Relationship uncertain in 2 ways.
  - How “sharp” it is (affecting suddenness of success/failure).
  - Where inflection point is (here probably too conservative, why I did that).
- A much greater uncertainty looms—is it even habitat that matters?
  - Other things besides habitat can drive low survival (predation, disease, environmental).
  - Sometimes one thing changes a system and another sustains that change (cod).
  - Habitat is almost certainly a driver, doesn’t mean it’s the only one.
  - Note habitat and predation can be linked, that is expected.
  - See Johnson et al. 2022 for more detail on this.

### **Ed Indicated He Thinks Things Are Likely To Go As Follows:**

- He think it’s likely habitat is driver, but not proven.
- Restoration will be key for repaired fishery.
- Restoration may need to be more substantial than ever before.
- Effective restoration may bring back fishery quickly.

### **Take Home Points**

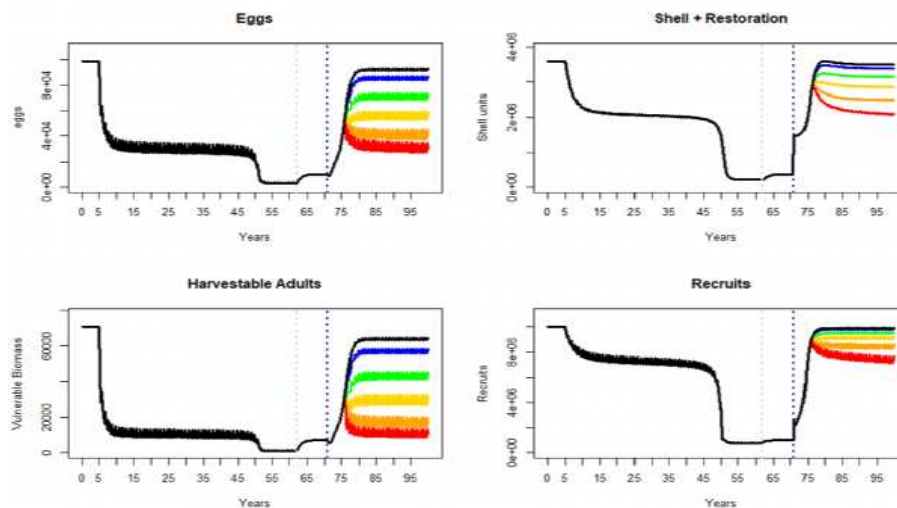
- It’s not surprising to see depensation in oysters.
  - Implies alternate stable states, very slow natural recovery.

- Potential evidence of depensation, alternate stable states in AB oysters.
  - Compatible, not conclusive.
- Depensatory shell dynamic parameter values critical and uncertain.
  - Threshold level—what’s minimum habitat “amount” needed.
  - Akin to minimum reef height from Colden et al. 2017.
- If believe assumptions, very possible to do a lot of restoration and not enough to bring back system.
  - Even with carefully controlled/managed effort.
  - Asymmetrical risk—much better to restore too much than too little.
- Likely critical amount or types of restoration, but we are not sure what they are.

### Simulation Results: Restoration and “Sustainable” Fishing

- Post-restoration effort 10% original.
- Post-restoration effort 20% original.
- Post-restoration effort 40% original.
- Post-restoration effort 60% original.
- Post-restoration effort 80% original.
- Post-restoration effort 100% original.
- Post-restoration effort 10% - 100% original.

#### *Post-Restoration Effort 10% - 100% Original*



### Interpretation of Simulation Results: Restoration and “Sustainable” Fishing

- More effort, fewer eggs, shell, recruits, oysters.
- Less oysters, less ecosystem services.
- More effort, more harvest though.
- Supposed to be looking at multiple metrics.
- Remember, “original” effort here is still quite low for ease of seeing results.
- 100% of original effort means effort used in start of simulation, not the heyday of AB effort.

### Sustainable Effort Take Home Points

- For a reef (or series of reefs):
  - IF the restoration is “successful.”
    - Oyster harvest will increase.



- Oysters (Ecosystem services) will increase.
- BUT trade-off between them—the more you increase one, the less you increase the other.
- AND high enough effort will eventually lead to another crash.

## **Simulation Results: Alternative Fisheries Management Options**

### **Post-Restoration Open Access Simulation Results**

- Post-restoration effort 10-100% original.
- Open access effort (let the market decide!).
  - ONLY applied to AFTER restoration.
    - Assume bioeconomic equilibrium—if you're making more money than you're spending, you're going oystering.
      - Some implications of opportunity costs.
      - Assumptions.
        - Cost=\$50/trip (maybe too low).
        - Price=\$90/bag (maybe too high).
        - Bag=300 mostly legal oysters (maybe too law-abiding?).
        - Fishers base decisions on last months oyster populations (assuming harvesters have some idea of oyster populations).

### **Active Harvest Simulation Results**

- Only applied to after restoration efforts.
- Rough process:
  - Assume management knows oyster populations each month (optimistic assumption).
  - Management sets percentage of legal oysters that can be harvested (e.g., 10%, like DE, or 30% like AL).
  - Management calculates the number of trips to get this **\*\*assuming\*\*** trips catch their bag limit.
- Remember, these models do not have stochasticity (randomness) in them! That means active harvest not as useful as it is in real world.

### **Simulation Results: Post-Restoration Active Harvest**

- Post-restoration active harvest management (10% legal oysters).
- Post-restoration active harvest management (20% legal oysters).
- Post-restoration active harvest management (20% legal oysters).

### **Sustainable Effort Take Home Points**

- Limited entry should be sustainable, IF reasonable levels.
- Open access would be expected to crash fishery, possibly soon (within a couple of decades).
- Active harvest management should be sustainable, IF good measurements and appropriate levels.
- Levels of limited entry and active harvest management present trade-offs.
  - More effort, more revenue - economic activity.
  - Also less oysters, ecosystem services, and greater chance of collapse.

### **Limitations of Model**

- Scaling—represents a small area of a single “bar.”
- No stochasticity—doesn't let random things go good or bad.
- These results will change some.
- Don't expect the general patterns to change a lot.

- Limited entry, active management, should be better than open access at keeping oysters around.
- Will be a trade-off between revenue from harvest and oyster ecosystem services, realized by how much effort is allowed.

### **Options for Future Modeling (Things to Work On)**

- Scaling and fit of simulations—larger reefs, fit to historical effort.
  - Increase confidence in “levels.”
  - Cannot overcome issues of uncertainty with respect to depensation.
- Stochasticity—adding random “noise” in.
  - Process, e.g., recruitment.
  - Fishing (maybe with open access?).
  - How management “sees” fishery (active harvest management).
- Spatially explicit structure (multiple bars at once).
  - Can be done, will take some time.
- Adding in a “put and take” fishery.
- More detailed “head to head” comparisons.
  - Implies precision we just do not have.

