

**APALACHICOLA BAY SYSTEM INITIATIVE**  
**COMMUNITY ADVISORY BOARD**  
**MEETING XII—APRIL 21, 2021 SUMMARY REPORT**  
**(UNANIMOUSLY APPROVED JUNE 16, 2021)**

**VIRTUAL MEETING VIA WEBINAR AND TELECONFERENCE**



**CONSENSUS CENTER**



**MEETINGS FACILITATED AND SUMMARIZED BY JEFF A. BLAIR**

APALACHICOLA BAY SYSTEM INITIATIVE COMMUNITY ADVISORY BOARD  
APRIL 21, 2021 FACILITATOR’S MEETING SUMMARY REPORT

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## OVERVIEW OF ABSI COMMUNITY ADVISORY BOARD'S KEY ACTIONS

WEDNESDAY, APRIL 21, 2021

### I. MEETING SUMMARY AND OVERVIEW

At the April 21, 2021 virtual meeting the Apalachicola Bay System Initiative (ABSI), Community Advisory Board (CAB): conducted a social science survey administered by the University of Florida; received an overview of the updated Project Workplan and schedule; received presentations on ABSI science and data collection; received reports and updates on the Community Outreach Subcommittee, CAB Successor Group Subcommittee, and Restoration Partnership Working Group; and, discussed management alternatives and issues. Specific actions included: reviewing and agreeing to draft estuarine metrics; reviewing and agreeing to proposed revisions to strategies, actions, and performance measures in the Draft Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan Framework (Goals, Vision Themes, Outcomes, Objectives, Overarching Approaches, Strategies, and Actions); and, discussing and agreeing to possible management approaches.

## **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 about 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.

## **III. ABSI CAB MEETING PARTICIPATION**

The following CAB members participated in the Wednesday, April 21, 2021 virtual meeting conducted via webinar and teleconference:

Georgia Ackerman, Lee Edmiston, Jim Estes, Frank Gidus, Anita Grove, Chad Hanson, Jenna Harper, Shannon Hartsfield, Chuck Marks, Roger Mathis, Steve Rash, Portia Sapp, John Solomon, Chad Taylor, and Paul Thurman.

(15 of the 23 member participated—65%).

*Absent CAB Members:*

Chip Bailey, Tom Frazer, Ricky Jones, Erik Lovstrand, Mike O'Connell, Alex Reed, Denita Sassor, and TJ Ward.

### **PROJECT TEAM MEMBERS PARTICIPATING**

Sandra Brooke, Ross Ellington, Madelein Mahood, and Joel Trexler.

*(Attachment 1—Meeting Participation)*

### **MEETING FACILITATION**

Meetings are facilitated, and meeting reports drafted by Jeff Blair from the FCRC Consensus Center at Florida State University. Information at: <http://consensus.fsu.edu/>



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### **PROJECT WEBPAGE**

Information on the Apalachicola Bay System Initiative project and the Community Advisory Board, including agenda packets, meeting reports, 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 April 21, 2021 meeting as amended. Following are the key agenda items approved for consideration:

- ✓ To Approve Regular Procedural Topics (Meeting Agenda and, Summary Reports)
- ✓ To Receive Project Briefings and Community Advisory Board Requested Presentations
- ✓ To Discuss Estuarine Metrics
- ✓ To Receive Updates from Subcommittees (Community Outreach and CAB Successor Group)
- ✓ To Review and Approve Proposed Revisions to Draft Management and Restoration Plan Framework
- ✓ To Discuss Management Goals
- ✓ To Prioritize Strategies, If Time Permits
- ✓ To Identify Needed Next Steps, Information and Presentations, and Agenda Items for Next Meeting

*Amendments to the Posted Agenda:*

None

*(Attachment 2—April 21, 2021 ABSI CAB Agenda)*

#### **V. APPROVAL OF THE FEBRUARY 24, 2021 CAB MEETING AND APRIL 15, 2021 OYSTERMEN'S WORKSHOP II FACILITATOR'S SUMMARY REPORTS**

The ABSI CAB voted unanimously to approve the Facilitator Summary Reports for the February 24, 2021 CAB meeting and April 15, 2021 Oystermen's Workshop II 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. Jeff noted that the Project Team plans to conduct 2 additional oystermen workshops during 2021 and noted they would likely be conducted in July and October of 2021. Jeff reported that the next oystermen's workshop is tentatively planned for July 2021, and the next CAB meeting is scheduled for June 16, 2021.

- Jeff reminded the CAB that the ABSI process calls for the CAB to deliver their consensus recommendations for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (Plan) in the form of Goals, Objectives, Strategies, and Actions on November 17, 2021 and for this to complete Phase III of the project. The next phase (Phase IV) of the project will be initiated in early 2022 and during this Phase the CAB will use project decision support tools including modeling to evaluate the CAB's recommendations relative to specific performance measures and expected outcomes for enhancing the health of the Apalachicola Bay System. In addition, the CAB will focus on transitioning to a Successor Group whose role will be to organize a group of key stakeholders committed to working collaboratively for the long-term, and 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. In addition during Phase IV, FSU will

convene a small Restoration Partners Working Group to seek resources and political and governmental support for the CAB's priority recommendations.

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

*(Attachment 5—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 a meeting update on ABSI science and data collection. The update will be provided at all CAB meetings. Sandra reported:

- YSI dataloggers are in use; using FSUCML, ANERR, and CPAP monitors. The ABSI team has successfully downloaded FSUCML data loggers and the data will ultimately be made available to the public.

### **Sub-Tidal Monitoring**

- Survey (tong) completed; 132 sites; monthly tong sampling at 50 sites assessing a variety of parameters.
- Random sub-set of sites with substrate.
- Volume of rock, shell, live oysters.
- Counts of spat, sub-adults, market adults.
- Predator abundance.

### **Sub-Tidal Spat Traps**

- Sub-tidal spat traps have been deployed; one at Dry Bar (site barren of substrate); traps will be switched out monthly to track recruitment.

### **Comparison of Reef height**

- Assessing how reef height has changed over time; a student on the project has created a digital elevation model comparing 1935 - 2006; data shows accretion and erosion; significant accretion north of Sikes Cut and east of the main channel; FWC has just completed a mapping of the Bay which could be matched with the model.

### **Other Studies**

#### **Food Web Study**

- Collections of fishes, oysters and plankton are being made for the spring (wet) sampling season. The isotopic values will be compared with the data from 1993 to determine whether the food source of target animals has changed over time.
- No apparent dry season differences in isotopic fingerprints.