### **Summary of Questions, Responses, and Comments**

*(Note initials are only used to identify ABSI Team members and partners, presenters, and state agency representatives)*

- What about slugs of freshwater after a short closure to help with oyster abundance?
- EC: It would be unlikely to have a positive impact.
- Is the Bay spat limited? EC: This is complex, we do not know if Bay is spat limited. Hard to prove without a long term study.
- SB: The sigmoidal curve assumes no intervention to create habitat? EC: Yes, but this will be modeled later.
- Does spat (oysters) prefer the smooth inner part of shell? EC: The theory is that spat like smooth inner surface of articulated shells.
- Why are you putting depensatory shell dynamics into the models? EC: Based on research from previous papers, and we has used it to predict recruitment anomalies.
- Is it the shell that collapses first? EC: Yes, and then you lose your recruits.
- Would a good year (optimal rainfall) impact the simulation results? EC: not likely.
- There are some open and some closed areas in the Bay. Can this be incorporated into the model? EC: The model could eventually become spatially localized. JB: The oystermen indicated support for a summer closure. This should be incorporated into the model simulations.
- Replacement of shell could impact the outcomes? EC: Yes, and this will be covered.
- SB: How you do the restoration is important (height, material size and amount). EC: Yes, and this needs to be resolved.
- JB: A critical tipping point for restoration efforts could exist. Also, positive impacts may not be evident for a decade or longer. For example in the Chesapeake OysterFutures modeling of the scenarios agreed to by the stakeholders indicated that:
  - Strong positive benefits were not realized for 10 years;
  - Combining options led to the best overall performance;
  - After 20 years, harvest revenue could be twice that of annual public investments; and
  - After 20 years, there could be more than an 8-fold return on public investment for pollution reduction.

- EC: The model has a knob to increase natural mortality.
- ABSI should consider plans for shell recycling; can you look at closure then low effort? EC: The model shows that it doesn't come back. The model shows that system will not come back without restoration. Fabio is creating a user interface which allows changes in parameters.
- The Chesapeake seems to be recovering why? EC: The Bay collapse is much more extensive. JB: Chesapeake has been doing restoration and spat-on-shell for a long time, they also have had and continue to contend with major water quality issues. The two bays are not truly comparable.
- Could you add a perturbation (hurricane, drought) and look at the fishery and impacts of management? EC: Yes, this, can be done and adds value to the simulations. However, it must be truth-tested with existing historical data.
- What determines the steepness of the sigmoidal curve, and can this be changed? EC: sigmoidicity in this context is phenomenological, a complex set of factors could impact steepness.
- If you increase the extent of restoration, will this impact the length of time of the Bay closure? EC: It could shorten the time of limited entry, and this could be modeled if desired.
- Building randomness and spatial components in the model is critical.
- What happens if you change the steepness of the depensatory shell dynamics curve? EC: This can be easily done in a sensitivity analysis and will impact the outcomes.
- SB: Can you simulate the impact of replacing some harvested shell? EC: Yes, this could be done. The State apparently "owns" 50% of the shell harvested. This could be modeled in a put-and-take fishery scenario.
- Previous shelling was not added to the reefs but rather adjacent. The 2013 shell was placed directly on the reef. Fossilized shell was used later and subsequently dispersed.
- Is there a scientific or management reason to not put shell directly onto existing oyster reefs?
- It is critical to include in the CAB's recommendations where and when to put shell/cultch materials.

## **X. IDENTIFICATION OF NEXT SUITE OF SCENARIOS FOR MODEL SIMULATIONS**

### **Next Suite of Scenarios for Evaluation By the by the Fisheries (Socioecological) Model**

Based on Ed Camp's recommendations regarding what is currently feasible to model and the Cab's discussions, the CAB agreed to recommend the following scenarios for simulation by the Fisheries (Socioecological) Model for evaluation during the 30 November 2022 CAB meeting:

- Model a summer oyster fishery closure of June-August.
- New Scenario: Ongoing shelling and restoration (put and take).
- Stochasticity—adding randomness (events) to the model.
- Run a Sensitivity Analysis to change the slope of the Depensation Curve (Standard Deviation) to see what happens (shell dynamics oyster simulations - relationships).
- Combination of management strategies with above scenarios (i.e., active management, open fishery, limited entry, seasons)
- Work on improving model scaling.

### **Future Scenarios to Simulate:**

- Restoration approaches using data from the restoration projects and the restoration experiments and pilot projects (specific locations, size, height/spatial configurations, type of cultch material, density of cultch, etc.).
- A combination of limited entry and active management.

### **When the Model Can Be Extended to a Spatially Explicit Platform, Evaluate:**

- Opening and closing specific oyster bars and potentially even parts of specific oyster bars based on the metrics for sustainability of the resource (e.g., oyster density).
- Different scenarios with the Bay wide-open and various areas of the Bay closed.
- Develop and maintain one area of the Bay (e.g., Cat Point) for high intensity commercial oyster harvesting, and the rest of the Bay will be set aside as protected areas (MPA/Sanctuaries) to provide ecosystem services such as water filtration and marine species habitat, and also to provide brood stock/spat source for the system.
- Updated periodic oyster population evaluations are being conducted and used as the metric for how much and when harvesting is allowed.
- Total Allowable Catch (TAC) as a component of a limited entry and/or minimum density active managed scenarios.
- Seasonal closures.
- Consider the size, spatial configuration, amount and location for oyster reef habitat restoration initiatives.

Much of the above will require adding some larval transport and dispersal assumptions to spatially explicit modeling.

### ***CAB Action:***

The Facilitator tested whether the CAB supported and agreed with the assumptions and parameters used in Ed Camp's Ecological Model. The CAB unanimously indicated their support for the same.

*(Attachment 7 — Prioritized Restoration and Management Strategies)*

### **Summary of Questions, Responses, and Comments**

*(Note initials are only used to identify ABSI Team members and partners, presenters, and state agency representatives)*

- Can you simulate impact of effort on slope of the curve? EC: This cannot be done precisely, but can be done to provide a reasonable answer. This will show how much effort the system can tolerate without significant loss of shell.
- If we are talking about decades, should we be taking into account long term climate changes as well as stochastic events? EC: We can model with randomness increasing over time to account for this.

## **XI. PUBLIC COMMENT**

The facilitator invited members of the public to provide comments.

### ***Public Comments:***

- *Wayne Williams, Oysterman:* Oystermen won't harvest unless there are oysters to harvest, and they won't overharvest. The market and the good judgement and knowledge of the oystermen should drive management of the oyster fishery. The entire Bay should be reopened to allow this to happen.

## **XII. NEXT MEETING OVERVIEW AND ISSUES**

The 30 November 2022 meeting will conclude Phase IV and focus on ABSI science and data collection and decision support tools updates, FWC NFWF Stage 2 restoration update, sub-committee reports, the review and discussion of model simulation results for priority Fisheries Management (Goal B) scenarios (combinations of strategies/options), and agreement on the next suite of scenarios for model simulations.

### **NEXT STEPS AND AGENDA ITEMS**

- There will be an Oystermen's Workshop from 6:00 – 8:00pm on October 18, 2022 at ANERR.
- There will be a Community Workshop from 6:00 – 8:00pm on October 19, 2022 at the Eastpoint Firehouse.
- Review of updated Workplan and Meeting Schedule.
- Science and data collection, and restoration project updates.
- Subcommittees and Working Group updates.
- Review and discussion of Fisheries (Socioecological) model simulation results for draft priority Fisheries Management (Goal B) strategies.
- Agreement on next suite of scenarios for Fisheries Model simulations.
- Public Comment.

### **MEETING CHAT COMMENTS**

Meeting participants were able to provide comments during the meeting through the on-line Chat function. The results are compiled and included as *Attachment 5* of this Summary Report.

*(Attachment 5 — Meeting Zoom Chat Summary)*

### **MEETING EVALUATION AND ONLINE SURVEY RESULTS**

The CAB members were requested to complete a meeting evaluation. The results are compiled and included as *Attachment 6* of this Summary Report.

*(Attachment 6 — Meeting Zoom Poll and Written Evaluation Results)*

### **ADJOURNMENT**

The Facilitator thanked CAB members, ABSI Project Team members, and the public for their participation, and adjourned the meeting at 2:30 PM on Tuesday, October 18, 2022.

**ATTACHMENT 1**  
**KEY TO COMMON PROJECT ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>DEFINITION</b>
ABS	Apalachicola Bay System
ABSI	Apalachicola Bay System Initiative
ACFS	Apalachicola-Chattahoochee-Flint Stakeholders
ANERR	Apalachicola National Estuarine Research Reserve
CAB	Community Advisory Board (ABSI)
County	Franklin County
DACS or FDACS	Florida Department of Agriculture and Consumer Services
DEP or FDEP	Florida Department of Environmental Protection
DOH or FDOH	Florida Department of Health
EPA	U.S. Environmental Protection Agency
FDOT	Florida Department of Transportation
FSU	Florida State University
FSUCML	Florida State University Coastal and Marine Laboratory
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	FWC Fish and Wildlife Research Institute
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWFWMD	Northwest Florida Water Management District
Plan	Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan
RESTORE	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast Act of 2012
RCSG	Riparian County Stakeholder Coalition
RPC	Regional Planning Council
SAB	Science Advisory Board (ABSI)
SAV	Submerged Aquatic Vegetation
TNC	The Nature Conservancy
TRIUMPH	Triumph Gulf Coast, Inc.
UF	University of Florida
UWF	University of West Florida

**ATTACHMENT 2**  
**MEETING PARTICIPATION LIST**

MEMBER	AFFILIATION
<b>AGRICULTURE/ACF STAKEHOLDERS/RIPARIAN COUNTIES</b>	
1. <b>*Chad Taylor</b>	Riparian County Stakeholder Coalition/ACF Stakeholders/Agriculture
<b>BUSINESS/REAL ESTATE/ECONOMIC DEVELOPMENT/TOURISM</b>	
2. <b>Chuck Marks</b>	Business (Insurance Industry)
3. <b>Mike O'Connell</b>	SGI Civic Club/SGI 2025 Vision
<b>ENVIRONMENTAL/CITIZEN GROUPS</b>	
4. <b>Georgia Ackerman</b>	Apalachicola Riverkeeper
5. <b>Chad Hanson</b>	The Pew Charitable Trusts
6. Katie Konchar	The Nature Conservancy (TNC)
<b>LOCAL GOVERNMENT</b>	
7. <b>Anita Grove</b>	Apalachicola City Commissioner
<b>RECREATIONAL FISHING</b>	
8. <b>Frank Gidus</b>	CCA Florida
<b>SEAFOOD INDUSTRY</b>	
9. <b>Shannon Hartsfield</b>	Seafood Management Assistance, Resource Recovery Team and Oysterman
10. <b>Gayle Johnson</b>	Apalachicola Oyster Company
11. <b>Steve Rash</b>	Water Street Seafood
12. TJ Ward	Buddy Ward & Sons Seafood
<b>STATE GOVERNMENT</b>	
13. <b>Jenna Harper</b>	ANERR/DEP
14. <b>Katie Konchar</b>	FWC Division of Habitat and Species Conservation
15. Alex Reed	FDEP Office of Resilience & Coastal Protection
16. <b>Devin Resko</b>	FWC Division of Marine Fisheries Management
17. *Portia Sapp	FDACS Division of Aquaculture
18. <b>Paul Thurman</b>	NFWFMD
<b>UNIVERSITY/RESEARCHERS/SCIENTISTS</b>	
19. Mike Allen	Scientist: Director of UF/IFAS Nature Coast Biological Station (NCBS)
20. Erik Lovestrand	UF/IFAS/Florida Sea Grant/Franklin County Extension
<b>The names of CAB members attending the meeting are indicated in bold font.</b>	
<b>*CAB members who participated virtually are indicated in red font.</b>	
<i>* Members whose designated alternates participated for them.</i>	

PROJECT TEAM AND CAB FACILITATOR	
FLORIDA STATE UNIVERSITY	
<b>Sandra Brooke</b>	Marine Biologist
<b>Ross Ellington</b>	Professor Emeritus of Biological Science
<b>Madelein Mahood</b>	Outreach and Education
<b>Joel Trexler</b>	FSUCML Director
FACILITATED SOLUTIONS, LLC	
<b>Jeff Blair</b>	Community Advisory Board Facilitator
<i>The names of Project Team members participating in the meeting are indicated in bold font.</i>	
<i>*Team members who participated virtually are indicated in red font.</i>	

ALTERNATES FOR CAB MEMBERS	
Alternate	CAB Member
<b>Ken Jones</b>	Chad Taylor
<b>Carrie Jones</b>	Portia Sapp
<i>The names of CAB member's alternates participating in the meeting are indicated in bold font.</i>	

MEMBERS OF THE PUBLIC	
1. <i>Cameron Baxley</i>	Apalachicola Riverkeeper
2. <i>Fabio Caltabellota</i>	Florida State University (FSU)
3. Ed Camp	University of Florida (UF)
4. <i>Cheryl Carr</i>	No Affiliation Offered
5. Will Casola	UF
6. Jared Fuqua	FSU ABSI Outreach and Education
7. <i>Laura Geselbracht</i>	TNC
8. Kennedy Hanson	ANERR
9. Steve Leitman	FSU
10. <i>Betsy Mansfield</i>	Florida State University (FSU)
11. <i>Nathan Palardy</i>	UF
12. <i>Wayne Williams</i>	Oystermen
<i>*The names of members of the public attending virtually are italicized.</i>	



**ATTACHMENT 3**  
**18 OCTOBER 2022 MEETING AGENDA**

**ABSI COMMUNITY ADVISORY BOARD MEETING OBJECTIVES**

- ✓ To Approve Regular Procedural Topics (Meeting Agenda and Summary Report)
- ✓ To Review Updated Workplan and Meeting Schedule
- ✓ To Receive Science and Data Collection, and Restoration Updates
- ✓ To Receive Reports from RFWG, Community Outreach, and CAB Successor Group
- ✓ To Review Fisheries Model Scenario Simulation Results and Acceptability Rate Scenarios as Needed
- ✓ To Identify and Agree on the Next Suite of Scenarios, New Scenarios, and Combinations for Modeling
- ✓ To Identify Next Steps: Information, Presentations, Assignments, Agenda Items for Next Meeting

**ABSI COMMUNITY ADVISORY BOARD AGENDA**

*All Agenda Times—including Public Comment and Adjournment—are Approximate and Subject to Change*