#### **Population genetic study**

- DNA extraction and genomic library development have been completed for 5 of the 8 target sites. We still need samples from Choctawhatchee Bay, St Andrews Bay, and Oyster Bay.

## Pollution study

- Sediment samples (12) and sediment cores (5) have been collected from across the Bay and will be processed for 5 metals/metalloids, and 7 pesticides to assess contemporary and historical levels.

## ABSI Hatchery

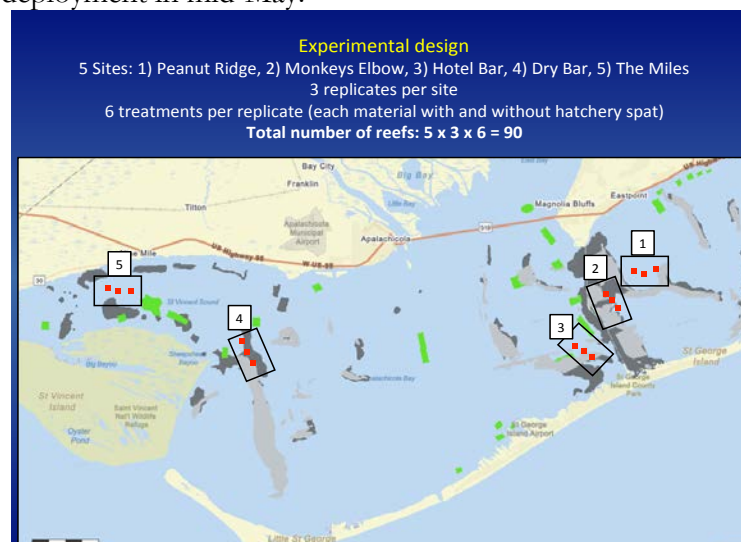
- First successful spawn on April 13, 2021 with 200,000 larvae; used in experiments of larval behavior and tolerance, and some spat on shell will be deployed on the restoration sites.

## ABSI Restoration Experiment

- Fishery closure provides opportunity to test materials without fishing impacts
  - **Material types:** granite, limestone rock, fossilized shell, shell
  - **Material size:** large (12"), medium (8"), small (<4"), shell
  - **Reef footprint:** large (acres), medium (< 1000 ft<sup>2</sup>), small (<50 ft<sup>2</sup>)
  - **Reef height:** low (<1ft), medium (1-3 ft), high (3-4 ft)
  - **'Seeding the reef':** Add spat on shell to half the experiment

## Materials

- Shell and limerock
  - Natural oyster shell – good for spat settlement, can be harvested with tongs
  - Small limerock (4") creates mound, small spaces, many layers, can easily be harvested with tongs
  - Medium limerock (6-8") – creates stable structure, medium spaces, few layers, good for habitat development, can be harvested once oysters develop
- The original plan was 3 east Bay sites and 2 west Bay sides.
- Revised plan to skip the Miles site (#5) and to do Peanut Ridge, Monkeys Elbow, Hotel Bar and Dry Bar; now using four sites; three replicates per site; spat on cultch to be placed in cages. N= 36 reefs instead of 90.
- Need to map the Miles before selecting sites there; plan is to do experimental restoration sites at the Miles once it is mapped.
- Working on coordination with FWC and others to ensure sites are not interfering with other restoration projects.
- Expect to initiate deployment in mid-May.



*ABSI Restoration Experiment Sites (Excluding #5 – The Miles)*



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

- Pollution study results- preliminary results due in mid-June; pesticides first.
- The Miles is an important area; Miles site will be added later; FWC has had difficulty accessing the site for mapping but work in 80s (W. Menzel) showed post-hurricane oyster recovery was most rapid in the Miles area; definitely a target; this area received significant Hurricane Michael damage; shooting for fall or next spring for experimental deployment in the Miles area.
- East sites look crowded; it looks that way on the graphic because the boxes are large for illustrative purposes, but the sites are actually really small.
- What is the source of shell for the experiment sites; we are getting natural shell from Steve Rash.
- Food web comparison with Chanton data; the original study was done in both wet and dry seasons; ABSI will identify key elements measured in the original Chanton study to ascertain whether there have been any changes; ABSI dry season data shows no major differences with Chanton dry season results.
- ABSI experiments are very important to FWC's restoration efforts.
- What is the vertical variability of reefs for the experiments; 1.5' high; we do not want to create marine hazards; prior work has shown optimal reef height is 0.3 m so 0.5 m to allow for some settling; reefs will be monitored extensively for a variety of parameters.
- Could the Hotel Bar study site be moved to East Hole instead? We are not averse to moving a study site if there is decent hard substrate that can be found; final site selection is still in play. We can discuss the final selections.

The full presentation is posted to the Project webpage.

## **VIII. SUBCOMMITTEE UPDATES AND REPORTS**

### **Restoration Partnership Working Group Update**

Joel Trexler introduced himself as the new FSUCML director and reviewed a Project Flowchart indicating the relationship between the CAB, the Restoration Partners Working Group and the CAB Successor Group. Joel noted that the ABSI proposal contemplates a 15-year commitment from FSU, 10 years beyond the 5 years of funding provided by the TRIUMPH Board. Joel noted that the Restoration Partners Working Group (RPWG) 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 welcomed input from the CAB on the RPWG including proposed candidates for membership.

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

- What is the difference between the Restoration Partners Working Group and the CAB Successor Group? The RPWG will be convened during the ABSI process to seek resources, and governmental and political support for the CAB's priority recommendations.
- The CAB Successor Group will be organized and 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, and once the CAB process is complete (December 2024), to ensure that the Plan is implemented, monitored, and adaptively managed over time and with the support of the Community.

- A request was made to provide clarification on the roles of the CAB Successor Group and the RPWG and to report back at the June meeting.

*(Attachment 5—Workplan, Schedule, and Project Flowchart)*

#### **COMMUNITY OUTREACH SUBCOMMITTEE**

Chad Hanson reported that the subcommittee has been meeting regularly, typically after each CAB meeting, and they are working on a variety of initiatives. Chad noted that the Subcommittee had a robust meeting last week and worked on the following initiatives:

- Recapped Sandra’s presentation to the Franklin County Commission.
- The website has been revised to be more user friendly.
- Discussed a media plan and putting together an op-ed for local media sources.
- Have plan for public outreach; Mike will provide a presentation to the SGI Civic Club.
- Creation of presentation template will be delivered by ABSI staff and CAB members so they can make presentations to their various contacts.
- There was extensive discussion on a variety of other outreach vehicles.