1)	8:30 AM	<b>WELCOME AND ROLL CALL</b>
2)	8:35	<b>SOCIAL SCIENCE SURVEY</b>
3)	8:40	<b>AGENDA REVIEW AND MEETING OBJECTIVES</b>
4)	8:45	<b>APPROVAL OF FACILITATOR'S SUMMARY REPORT (July 27, 2022)</b>
5)	8:50	<b>REVIEW OF UPDATED PROJECT MEETING SCHEDULE AND WORKPLAN</b>
6)	9:00	<b>SCIENCE AND DATA COLLECTION, AND RESTORATION UPDATES</b> <ul style="list-style-type: none"> <li>• <i>ABSI Science and Data Collection Update.</i> Sandra Brooke, FSUCML (15)</li> <li>• <i>FWC (NFWF Phase 2) Restoration Project Update.</i> Devin Resko, FWC (15)</li> </ul>
7)	9:30	<b>WORKING GROUP AND SUBCOMMITTEE UPDATES</b> <ul style="list-style-type: none"> <li>• <i>Successor Group Subcommittee Update.</i> Anita Grove and Shannon Hartsfield (Pending)</li> <li>• <i>Restoration Funding Working Group Update.</i> Joel Trexler (5)</li> <li>• <i>Community Outreach Subcommittee Update.</i> Chad Hanson (10)</li> </ul>
8)	9:45	<b>OVERVIEW, DISCUSSION, AND ACCEPTABILITY RATING OF THE RESULTS OF SCENARIOS (STRATEGIES) SIMULATED (MODELED) WITH THE FISHERIES MODEL</b>
<b>~10:00 AM</b>		<b>BREAK</b>
8)	10:15	<b>OVERVIEW, DISCUSSION, AND ACCEPTABILITY RATING OF THE RESULTS OF SCENARIOS (STRATEGIES) SIMULATED (MODELED) WITH THE FISHERIES MODEL — CONTINUED</b>
<b>~12:00 PM</b>		<b>LUNCH — ON CAMPUS</b>
8)	12:30	<b>OVERVIEW, DISCUSSION, AND ACCEPTABILITY RATING OF THE RESULTS OF SCENARIOS (STRATEGIES) SIMULATED (MODELED) WITH THE FISHERIES MODEL</b>
9)	1:00	<b>IDENTIFICATION OF SCENARIOS FOR NEXT ROUND OF MODELING INCLUDING: COMBINATIONS OF SCENARIOS, NEW SCENARIOS, AND ANY SCENARIOS TO BE REMOVED FROM FURTHER EVALUATION</b>
10)	~2:10 PM	<b>PUBLIC COMMENT — THREE MINUTES PER PERSON</b>
11)	~2:25	<b>ACTION ITEMS AND AGENDA ITEMS FOR NEXT MEETING (Nov. 30, 2022)</b> <ul style="list-style-type: none"> <li>• Review of Action Items and Assignments from Meeting</li> <li>• Identify Agenda Items, Presentations, and Information Needs for Next Meeting</li> <li>• Complete Meeting Evaluation</li> </ul>
<b>~2:30 PM</b>		<b>ADJOURN</b>

**ATTACHMENT 4**  
**WORKPLAN, SCHEDULE, AND PROJECT FLOWCHART AND MAP**

**UPDATED AS OF THE 18 OCTOBER 2022 CAB MEETING**

**PHASE I (2019) — STANDING UP AND ORGANIZATION OF THE ABSI CAB — *Status Complete***  
*May 2019 – December 2019 (Assessment Process, Questionnaire, and 2 CAB Meetings)*

**PHASE II (2020) — SCOPING OF ISSUES, IDENTIFICATION OF PERFORMANCE MEASURES & STRATEGIES — *Status Complete***  
*Jan. 2020 – Dec. 2020 (7 CAB Meeting & 1 Oystermen’s Workshop)*

**PHASE III (2021) — BUILDING CONSENSUS ON CAB RECOMMENDATIONS FOR THE ABS ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN**  
**Adoption of Final Draft Management and Restoration Plan Framework for Phase IV Evaluation — *Status Complete***  
*Jan. 2021 – Nov. 2021 (7 CAB Meeting & 2 Oystermen’s Workshops)*

**PHASE IV (2022) — EVALUATION OF DRAFT ADAPTIVE MANAGEMENT AND RESTORATION PLAN FRAMEWORK’S RESTORATION AND MANAGEMENT STRATEGIES, RESTORATION PROJECTS SELECTION AND IMPLEMENTATION, AND FUNDING PLANNING — *Status Initiated***  
*Dec. 2021 – Dec. 2022 (6 CAB Meetings, Public Workshops)*

**PHASE V (2023) — EVALUATION AND FINALIZATION OF RECOMMENDATIONS FOR INCLUSION IN THE ABS ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN, RESTORATION PROJECTS SELECTION AND IMPLEMENTATION, AND FUNDING PLANNING — *Status Pending***  
*Jan. 2023 – Dec. 2023 (6 CAB Meetings, Public Workshops)*

**COMMUNITY ADVISORY BOARD (CAB).** The CAB initiated Phase IV in December of 2021 and is currently evaluating the best combination of strategies (scenarios) predicted to achieve restoration and management objectives for the Bay using decision support tools including predictive socio-economic and ecological models coupled with available and emerging data and research. The scenarios are being evaluated with the overarching goal of restoring oyster reef habitat to a level that can sustainably provide needed ecosystem services for the System, and concurrently provide for a sustainable and economically viable level of commercial oyster harvesting. During the course of the project the CAB will vet their recommendations with restoration and management agencies to gauge support and feasibility for implementation. The CAB will evaluate the priority and efficacy of scenarios and associated actions and identify specific recommended restoration projects and management approaches for inclusion in the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (Plan). The CAB will vote to approve their package of consensus recommendations during their November 2023 meeting. *Status Initiated*

1. **COMMUNITY OUTREACH SUBCOMMITTEE - PUBLIC ENGAGEMENT IN 2022.** The CAB working through the Community Outreach Subcommittee initiated a community feedback initiative by providing information and seeking community input on the Plan Framework. The CAB will vet the results of their prioritized strategies with the larger ABS community through multiple forums including questionnaires administered through a variety of methods including Facebook, online via the ABSI website, and direct mailings. In addition, public workshops will be conducted in various locations to provide the Community with information on ABSI and solicit community feedback.

*Status Initiated*

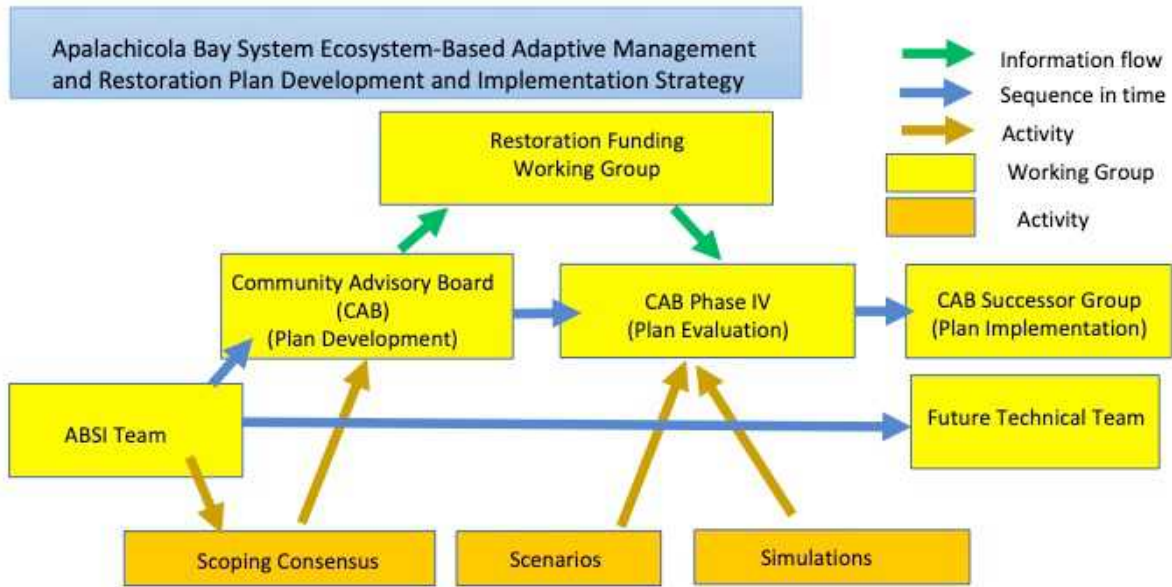
2. **RESTORATION FUNDING WORKING GROUP (RFWG).** Initiated in late 2021 the Restoration Funding Working Group’s role is to seek resources and political, governmental, and organizational support for the CAB’s priority recommendations. *Status Initiated*
3. **CAB SUCCESSOR GROUP.** The CAB Successor Group will be ready to convene when the CAB completes their work on the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan. The Successor Group’s role will be to organize a group of key stakeholders committed to working collaboratively for the long-term, once the CAB process is complete and to ensure that the Plan is implemented, monitored, and adaptively managed over time and has the support of the Community. The CAB Successor Group process will formally initiate January 2024. *Status Organizing. Formal Initiation Pending Approval of Recommendations for Plan in November 2023.*

<b>Meeting 1.</b> Virtual	<b>Jan. 26, 2022</b> <ul style="list-style-type: none"> <li>• Review of Predictive Models</li> </ul>	Initiation of Phase IV of ABSI.
<b>Meeting 2.</b> ANERR	<b>Mar. 30, 2022</b> <ul style="list-style-type: none"> <li>• Fisheries (Socioecological) Model Guidance</li> <li>• Management Strategies discussion with FWC</li> </ul>	ABSI Science and data collection update. Sub-committee reports. Public Engagement Initiative strategy and plan discussion and approval of approach. Guidance regarding restoration and management scenarios and performance measures for development of the Fisheries (Socioecological) Model. Comprehensive review and discussion on draft management strategies with FWC Division of Marine Fisheries Management. Public comment.
<b>Meeting 3.</b> ANERR	<b>May 25, 2022</b> <ul style="list-style-type: none"> <li>• Presentations and discussions on restoration approaches</li> <li>• Discussion with FWC/DEP/ANERR on restoration strategies</li> </ul>	ABSI science and data collection and decision support tools update. Sub-committee reports and public engagement initiative update. Chesapeake Bay Oyster Management and Habitat Restoration Modeling presentation, and Alabama Management and Restoration Approach presentation. Comprehensive review and discussion on draft restoration approaches (strategies), and CAB discussion and feedback from FWC Division of Habitat and Species Conservation, FWC Division of Marine Fisheries, ANERR, and DEP Office of Resilience & Coastal Protection on proposed ABSI restoration scenarios (strategies). Public comment.
<b>Meeting 4.</b> ANERR	<b>July 27, 2022</b> <ul style="list-style-type: none"> <li>• FWC NFWF restoration project</li> <li>• Oyster abundance index data</li> <li>• Fisheries model simulation results &amp; scenarios refinements</li> </ul>	Sub-committee reports and public engagement initiative update. Update on FWC (NFWF funded) restoration project. Discussion on approach for encouraging protection and enforcement of restoration and restoration experiment sites. Overarching Considerations for model simulation results briefing. Apalachicola Bay oyster abundance index data presentations. Review and discussion of Fisheries (Socioecological) Model simulation results for initial priority Fisheries Management (Goal B) scenarios (strategies/options). Agreement on next suite of scenarios for Fisheries Model simulations. Public comment.

<b>Meeting 5.</b> ANERR	<b>Oct. 18, 2022</b> • Fisheries Model Simulation Results & Scenarios Refinements	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>Oystermen’s Community Workshop 1</b>	<b>October 18, 2022</b> ANERR	Oystermen’s Feedback on ABSI Restoration Experiments, FWC Restoration Project, and Potential Management Scenarios for Modeling.
<b>Community Workshop 2</b>	<b>October 19, 2022</b> Eastpoint Firehouse	Community Feedback on ABSI Restoration Experiments, FWC Restoration Project, and Potential Management Scenarios for Modeling.
<b>Meeting 6.</b> ANERR	<b>Nov. 30, 2022</b> • Fisheries Model Simulation Results & Scenarios Refinements	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>PHASE V CAB MEETINGS — 2023</b>		
<b>Meeting 1.</b> ANERR	<b>Feb. 1, 2023</b> • Fisheries Model Simulation Results & Scenarios Refinements	Initiation of Phase V of ABSI. ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>Meeting 2.</b> ANERR	<b>April 12, 2023</b> • Fisheries Model Simulation Results & Scenarios Refinements	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>Community Workshop 1</b>	<b>April 12, 2023</b> ANERR 6:00pm – 8:00pm	Community Input on ABSI Restoration Experiments, FWC Restoration Project, and Potential Management Scenarios for Modeling.
<b>Meeting 3.</b> ANERR	<b>May 31, 2023</b> • Fisheries Model Simulation Results & Scenarios Refinements	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Community Workshop input. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations.

		Public comment.
<b>Meeting 4.</b> ANERR	<b>July 26, 2023</b> <ul style="list-style-type: none"> <li>Fisheries model simulation results &amp; scenarios refinements</li> </ul>	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>Community Workshop 2</b>	<b>July 26, 2023</b> ANERR 6:00pm – 8:00pm	Community Input on the CAB’s recommendations for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan.
<b>Meeting 5.</b> ANERR	<b>Sept. 27, 2023</b> <ul style="list-style-type: none"> <li>Fisheries Model Simulation Results &amp; Scenarios Refinements</li> </ul>	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Community Workshop input. Review and discussion of Fisheries Model simulation results for revised priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) scenarios. Agreement on next suite of scenarios for model simulations. Public comment.
<b>Community Workshop 3</b>	<b>October 24, 2023</b> ANERR 6:00pm – 8:00pm	Community Input on the CAB’s recommendations for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan.
<b>Meeting 6.</b> ANERR	<b>Nov. 29, 2023</b> <ul style="list-style-type: none"> <li><b>Adopt Final CAB Recommendations for ABS Plan</b></li> </ul>	ABSI science and data collection and restoration project updates. Sub-committee reports and public engagement initiative update. Review and discussion of Community Workshop input. Finalize and adopt recommendations for strategies and actions (components) for inclusion in the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (Plan) and submit to FSUCML. Public comment.

# ABSI CAB PROCESS FLOWCHART AND PROJECT AREA MAP



**Notes**

1. Yellow boxes are groups of people. Blue arrows connecting yellow boxes indicate some or all of the people in one group may comprise the next group in time sequence



*ABSI Project Area Map*

ATTACHMENT 5  
MEETING CHAT SUMMARY (ZOOM)

**MEETING CHAT – 18 OCTOBER 2022**

- 08:45:38 **Laura Geselbracht:** Thank you and Good Morning all!
- 10:15:31 **Maddie Mahood:** Thanks everyone! See you at 10:30.
- 1:48:15 **Wayne Williams:** I would like to speak at the end please.
- 1:49:00 **Maddie Mahood:** Thanks Wayne! I will make sure you are heard when it is time for the public comments.
- 1:49:41 **Wayne Williams:** Thank you.
- 2:00:03 **Maddie Mahood:** Thank you everyone for attending this meeting! Please answer the following questions, feel free to DM me directly. Thanks!

## ATTACHMENT 6

### MEETING EVALUATION RESULTS (ZOOM POLL AND WRITTEN POLL RESULTS)

CAB Members used a 5-point polling scale where a 1 meant “Strongly Disagree” and a 5 meant “Strongly Agree.” The evaluation summary reflects average rating scores and comments from respondents participating virtually.