Chad requested that at the next meeting the CAB provide feedback to the Subcommittee on their proposed Outreach Plan. Jeff Blair noted that this will be added to the June agenda.

#### **CAB SUCCESSOR GROUP SUBCOMMITTEE**

Anita Grove and Shannon Hartsfield reported that the Subcommittee has not met since the last CAB meeting pending additional information and clarification from the ABSI Project Team on roles, scope of work, and timelines. The Project Team indicated that they would communicate with the Subcommittee to provide the needed clarification prior to the next CAB meeting.

### **IX. ESTUARINE METRICS OVERVIEW AND DISCUSSION**

At the January 13, 2021 CAB meeting it was agreed that Sandra Brooke would work with the ABSI Science Advisory Board, Steve Leitman, Jim Estes, and other interested stakeholders to put together a draft of proposed estuarine metrics for review by the CAB. It was noted that the ABSI project needs estuarine metrics to evaluate model run simulations in the context of whether specific strategies would be likely to achieve the related objectives when evaluated relative to achieving associated performance metrics. During the April 21, 2021 meeting Sandra reviewed a draft of proposed estuarine metrics, answered questions, and requested feedback from the CAB.

Following is a summary of the overview and key actions relative to the Draft Estuarine Metrics:

- Estuarine Metrics are things we can measure that will help us understand the timing, quantity and duration of river flow that best supports ecosystem recovery in the Apalachicola Bay. They 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.

#### **The different categories of Estuarine Metrics are:**

- Environmental
- Biological – Oysters
- Ecological – Oysters
- Ecological – Other Species

## Other Metrics

How do river flow scenarios change the outcomes of the following:

- Predictive habitat models
- Larval dispersal models
- Ecological models
- Shell budgets

## Questions, Responses, and Comments:

- During the navigation years the Bay was healthier.
- During dry years we received water due to the need to maintain the navigation channels.
- We need to evaluate current status vs. navigation years to see whether the flow regimes and health of the Bay correlate.
- The State was not opposed to navigation, but to the method the USACE used to dredge and where the spoil piles were placed, and the associated environmental impacts from their methodology.
- Look at flow models and salinity changes and overlay and look at oyster health in relation to the variables/conditions.
- Also important to understand how sub-optimal conditions affect the biology and ecology of the Bay.
- Need to evaluate the duration of suboptimal low water conditions and time of year (temperature) might be important; can changes in mortality/predator abundance be correlated with historic patterns of flow changes; this will be done with flow models.
- Footprint is guide to understand the responses.
- Echo the previous comments: 2006 only ~5000 cfs was provided from the USACE without the navigation maintenance and we began to see a drop-off in the health of Bay with the reduced water flows.
- Minimum flows a result of droughts in Lake Lanier area, and the politics to maintain the lake for recreational uses.
- 5000 cfs been in effect since 1980s, but it was not enforced until 2006 or so.
- USACE is currently requesting funds to study ecological flows related to navigation to the Lower Chattahoochee and Apalachicola Rivers and reinstatement of navigation.
- Tri-Rivers interested in re-establishing navigation.
- Navigation could bring higher flows, but environmental issues and politics are involved.
- ABSI metrics are critical to push Florida's agenda forward.
- What is the capability of the system to increase flows to provide optimal conditions in the Bay, and adjustments will be required to reach an optimum level of flow.
- Might need to move bars to better locations, due to variables such as salinity, climate change, water levels, flows, etc.
- Need to recognize limitations and current conditions, and adjust restoration plans accordingly.
- What's possible and not once define desired outcomes are defined
- Need to have realistic expectations, and decide what we can we live with relative to what flows we will likely receive.
- Reef heights; reef morphology needs to be measured.
- Phytoplankton, chlorophyll, and other organic material measured as biomass are another metric.

*(Attachment 7—Estuarine Metrics)*

## **X. REVIEW AND APPROVAL OF REVISED STRATEGIES AND ACTIONS**

Jeff Blair led the CAB through a review of the proposed revisions to the Framework (Goals, Objectives, Strategies, Actions, and Performance Measures) for the Draft Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan. The revisions are highlighted in the Strategies Evaluation Worksheet posted to the project webpage and distributed to CAB members prior to the meeting. After reviewing the proposed changes the CAB agreed with and approved the proposed package with several additional changes made during the meeting. In addition, the CAB reviewed, provided comment, and approved the revised tabular format for the Performance Measures.

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

- Objective A4: This is not really a metric as drafted it is a statement, how would we measure this.
- Sandra responded: she agreed with the comment and indicated that what is intended is to measure the changes in the shoreline as the metric, and she will redraft as a metric and not a statement.
- The Highway 98 living shoreline project between Carrabelle and East Point is not good habitat for oysters and won't last (not durable), and oysters won't thrive there. Oysters are not the right material to protect the shoreline in this location and we should comment on this to the project manager.
- ABSI has a vested interest in the impacts of project on oyster habitat; we should request a presentation on the project at a future CAB meeting and provide our feedback.
- Agreed with this and indicated that the larger issue is the CAB should consider providing feedback on all planned projects in the ABSI to ensure the projects are compatible with the goal of restoring the health of the Bay, and this should be a CAB agenda item at a subsequent meeting.
- Is the intent to further flesh the performance metrics out?
- Jeff responded: the list of metrics that are used in the dashboard of the model should be a smaller discrete list of key variables to measure success against and would be done in Phase IV of the process; noted that in the OysterFutures in the Chesapeake Bay the metric list was narrowed down to a smaller list of 13 metrics.
- Steve Leitman: suggested that the metrics should be fleshed out with scientific justifications for each one, and agreed the list should be small but comprehensive.

The revised ABSI Plan Framework as revised and approved by the CAB is included as *Attachment 6* of this Report.

*(Attachment 4—Meeting Chat Summary)*

*(Attachment 6—Revised ABSI Plan Framework)*

## **XI. DISCUSSION OF MANAGEMENT APPROACHES TO ACHIEVE GOALS**

The CAB was led in a facilitated discussion on management goals. CAB members were asked to respond to each management approach from their observations, experience and stakeholder perspectives. CAB members were asked to give their opinion on a range of management approaches for a sustainable wild oyster fishery. The CAB discussed a number of approaches at their February meeting, and they were asked to discuss the remaining approaches not yet discussed by the CAB. The CAB was also requested to evaluate the oystermen's feedback on management approaches for potential integration into their draft recommendations on management strategies and actions. Following are the management approaches and the associated CAB member and oystermen's perspectives.