There were 8 hard copy end of meeting survey questions (Evaluations) completed, and 3 completed virtually.

**1.) The meeting objectives were clearly communicated at the beginning**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.7	8	3	0	0	0

**2.) The meeting objectives were met.**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.7	8	3	0	0	0

**3.) The presentations were effective and informative.**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.8	9	2	0	0	0

**4.) The facilitation of the meeting was effective for achieving the stated objectives**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.7	8	3	0	0	0

**5.) Follow-up actions were clearly summarized at the end of the meeting**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.7	8	3	0	0	0

**6.) The facilitator accurately documented CAB Member input**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.7	8	3	0	0	0

**7.) The meeting was the appropriate length of time.**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.6	7	4	0	0	0

**8.) CAB Members had the opportunity to participate and be heard.**

Average Rating of 5	5. Strongly Agree	4. Agree	3. Neutral	2. Disagree	1. Strongly Disagree
4.8	9	2	0	0	0

**Open Ended Survey Questions – Virtual Responses**

- Thanks Ed (Camp)!! Great job!!



## ATTACHMENT 7

### GLOSSARY OF MODELING TERMS

**Assumptions** – A description of the world that is accepted as true and is based on common knowledge or theory but not on proof.

**Baseline** – Model output that is used as a starting point for comparison with other sets of model output.

**Calibration** – Process of adjusting model inputs or parameters to obtain optimal agreement between model output and observations (data).

**Circulation/Hydrodynamic Model** – A mathematical tool that calculates water currents and water properties (like salinity and temperature).

**Data Gap** – The lack of data or information necessary for a given scientific study.

**Data Set** – A collection of observations or measurements.

**Deviation** – The difference between a data point and a model prediction.

**Fishery-Dependent Data** – Data collected directly on a fish or fishery from commercial or sport fishermen and seafood dealers.

**Fishery-Independent Data** – Characteristic of information (e.g. stock abundance, index) or an activity (e.g. research vessel survey) obtained or undertaken independently of the activity of the fishing sector.

**Hypothesis** – An idea that can be tested.

**Larval Transport** – The movement of oyster larvae in the water.

**Model** – A series of mathematical equations that describes, with great simplification, how a part of the world works.

**Model Output/Model Result** – A solution or a set of solutions obtained from a model simulation.

**Performance Measure/Metric** – A number used to indicate the effectiveness of an option for achieving a desired outcome.

**Population Dynamics** – The growth, death, and reproduction of individuals over time that leads to increase, decrease, persistence or extinction of a population.

**Simulations** – Repeated runs of a model using different inputs (e.g., different options).

**Uncertainty** – A way to represent how likely model predictions are given the inherent variability in the environment and the difference between model output and observations.

**Validation** – Comparison of model output with a set of independent data to determine the degree of confidence in model results.

**Water Quality** – Describes the physical, chemical, biological, and aesthetic characteristics of water and is a measure used to determine the suitability of water for a specific purpose (e.g., drinking, fishing, swimming, etc.).

## ATTACHMENT 8

### GLOSSARY OF ABSI PROJECT TERMS AND DEFINITIONS

**APALACHICOLA BAY SYSTEM:** Consists of six bays: Apalachicola Bay, East Bay, St Vincent Sound, East and West St George Sound, and Alligator Harbor comprising a total of 155,374 acres (62,879 Ha). Confined to Franklin County and ending to the north at river mile zero (0). Important considerations include riverine and offshore inputs to the ABS as well as the reciprocal influences of outputs from the ABS to the Gulf of Mexico.

**APALACHICOLA BAY SYSTEM, HEALTHY:**

A healthy ecosystem is one in which material and energy flows are balanced through interacting biological, physical, and chemical processes (involving microorganisms, plants, animals, sunlight, air, water) that conserve diversity, support fully functional evolutionary and ecological processes, and sustain a range of ecological and ecosystem services.

**ECOSYSTEM SERVICES:** The direct and indirect contributions of ecosystems to human wellbeing. These services include **provisioning services** (food, raw materials, fresh water, medicinal resources), **regulating services** (climate, air quality, carbon sequestration & storage, moderation of extreme events, waste water treatment, erosion prevention & maintenance of soil fertility), **habitat or supporting services** (habitat for all species, maintenance of genetic diversity), and **cultural services** (recreation for mental & physical health; tourism; aesthetic appreciation and inspiration for culture, art & design; spiritual experience & sense of place).

**ESTUARINE METRICS:** These are variables that can be measured and used to assess the benefits or impacts of the different upstream management and climate scenarios that influence freshwater flow into the ABS.

**GOAL:** A goal is a statement of the project’s purpose to move towards the vision expressed in fairly broad language.

**GUIDING PRINCIPLES:** The Community Advisory Board’s Guiding Principles reflect the broad values and philosophy that guides the operation of the Community Advisory Board and the behavior of its members throughout its process and in all circumstances regardless of changes in its goals, strategies or membership.

**OBJECTIVE:** Objectives describe in concrete terms how to accomplish the goal to achieve the vision within a specific timeframe and with available resources. (*E.g., by 2023, the State of Florida will have approved a stakeholder developed Ecosystem-Based Adaptive Management and Restoration Plan for the Apalachicola Bay System.*)

**OUTCOME:** Outcomes describe the expected result at the end of the project period – what is hoped to be achieved when the goal is accomplished. (*E.g., an ecologically, and economically viable, healthy and sustainable Apalachicola Bay System oyster fishery and ecosystem*)

**OYSTER RESOURCES:** Sources of oysters that provide natural and cultural benefits to humans. These sources can come from the wild or from aquaculture (see ecosystem services). The responsible management of oyster resources for present-day needs and future generations requires integrated approaches that are place-based, embrace systems thinking, and incorporate the social, economic, and environmental considerations of sustainability.

**PERFORMANCE MEASURES:** The regular measurement of outcomes and results, which generates reliable data on the effectiveness, efficiency, and sustainability of programs and plans.

**RESTORATION:** The process of establishing or re-establishing a habitat that in time can come to closely resemble a natural condition in terms of structure and function.

**STAKEHOLDERS:** All interest groups whether public, private or non-governmental organizations who have an interest or concern in the success of a project and can affect or be affected by the outcome of any decision or activity of the project. For purposes of the Apalachicola Bay System Initiative, stakeholders include but are not limited to agriculture, silviculture, business, real estate, economic development, tourism, environmental, citizen groups, recreational fishing, commercial seafood industry, regional groups (i.e., ACF Stakeholders, and Riparian Counties), local government, state government, federal government, universities, and research interests.

**STRATEGY:** A method, action, plan of action, or policy that can be tested to determine whether it solves a problem and helps to achieve objectives and goals in the context of bringing about a desired future for the Apalachicola Bay System.

**VISION:** An idealized view of where or what the stakeholders would like the oyster resource and ecosystem to be in the future.

**VISION THEMES:** The related key topical issue area strategies that characterize the desirable future for the oyster resource and ecosystem. The Vision Themes establish a framework for goals and objectives. They are not ordered by priority.

## ATTACHMENT 9

### PRIORITY OF RESTORATION (GOAL A) AND MANAGEMENT STRATEGIES (GOAL B) A COMPONENT OF THE ABSI PLAN FRAMEWORK — ADOPTED 16 NOVEMBER 2021

#### PRIORITY OF STRATEGIES BY GOAL AREA

ALL STRATEGIES WITHIN EACH PRIORITY LEVEL (1 – 3) ARE OF EQUAL PRIORITY AND WILL BE IMPLEMENTED BASED ON A LOGICAL SEQUENCING

#### Priority 1 Strategies (Prioritization ranking from 10 to 8) = Important To Do Now

GOAL A (RESTORATION)	GOAL B (MANAGEMENT)
<p>1.) Restore and create reef structures suitable for sustained oyster settlement that enhance ecosystem services in designated restoration areas. (#1 – 9.6) <i>(#1 overall rank for Goal A – 9.6 mean/average)</i></p>	<p>1.) Evaluate a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster fishery as measured in relation to relevant performance metrics for determining success. (#1 – 9.3) <i>(#1 overall rank for Goal B – 9.3 mean/average)</i></p>
<p>2.) Use experimental evidence and habitat suitability analyses to determine the most suitable substrate (e.g., limestone, granite, spat-on-shell, artificial structures) for restoring, enhancing, and/or developing new reef structures that will increase productivity in the Apalachicola Bay oyster ecosystem. (#2 - 8.7)</p>	<p>2.) Recommend specific criteria and/or conditions, with related performance measures for the reopening of Apalachicola Bay to limited wild oyster harvesting. (#2 – 9.0)</p>
<p>3.) Determine area (acres or km<sup>2</sup>) of oyster reefs that currently support live oysters as well as the area needed to ensure sufficient spat production that will support sustainability of oyster reefs and sustainability of a wild oyster fishery throughout the ABS. (#3 - 8.6)</p>	<p>3.) Conduct an oyster stock assessment for the ABS with periodic updates. (#3 – 8.8)</p>
<p>4.)<sup>^</sup> Develop criteria for restoring specific reefs or reef systems damaged by environmental conditions or natural disasters. (#4 – 8.2)</p>	<p>4.) Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and the recovery of oyster populations. (#4 – 8.75)</p>
<p>5.)<sup>^</sup> Identify monitoring needs for assessing the health of oyster populations (including disease), and detecting changes in environmental conditions and habitat quality (for oysters and other reef-associated species) over time. (#4 – 8.2)</p>	<p>5.) Work with FWC Law Enforcement to develop enforcement strategies and appropriate penalties sufficient to deter harvest or sale of undersized oysters as well as violations that harm wild or leased oyster reefs and other natural resources, and that will support restoration efforts in the ABS. (#5 – 8.6)</p>
<p><sup>^</sup>Priority #4 and #5 above received the same ranking.</p>	<p>6.) Evaluate the development of a policy that would require setting sustainable harvest goals and placing limitations on or a complete closure to harvesting based on the results of data (e.g., stock assessment) collected and evaluated under a comprehensive monitoring program designed to sustainably manage the resource. (#6 – 8.5)</p>
	<p>7.) Restore and create reef structures suitable in size, location, and substrate type for healthy and sustainable oyster settlement and production, and harvesting. (#7 – 8.3)</p>

<b>Priority 2 Strategies (Prioritization ranking from 7 to 5) = Important But Less Time Sensitive</b>	
<b>GOAL A</b>	<b>GOAL B</b>
6.) Develop ecosystem models that forecast future environmental conditions and oyster population status. (#6 – 7.2)	8.) Recommend policies and actions that retain and recycle shell for habitat replenishment in the ABS. (#8 – 7.7)
7.) Assess existing ecosystem services metrics used for other oyster studies and develop a list of ABSI specific metrics to assess change over time. (#7 – 6.7)	9.) Use decision-support tools to develop a system of potential closed areas that are well defined in terms of size, location, and longevity and include rotational and seasonal harvest areas, as well as long-term closed areas in strategic locations to provide habitat for year-round protection for brood stock and enhanced spawning opportunities. (#9 – 7.6)
	10.) Use ecological quantitative modeling and other decision support tools to evaluate strategies and actions, and define performance criteria for an oyster population that can sustain a pre-determined level of wild oyster harvest, with a stipulated number of harvesters (limited entry), and protocols to ensure sustainability. (#10 – 7.5)
	11.) Work with FDACS to ensure that oyster aquaculture practices and locations in the Bay are compatible with the goals and strategies for restoration and management of the ecosystem and are compatible with a wild fisheries and the important cultural role of a working waterfront and seafood industry. (#11 – 6.8)
	12.) Investigate oyster shell and oyster relay programs to move both cultch and live oysters to more favorable habitat (relay programs are recommended to only be used for restoration experiments). (#12 – 5.9)
<b>Priority 3 Strategies (Prioritization ranking from 4 to 1) = As Time and Resources Allow</b>	
<b>GOAL A</b>	<b>GOAL B</b>
8.) Seagrass and other SAV, and wetland and riparian habitat should be restored concurrently on appropriate substrate/bottom to work synergistically with oyster habitat restoration to enhance restoration of the ABS. (#8 – 4.73)	

**ATTACHMENT 10**  
**STAKEHOLDER RESOURCES IN SUPPORT OF ABSI**

**STAKEHOLDER RESOURCES AVAILABLE AND COLLABORATION INITIATIVES**  
**IN SUPPORT OF ABSI — UPDATED 16 NOVEMBER 2021**

<b>ORGANIZATION</b>	<b>RESOURCES AVAILABLE AND COLLABORATION INITIATIVES</b>
Riparian County Stakeholder Coalition (RCSC)	<ul style="list-style-type: none"> <li>• Staff assistance (Ken Jones, coordinator and engineer).</li> <li>• Request funds from the 6 RCSC counties for funding specific stipulated projects.</li> <li>• Established working stakeholder relationships including working with the Apalachicola-Chattahoochee-Flint Stakeholders (ACFS) group on a Sustainable Water Management Plan for the equitable distribution of water to the Basin.</li> <li>• Collaborating with the ABSI on water flow metrics development in the Basin.</li> <li>• Working with stakeholders including Tri-Rivers Commission on navigation issues for the tri-rivers region (ACF).</li> </ul>
Florida Fish and Wildlife Conservation Commission (FWC)	<ul style="list-style-type: none"> <li>• Implementing Bay oyster restoration project funded by NFWF.</li> <li>• Potential funding for future smaller restoration projects.</li> <li>• Restoration design and monitoring assistance.</li> <li>• Collaborating with the ABSI on water flow metrics development in the Basin.</li> <li>• Science, data, and research support.</li> </ul>
City of Apalachicola	<ul style="list-style-type: none"> <li>• Committed to serving on the ABSI CAB for at least 4 more years to help guide the development of the Bay Management Plan.</li> <li>• Help with convening the CAB Successor Group that will help oversee the implementation of the Bay Management Plan.</li> <li>• Agree to uphold current local regulations that help ensure Apalachicola Bay is free of pollution and allows commercial fishermen to use city boat ramps to access the water.</li> </ul>
Apalachicola Riverkeeper	<ul style="list-style-type: none"> <li>• Nimble and can move fast to take action as needed.</li> <li>• Assist with public outreach initiatives including meeting with and educating stakeholders on issues.</li> <li>• Provide field trips to take stakeholders and decision-makers to see locations and issues in the field.</li> <li>• Social media support and communications.</li> <li>• Assist with collaborative initiatives such as working and coordinating with existing partners including Apalachicola-Chattahoochee-Flint Stakeholders (ACFS) and the Riparian County Stakeholder Coalition (RCSC).</li> <li>• Working on watershed restoration initiatives including the current Apalachicola River Slough Restoration project that also includes collaborating with ANERR and other stakeholders.</li> <li>• Share science and data with stakeholders.</li> </ul>
Florida Department of Agriculture and Consumer Services (FDACS)	<ul style="list-style-type: none"> <li>• Assist with collaboration and communication between stakeholders.</li> <li>• Staff assistance.</li> </ul>