The following management approaches were discussed by the CAB during their February 24, 2021 meeting and the oystermen during their April 15, 2021 workshop:

- **Summer Fishing Closures**  
*Consensus from the CAB and oystermen for this approach.*
- **Managing Harvest Areas to prevent the concentration of effort in specific locations**  
*Consensus from the CAB and oystermen for this approach.*
- **Rotational Closures (e.g., summer bars vs. winter bars, partial bar closures)**  
*Not supported by the CAB or the oystermen, due to support for other approaches that accomplish the goal of this approach.*
- **Permanent Refuge Non-Harvest Areas (No Fishing)**  
*The CAB and the oystermen noted that there are already closed areas and any additional areas, if needed for the Bay's health, should be designated in close consultation with the oystermen.*
  - ANERR does not have closed areas.
  - Areas are closed for human health considerations (FDACS).
  - Summer/Winter bar openings are based on water quality using a review of the data and rainfall etc.
  - If summer bars are not open in the winter the oystermen are unlikely to support this approach.
- **Stock-Based Temporary Closures.**  
*Consensus from the CAB and oystermen for this approach.*
- **Daily Harvest Limits vs. fishery or individual quotas.**  
*Consensus from the oystermen and CAB for daily harvest limits.*
- **Limited Entry Fishery.**  
*CAB and Oystermen: There was not consensus for this approach; however, there is receptivity if it is needed to ensure a sustainable wild harvest, and if it was implemented fairly with*

*oystermen's feedback and implemented adaptively so the number of entrants could change based on the health of the oyster fishery.*

- **Elimination of the Undersized Oyster 'Buffer' (5% allowance for undersized) for seafood dealers.**

*Consensus from the oystermen and CAB for eliminating undersized buffer limits, but the 5% buffer for harvesting oysters is needed.*

The following management approaches were discussed by the CAB during their April 21, 2021 meeting and the oystermen during their April 15, 2021 workshop:

### **Managing Oyster Reef Harvest With a Metric**

*Consensus from the oystermen and the CAB for this approach if the correct metric is used.*

- Using 300 bushels per acre is not the right metric. A bar could sustain 300 bushels per acre and you could end up with 40 people harvesting a 4-acre reef and deplete it quickly; Ed Camp is working on what the correct metric should be.
- Support this approach, but we need the correct metric.
- Population of oysters on bars should be measured before and after harvesting. Need to define when the oyster density is measured.
- Set of metrics is needed and how it is applied (before season opens), what are the target levels to maintain on the reef would be a better metric; there should be a cautionary level of density, and a graduated approach should be considered.
- Need to determine if the metric/threshold is enforceable and has appropriate penalties.
- Monitoring level; there might be variable abundance across the reef, and measuring just a couple of spots or always measuring the same locations doesn't give an accurate assessment of the broader area. Need to measure a larger area of the bar to determine abundance. Work with oystermen who can tong and determine a more accurate measurement of oyster density. It is difficult to use a threshold level as the metric with the current methodology for measuring.
- Quantitatively evaluate and compare options, need to know how many oysters are removed from the System to define an accurate metric. Needs to be measurable with real-world application, and be easy to use. Need to control fishing effort in relation to the total amount of oysters removed from the System to ensure sustainability of the oyster resource.

### **Implement Annual Fisheries Dependent and Independent Stock Assessments**

*The CAB and oystermen agreed that if data collection methods were more accurate and oystermen were consulted on the locations and data collection methodology, then stock assessments would be helpful for deciding on thresholds for harvesting levels that ensure sustainability.*

- Method is to get in the water and assess the resource; i.e., monthly, pre/post season sampling and make decisions on this basis. In the water assessment is used to manage the resource at a sustainable level (metric).
- Who is measuring makes a difference; need to work with oystermen and work with tongs.
- Using the tong monitoring approach with the ABSI experiments, and will compare to the diving data to calibrate the data, we can use a combination of data collection methods, and ground truth the data collected. Spat/recruitment should be monitored as well.
- Workshop on assessment models should be provided.

- Stock assessment models are not the same as monitoring; fishing effort data and monitoring data are collected in stock assessments; need to include both data sets to accurately set targets and manage the oyster resource sustainably.
- Determine what is the level of oysters that can be harvested to maintain sustainability in the Bay, currently and into future considering changes to the environment/climate, etc.
- Do trip tickets reported to the dealers convey where the oysters come from?
- Oystermen have to identify area/location/time on the tag placed on the bag. Dealer tags have the location number/zone but not the specific bar (as the oystermen's do).
- Potential to refine effort control when a bar is reaching the threshold, and slow down the effort on a bar-wide basis to keep above the threshold level for sustainability.
- FWC: it is not practical to do this at this scale. Trip tickets are not a reliable method to determine where oysters are harvested due to errors in filling out tags, or using the same information to make it easier to fill out tags.
- What about a system of self-reporting electronically, oystermen could self-report on cell phone app.
- Charter self-reporting on the East Coast and the Gulf are examples that self-reporting it is not reliable due to resistance from the industry to comply.
- Not all of the oyster dealers are willing/able to use electronic reporting currently.
- As an example self-reporting by deer hunters is not accurate and if they get home without being checked most will not report.

### **Reduced Bag Limits**

*There was not consensus for this approach by the oystermen or the CAB; however, there is receptivity to considering this approach if it was done correctly and the limit allowed an oystermen to make a living. This should be evaluated in relation to a limited entry approach.*

- Support limited entry to control what gets harvested; when fishing is good everyone with a license hits the bars hard; even with bag limits too many harvest the same bar; need limited entry to reduce effort and ensure targets are not exceeded.
- Market economics come into play; when there are plenty of oysters the price goes down, and when they are scarce the price goes up.

### **Bag Tags**

*There was not consensus for this approach by the oystermen or the CAB; however, there was receptivity to this approach if it was done correctly and the limit allowed an oystermen to make a living.*

- If you catch 5 (limit) bags they could turn into 7 bags due to the weight of oysters in each bag; need consistent weight of 60#/s/bag otherwise extra bags are harvested without any accountability. The rules should be changed to allow oystermen to weigh bags on the boat to ensure all bags are the same 60# weight so we would know how many oysters were actually harvested.

### **Relaying Oysters from intertidal to subtidal locations within the Bay as a management strategy.**

*Consensus from the oystermen and the CAB for this approach, but only if oysters were moved and relocated in the same general area, with a small layer applied over existing healthy reefs to jump start restoration experiments but not as a management approach.*

- Jump start process on restoration study sites
- For experiments it is fine; but it is not way a to manage the oyster harvest.

- Intertidal oyster provide ecosystem services, and should be maintained and not moved from their bars.

### 5-day Work Weeks

*Consensus from the oystermen and the CAB for this approach (Preference is to harvest M-F).*

*Recreational limit should be one 5-gallon bucket of oysters and allow recreational harvest during the summer with the same one 5-gallon bucket limit.*

- Agree with this approach, it is also related to limiting entry; part-timers harvest on weekends so this would help reduce the number of people harvesting.
- Does this apply to recreational harvesting? FWC may be pressured to allow harvesting on weekends for recreational harvesting. If you allow 2 recreational bags/day then some oystermen will cheat by harvesting 4 bags over the weekend and start Monday with 4 bags already harvested.
- Recreational limit should be one 5-gallon bucket; this would keep poaching from happening. Need to keep the recreational limit low.
- Would summer closure apply to recreational harvesting? Could allow one 5-gallon bucket during summer for recreational harvest to accommodate the vacation crowd.
- Closures should apply to recreational and commercial.
- Evaluate effort limitation: compare limited entry in relation to a 5 day harvest week with fewer bags or a 3 day harvest week with more bags/day.
- Can't make a living on 3 days of work. Need the 5 days. We miss many days due to weather, and there is only so much you can do in a day.

### FWC Law Enforcement

*Consensus from the oystermen and the CAB for a stronger presence of law enforcement, with consistent, fair, and practical real-world practice enforcement approach, and enhanced collaboration and communication between oystermen and FWC law enforcement.*

- It was a different FWC when it was marine patrol and game wardens; more presence before agency combined.
- FWC LE tends to avoid dealing with oystermen to avoid conflict with ornery oystermen.
- **A strong enforcement presence is needed as a deterrent.**
- Captain Charley Wood should meet with the CAB to discuss the proposed management approaches.
- At the next meeting we should discuss enforcement with law enforcement's perspective present.
- **Recommend that prior to the opening of each harvest season FWC conduct a joint workshop with oystermen and FWC LE to discuss regulation changes, and how things actually work or don't work on the water, so we can educate each other.**
- **There is support for a tiered system of penalties for purposeful violators (increased fines and license suspensions ranging from increased length of suspension to the permanent loss of license).**
- SMARRT Group discussed this with Jim Estes of the FWC.
- FWC would like to have a discussion on the professionalization of the oyster industry. To consider training, experience, etc. as criteria.
- Oystermen expressed concern about education as a criterion since there are good oystermen who don't have much formal education.
- **Funding will be needed for increasing the presence of FWC LE.**



- There needs to be a recognition that implementation of changes to law enforcement and management approaches should be done with an adaptive management approach; if something is not working the CAB Successor Group should weigh-in and provide alternative approaches to ensure efficacy.

## **XII. PUBLIC COMMENT**

The facilitator invited members of the public to provide comments.

*Public Comments:*

- None were offered.

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

The June 16, 2021 CAB meeting will focus on discussing restoration and management options, on revisions to the Plan Framework (Goals, Objectives, Strategies, Actions, and Metrics), and on prioritization of strategies for each of the Plan's Goal areas (A – E), and on improved law enforcement approaches. The June meeting will be conducted as a virtual meeting via webinar.

### **Proposed Agenda Items for Future Meetings:**

- Jonathan Brucker presentation on RESTORE reefs and an update on the condition of restoration projects.
- FWC monitoring and mapping efforts updates.
- FWC Law Enforcement discussion with Captain Charley Wood.
- ABSI feedback on projects like the Living Shoreline Carrabelle/Eastpoint project.
- In June have a discussion agenda item on the Outreach Committee's refined Outreach Plan and seek CAB feedback.
- ACFS Issues update presentation to the CAB.
- Clarify the roles/timelines/scope of work/membership of the Restoration Working Group and the CAB Successor Group.
- Update Worksheet/Draft Plan to incorporate the consensus management approaches discussed by the CAB and the oystermen.

## **ADJOURNMENT**

The Facilitator thanked CAB members, ABSI Project Team members, and the public for their participation, and adjourned the meeting at 12:05 PM on Wednesday, April 21, 2021.

**ATTACHMENT 1  
MEETING PARTICIPATION LIST**

<b>MEMBER*</b>	<b>AFFILIATION</b>
<b>Agriculture/ACF Stakeholders/Riparian Counties</b>	
<b>1. Chad Taylor</b>	Riparian Counties Stakeholder Group/ACFS/Agriculture
<b>Business/Real Estate/Economic Development/Tourism</b>	
<b>2. Chuck Marks</b>	Acentria Insurance
3. Mike O'Connell	SIGI Civic Club/SIGI 2025 Vision
<b>4. John Solomon</b>	Apalachicola Chamber of Commerce
<b>Environmental/Citizen</b>	
<b>5. Georgia Ackerman</b>	Apalachicola Riverkeeper
<b>6. Lee Edmiston</b>	Retired DEP/ANERR
<b>7. Chad Hanson</b>	Pew Charitable Trusts
<b>Local Government</b>	
<b>8. Anita Grove</b>	Apalachicola City Commissioner
9. Ricky Jones	Franklin County Commissioner
<b>Recreational Fishing</b>	
10. Chip Bailey	Peregrine Charters
<b>11. Frank Gidus</b>	CCA Florida
<b>Seafood Industry</b>	
<b>12. Shannon Hartsfield</b>	Franklin County Seafood Workers Association and Oysterman
<b>13. Roger Mathis</b>	Oysterman and R.D.'s Seafood
<b>14. Steve Rash</b>	Water Street Seafood
15. Denita Sassor	Outlaw Oyster Company, Aquaculture
16. TJ Ward	Buddy Ward & Sons Seafood
<b>State Government</b>	
<b>17. Jim Estes</b>	FWC Division of Marine Fisheries Management
<b>18. Jenna Harper</b>	ANERR/DEP
19. Alex Reed	FDEP Office of Resilience & Coastal Protection
<b>20. Portia Sapp</b>	FDACS Division of Aquaculture
<b>21. Paul Thurman</b>	NWFWMD
<b>University/Researchers</b>	
22. Tom Frazer	UF/DEP Governor's Science Advisor
23. Erik Lovstrand	UF/IFAS/Florida Sea Grant Franklin County
<i>*The names of CAB members participating in the meeting are indicated in bold font.</i>	