	<ul style="list-style-type: none"> <li>• Field office and laboratory support.</li> <li>• Provide data and research including water quality sampling data and monitoring.</li> </ul>
The Pew Charitable Trusts	<ul style="list-style-type: none"> <li>• Working on various management plans across the Region.</li> <li>• Working with National Estuarine Research Reserves (NERR) across the Country</li> <li>• Resources including staffing, funding, research, and data.</li> <li>• Committed to funding the facilitation of ABSI for initial part of Phase IV.</li> <li>• Committed to the development of a broader state-wide oyster management plan.</li> <li>• Committed to staying involved in the development and implementation of the ABS Plan.</li> <li>• Staff to assist with communication, analysis of data and issues, social media and blogs.</li> <li>• Committed to working and communicating with other stakeholders including The Nature Conservancy (TNC).</li> <li>• Pew has an extensive network of stakeholder partners and a national presence.</li> <li>• Assist with funding for projects and in identifying other funding sources.</li> <li>• Funding of economic assistance initiatives such as purchasing farm-raised oysters for restoration projects.</li> </ul>
Water Street Seafood	<ul style="list-style-type: none"> <li>• Operational oyster processing house.</li> <li>• Water-side facilities and dock to assist with the project.</li> <li>• Can provide oyster shells at market price or donate on a limited basis. Have experienced staff that could assist.</li> </ul>
Apalachicola National Estuarine Research Reserve (ANERR)	<ul style="list-style-type: none"> <li>• Research and monitoring support.</li> <li>• Education, outreach, and training support.</li> <li>• Education to local schools.</li> <li>• Opportunities working with the Conservation Corps of the Forgotten Coast.</li> <li>• Aquaculture education grants.</li> <li>• Relationships and working with agencies.</li> <li>• Working with partner agencies to receive NOAA funding.</li> <li>• Mapping support from existing coastal mapping program, and that could be potentially developed into a single state-wide GIS layer.</li> </ul>

**ATTACHMENT 11**

**ABSI STRATEGIES — LEADS, PARTNERS, AND RESOURCES TABLE**

**STRATEGIES AND ACTIONS WITH PROPOSED LEADS, PARTNERS, AND RESOURCES**

The following table is for illustrative purposes, and discussion and completion of this table is planned for Phase V of the CAB process.

<b>GOAL A: ECOLOGICAL/RESTORATION PRIORITY 1 STRATEGIES/ACTIONS</b>	<b>LEAD/PARTNERS</b>	<b>RESOURCES</b>
Strategy 1.) Restore and create reef structures suitable for sustained oyster settlement that enhance ecosystem services in designated restoration areas.	<b>Lead:</b> FWC/FWRI <b>Partners:</b> FSU, UF, local Gov., FDOT, NGOs, coastal property owners, CAB Successor Group	Student help from universities (FSU/UF)
<i>Action 1-A.)</i> : Design and implement projects to achieve multiple ecosystem service targets (e.g., commercial and recreational fishing, shoreline protection).	Same as above and oystermen	Same as above
<b>GOAL B: SUSTAINABLE MANAGEMENT PRIORITY 1 STRATEGIES/ACTIONS</b>	<b>LEAD/PARTNERS</b>	<b>RESOURCES</b>
Strategy 1.) Evaluate a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster fishery as measured in relation to relevant performance metrics for determining success.	<b>Lead:</b> FSU/UF <b>Partners:</b> FWC, stakeholders	Student help from universities (FSU/UF)
<b>GOAL C: MANAGEMENT &amp; RESTORATION PLAN PRIORITY 1 STRATEGIES/ACTIONS</b>	<b>LEAD/PARTNERS</b>	<b>RESOURCES</b>
Strategy 1.) The ABSI Team and the CAB will continue to have an open and transparent process for the development of the Plan with many opportunities for stakeholder engagement and input in a variety of forums (e.g., workshops, online, public/ government meetings) for generating awareness and support while incorporating any changes the CAB deems appropriate and necessary to fulfill the goals and objectives.	<b>Lead:</b> FSU <b>Partners:</b> CAB, CAB sub-committee, other stakeholders	Initiated
<b>GOAL D: ENGAGED STAKEHOLDER COMMUNITY PRIORITY 1 STRATEGIES/ACTIONS</b>	<b>LEAD/PARTNERS</b>	<b>RESOURCES</b>
Strategy 1.) Develop a Community Advisory Board (CAB) for the ABS Initiative that provides critical information and perspective to the ABSI leadership and whose members recognize the importance of their role as ambassadors for the initiative.	<b>Lead:</b> CAB Community Outreach Subcommittee <b>Partners:</b> FSU, CAB, CAB Successor Group, ABS stakeholders	Initiated
<b>GOAL E: THRIVING ECONOMY PRIORITY 1 STRATEGIES/ACTIONS</b>	<b>LEAD/PARTNERS</b>	<b>RESOURCES</b>
Strategy 1.) Engage commercial fishermen in the restoration of the bay and encourage future participation in restoration such as monitoring, shell recycling, shelling, and relaying.	<b>Lead:</b> CAB Successor Group <b>Partners:</b> Stakeholder groups, Chamber of Commerce, local government	TBD



## ATTACHMENT 12

### ABSI OVERARCHING MESSAGE INITIAL IDEAS

#### **ABSI OVERARCHING MESSAGE INITIAL IDEAS**

*Initial ideas for an overarching message that would resonate with the ABS Community and solicit action toward implementation of the Plan.*

At the 19 October 2021 meeting CAB was asked to report their ideas for crafting an overarching message with aspirational goals that would resonate with the ABS Community toward fostering support and action toward implementation of the Plan. A rallying call to energize people around implementation of the ABSI Plan. Following are the preliminary comments:

- Keep the message simple and clear: “restoring the Apalachicola Bay oyster fishery.” Need to focus message on restoring the oyster fishery with all of the economic benefits and cultural components. Oysters are the lifeblood of Franklin County. “Restore the Bay.” Franklin County is known for oysters.
- Money was given to restore the fishery, so it is important to emphasize the central feature of oyster restoration in the effort.
- “Bringing back Apalachicola Bay oysters.”
- Broaden focus to include other species such as shrimp and reef fish. Highlight the connection of the abundance of seafood to the health of the Bay. Include the importance of the health of the Bay to recreational activities.
- Broaden the message to make it less oyster-centric. Need to take in (engage) people outside of the Bay.
- Message should resonate with all communities.
- “A healthy Bay = abundant oysters and a thriving community.” Broaden the message out.
- “Take care of Bay and it will take care of us.” The health of the Bay is good for all of use. Message should convey why it is important to restore the health of the Bay.
- Communicate the habitat and ecosystem services component of the role of oysters and the role in having thriving fisheries and economy.
- Oysters critical to the local Community; the message should not be “diluted” by inclusion of other species and elements.
- Need several messages for different audiences targeted to them.
- The local vs. outside target audiences issue complicates the discussion. Need more discussion.
- This issue needs additional discussion between stakeholders.

The overarching messaging discussion will continue during Phases IV and V of the ABSI project.