PROJECT TEAM AND FACILITATORS	
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
FCRC CONSENSUS CENTER, FLORIDA STATE UNIVERSITY	
<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>	

ALTERNATES FOR CAB MEMBERS	
None	
<i>The names of CAB member's alternates participating in the meeting are indicated in bold font.</i>	

MEMBERS OF THE PUBLIC	
Anne Birch	The Nature Conservancy (TNC)
Ed Camp	University of Florida (UF)
Josh Gabel	Senator Marco Rubio's Office
Elizabeth Hughes	Florida House of Representatives
Carrie Jones	FDACS
Ken Jones	Riparian Counties Stakeholders Coalition
Steve Leitman	Florida State University (FSU)
Alan Peirce	FWC
David Reeves	National Fish Wildlife Foundation
Anthony Sogluizzo	Florida State University (FSU)

**ATTACHMENT 2**  
**APRIL 21, 2021 MEETING AGENDA**

**ABSI COMMUNITY ADVISORY BOARD MEETING XII OBJECTIVES**

- ✓ To Approve Regular Procedural Topics (Meeting Agenda and, Summary Reports)
- ✓ To Receive Project Briefings and Community Advisory Board Requested Presentations
- ✓ To Discuss Estuarine Metrics
- ✓ To Receive Updates from Subcommittees (Community Outreach and CAB Successor Group)
- ✓ To Review and Approve Proposed Revisions to Draft Management and Restoration Plan Framework
- ✓ To Discuss Management and Restoration Goals
- ✓ To Identify Needed Next Steps, Information and Presentations, and Agenda Items for Next Meeting

**ABSI COMMUNITY ADVISORY BOARD MEETING XII AGENDA—APRIL 21, 2021**

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

1.)	8:30 AM	<b>WELCOME, REVIEW OF VIRTUAL PARTICIPATION GUIDELINES, 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 FACILITATORS' SUMMARY REPORTS (FEBRUARY 24, 2021, AND OYSTERMEN'S APRIL 15, 2021 WORKSHOP)</b>
5.)	8:50	<b>REVIEW OF UPDATED PROJECT MEETING SCHEDULE AND WORK PLAN</b>
6.)	8:55	<b>PROJECT BRIEFINGS AND REQUESTED PRESENTATIONS</b> <ul style="list-style-type: none"> <li>• <i>ABSI Science and Data Collection Update.</i> Sandra Brooke, FSUCML (10)</li> </ul>
7.)	9:05	<b>SUBCOMMITTEE UPDATES AND REPORTS</b> <ul style="list-style-type: none"> <li>• Community Outreach Subcommittee Status Update and Report. Chad Hanson</li> <li>• CAB Successor Group Subcommittee Status Update and Report. Anita/Shannon</li> <li>• Restoration Partnership Working Group Update. Joel Trexler</li> </ul>
8.)	9:30	<b>ESTUARINE METRICS OVERVIEW AND DISCUSSION</b>
~10:00		<i>BREAK</i>
9.)	10:10	<b>REVIEW AND APPROVE PROPOSED REVISIONS TO DRAFT MANAGEMENT AND RESTORATION PLAN FRAMEWORK AND PERFORMANCE MEASURES</b>
10.)	10:30	<b>MANAGEMENT GOALS DISCUSSION (CONTINUED FROM FEBRUARY MEETING)</b>
11.)	~11:50	<b>PUBLIC COMMENT</b>
12.)	11:55	<b>NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING</b> <ul style="list-style-type: none"> <li>• Review of action items and assignments</li> <li>• Identify agenda items and needed information and presentations for the June 16, 2021 CAB meeting</li> <li>• Meeting evaluation</li> </ul>
~12:00 PM		<i>ADJOURN</i>

**ATTACHMENT 3**  
**MEETING EVALUATION RESULTS (ZOOM POLL)**

*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 13 CAB members.*

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.5 of 5</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.4 of 5</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.6 of 5</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.4 of 5</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.8 of 5</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>

**6.) The facilitator accurately documented the Working Group Member input**

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.5 of 5</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.3 of 5</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

<i>Average Rating</i>	<i>5. Strongly Agree</i>	<i>4. Agree</i>	<i>3. Not Sure</i>	<i>2. Disagree</i>	<i>1. Strongly Disagree</i>
<b>4.8 of 5</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>

**9.) What do you think worked well using the virtual Zoom platform for the meeting?**

**ATTACHMENT 4**  
**MEETING CHAT SUMMARY (ZOOM)**

08:37:03 **Maddie Mahood:** [https://ufl.qualtrics.com/jfe/form/SV\\_afUUEBPLkaNeoUS](https://ufl.qualtrics.com/jfe/form/SV_afUUEBPLkaNeoUS) .

08:56:55 **Ed Camp:** I'm really sorry but I have to sign off for a bit, internet issues.

09:17:43 **Jim Estes:** I have to leave for a few minutes. Alan is here to answer any questions. I will be right back.

09:21:22 **Georgia Ackerman (she/her):** Kudos to Maddie on website work!

09:22:00 **Maddie Mahood (she/her):** Thank you Georgia! ☺

09:23:48 **Joel Trexler:** Anyone interested in following up with me on the Restoration Partners Working Group, please email me at [jtrexler@fsu.edu](mailto:jtrexler@fsu.edu).

09:24:34 **C. Chadwick Taylor:** Dothan Eagle and Jackson County Floridian in Marianna have good newspaper coverage in the upper Apalach basin and ACF

09:24:50 **Maddie Mahood (she/her):** Thanks, Chad. I'll add that to my list!

10:02:54 **Chad Hanson:** Jeff et al - there are few things from the outreach committee that I think warrant some discussion before we conclude today. I should have asked for some time on the agenda ahead of the meeting to discuss. The Outreach committee has a few things in the hopper that I mentioned in our report that we are planning and want to make sure there's agreement and input from the larger CAB before we get too far down the road.

11:57:23 **Maddie Mahood (she/her):** 1. What do you think worked well using the Zoom platform for the meeting? 2. How could the virtual format be improved for future meetings?

### **Open Ended Survey Question Responses Sent Directly to Maddie Mahood**

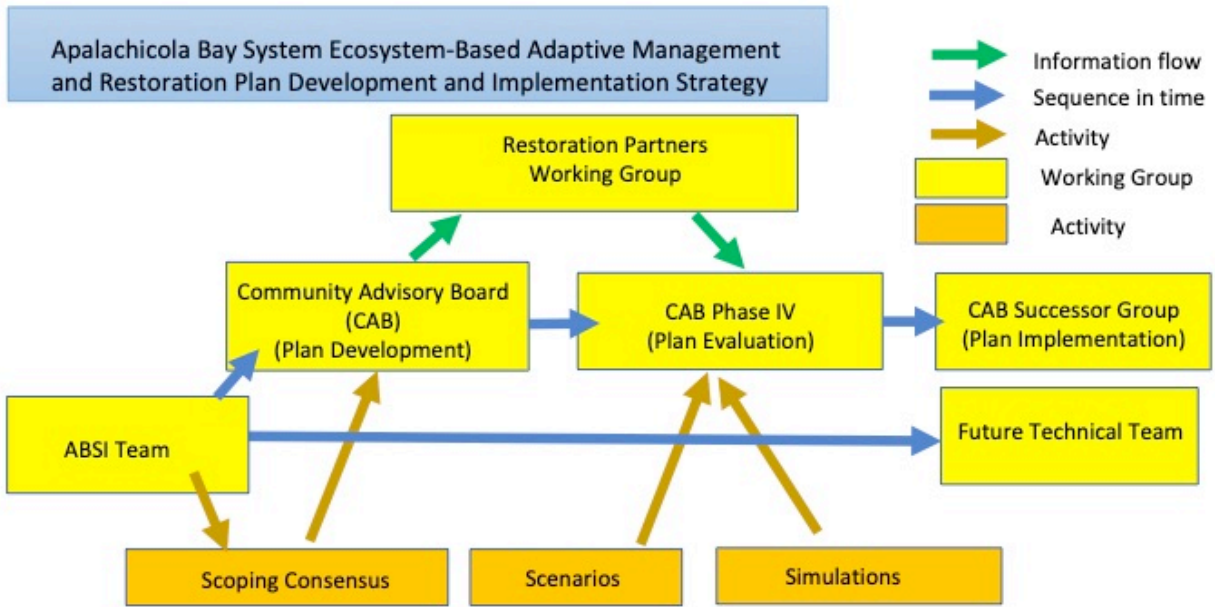
12:04:22 **Jenna Harper:** We were talking about how the interactions would improve once we are in person. The sooner we could meet in person, the better.

**ATTACHMENT 5**  
**WORKPLAN AND SCHEDULE**

<b>UPDATED AS OF THE APRIL 21, 2021 CAB MEETING</b>		
<b>PHASE I—STANDING UP AND ORGANIZATION OF THE ABSI CAB</b>		
<b>ABSI Assessment Process</b>	May- Aug. 2019 Report Sept. 2019	Assessment report based on interviews of over 60 stakeholders and agency personnel (May – August 2019) summarized key challenges and issues that should be addressed in the Apalachicola Bay System Initiative (ABSI) and by its Community Advisory Board (CAB); facilitators recommend members for the CAB.
<b>ABSI CAB Questionnaire</b>	Sept. 2019	Questionnaire report on the CAB members’ views on successful short and long-term outcomes and on critical ABSI challenges and issues.
<b>Meeting I.</b> Eastpointe FL	Oct. 30, 2019	Scoping and organizational meeting, review and refinement of overall project purpose, vision and goal framework. Presentation on the ABSI project’s four main components: research, management, community engagement, and oyster reef and bay restoration. Public comment.
<b>Meeting II.</b> Eastpointe FL	Dec. 18, 2019	Member-requested presentations on Apalachicola River Slough Restoration project, Oyster Fishery and Harvest Statistics, ABSI Research Update, and FWC Apalachicola Bay Oyster Restoration, Phase II. Review and refinement of vision themes and goal framework, and identification of key topical issues to inform the drafting of objectives. Public comment
<b>Meeting III.</b> Eastpointe FL	Jan. 8, 2020	Member-requested presentations on Oyster Ecology, Hydrologic modeling and Oyster Population Models. Review, refinement and adoption of five vision themes, goals, outcomes and objectives, and initial review of draft performance measures. Public comment
<b>PHASE II—SCOPING OF ABSI ISSUES, IDENTIFICATION OF PERFORMANCE MEASURES &amp; STRATEGIES</b>		
<b>Meeting IV.</b> Eastpointe FL	Mar. 11, 2020	Member-requested presentations on current status of Apalachicola Bay, FDACS Aquaculture Leasing Program, Oyster Reef Management in Apalachicola Bay, and the Chesapeake Bay Oyster Futures Consensus Process. Review of Apalachicola Bay System Ecosystem-Based Management and Restoration Plan goals, outcomes, and objectives. Identification of initial draft strategies and related performance measures. Public comment.
<b>Meeting V.</b> Virtual Meeting	May 22, 2020	Member-requested presentations on FWC Overview of Oyster Management, FWRI Oyster Monitoring and Restoration Effects in Apalachicola Bay, MK Ranch Hydrologic Restoration, and TNC Lake Wimico project. Identification and evaluation of preliminary strategies and performance measures to achieve each of the five goals and objectives. Public comment.
<b>CAB Strategies</b>	June 2020	CAB Worksheet to identify potential strategies for each of the five goals.
<b>Meeting VI.</b> Virtual Meeting	July 16, 2020	Member-requested presentations. Decision support tools update & demonstration. Review and evaluation of the preliminary strategies by CAB member for Plan Goal. Public Comment.
<b>Meeting VII.</b> Virtual Meeting	Sept. 9, 2020	Member-requested presentations. Identification, evaluation and refinement of objectives, strategies and performance measures for Goals A-E. Public Comment.
<b>Meeting VIII.</b> Virtual Meeting	Oct. 15, 2020	Member-requested presentations. Review of strategies and identification, and evaluation of actions steps to achieve strategies. Evaluation of Performance Measures and categories. Public Comment.
<b>Meeting IX.</b> Virtual Meeting	Nov. 12, 2020	Member-requested presentations. Agreement on Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (Plan) framework. Public engagement on the Plan strategy discussion. Discussion of

		strategies and action steps to achieve Goals. Discussion of ecological and management goals. Public comment.
<b>Oystermen’s Workshop #1</b>	Dec. 2, 2020	Overview of Project Scope, Purpose, and Status, and Oystermen’s input on restoration experiment, suitable habitat for restoration, and management and restoration alternatives.
<b>PHASE III—BUILDING CONSENSUS ON CAB RECOMMENDATIONS FOR THE ABS ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN</b>		
<b>Meeting X.</b> Virtual Meeting	Jan. 13, 2021	Member-requested presentations. Sub-committee reports. Discussion of estuarine metrics and restoration goals. Public comment.
<b>Meeting XI.</b>	Feb. 24, 2021	Member-requested presentations. Sub-committee reports. Review and approval of revised Draft Plan Framework. Discussion of management goals. Public comment.
<b>Oystermen’s Workshop #2</b>	April 15, 2021	Oystermen’s review and comments on draft Management approaches and Plan Framework (Strategies and Actions for Goals and Objectives)
<b>Meeting XII.</b>	April 21, 2021	Member-requested presentations. Sub-committee reports. Discussion of estuarine metrics. Discussion and approval of revised Plan Framework and Performance Measures. Discussion of restoration and management goals. Prioritization of strategies. Public comment.
<b>Meeting XIII.</b>	June 16, 2021	Review and agreement on Draft Plan Framework (Goals, Objectives, Strategies, Actions) relative to goals and objectives. Presentation on modeling scenarios for potential restoration locations. Public comment.
<b>Oystermen’s Workshop #3</b>	<b>Tentatively July</b>	Review draft Plan Framework (Goals, Objectives, Strategies, Actions) with Oystermen, and Oystermen’s input.
<b>Meeting XIV.</b>	Aug. 18, 2021	Continue review and consensus testing of Draft Plan and implementation strategies and actions, and agreement on Draft Plan for public comment. Public comment.
<b>Meeting XV.</b>	Oct. 20, 2021	Review of public comment, agreement on recommendations for inclusion in the Plan. Public comment.
<b>Public Workshop and/or Oystermen’s Workshop #4</b>	<b>Tentatively October</b>	<i>Schedule &amp; format dependent on status of the COVID-19 pandemic.</i> Review of Draft Plan and oystermen’s and/or public comments on Revised Draft ABS Ecosystem-Based Adaptive Management Plan and implementation strategies.
<b>Meeting XVI.</b>	Nov. 17, 2021	Complete Phase III of project. Final CAB approval of Management and Restoration recommendations for the Plan. Briefing on Phase IV of the ABSI CAB. Public Comment.
<b>PHASE IV—RESTORATION PROJECT SELECTIONS AND IMPLEMENTATION/FUNDING PLANNING</b>		
Tentatively January 2022		<ul style="list-style-type: none"> <li>• CAB continues with some new members and works on identifying the best combination of strategies that will achieve restoration objectives for the Bay using decision support tools and available data, and prioritization of specific restoration projects.</li> <li>• Restoration Partners Working Group continues work to seek resources, and governmental and political support for CAB’s priority recommendations.</li> <li>• Successor Group is organized and 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 and once the CAB process is complete to ensure that the Plan is implemented, monitored, and adaptively managed over time and supported by the Community.</li> </ul>





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

**ATTACHMENT 6**  
**REVISED APPROVED ABSI PLAN FRAMEWORK**

**SECTION I**  
**COMMUNITY ADVISORY GROUP DRAFT ABSI STRATEGIES**

**OVERARCHING APPROACHES**

1. Use the following ABSI-approved name for the developing management and restoration plan: the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (Plan).
2. Include commercial fishermen in discussions of and to help work on restoration design and implementation (locations, size, total coverage, cultching, etc.), establishment of permanent closed areas, shell recycling, shelling, mentoring, and workforce entry development.
3. Incorporate scientifically-derived and coordinated long-term monitoring guidelines and metrics for assessing the overall health of the ABS system with a focus on oyster resources.
4. Use only the best available science (including information derived from scientists, agency personnel and stakeholders) for all components of ongoing research, modeling exercises, and development of the Plan, including relevant information on adaptation to climate change impacts.
5. Identify local partners to coordinate and collaborate with the lead entities on the implementation of strategies (stakeholders: e.g., watermen, citizen scientists, advocacy groups, NGOs, universities, counties and other local governments, etc.).

**GOAL A**  
**A HEALTHY AND PRODUCTIVE BAY ECOSYSTEM**

**VISION THEME A:** The Apalachicola Bay System, including its oyster reef resources, is sustainably managed. Water resources and affected habitats are afforded adequate protection to ensure that essential ecosystem functions are maintained and a full suite of economic opportunities are realized.

**GOAL A:** The Apalachicola Bay System is a healthy and productive ecosystem that supports a vibrant and sustainable oyster fishery and other economically viable activities.

**OUTCOME:** By 2030, the Apalachicola Bay System is a healthy, productive and sustainably managed ecosystem that supports a viable oyster fishery while providing a broad suite of ecosystem services that, in turn, afford additional opportunities for sustainable economic development.

**GOAL A OBJECTIVES**

A1) To use observations, monitoring, experiments and modeling conducted through ABSI and related efforts to create decision support tools that can inform how a range of natural and human influenced factors will affect the ABS ecosystem.

A2) To help establish a comprehensive monitoring plan to evaluate the health of the ABS oyster resource and its measurable ecosystem services with clearly defined performance measures and strong coordination among the various entities conducting research in the region.

A3) To use existing and new research, and decision support tools to identify viable strategies for restoration and management of the ABS oyster resources and the function of the ABS ecosystem.

A4) To define measurable ecosystem services that can be used to determine the level of change in ecological health (e.g. oyster fishery harvest, habitat for other fishery species, abundance and condition indices for oyster reef and population health) and societal benefit derived from Apalachicola Bay System management and restoration efforts, with target and threshold levels identified.

**GOAL A DRAFT STRATEGIES**

1) Restore and create reef structures suitable for sustained oyster settlement that enhance ecosystem services in designated restoration areas.

*Action 1-A.):* Design and implement projects to achieve multiple ecosystem service targets (e.g., commercial and recreational fishing, shoreline protection).

*Action 1-B.):* Implement restoration projects simultaneously rather than sequentially.

**Lead:** FWC | **Partners:** FSU, UF, local gov., FDOT, NGOs, coastal property owners, CAB

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.

• *Action 2-A.):* Conduct restoration experiments to test efficacy of different materials.

• *Action 2-B.):* Use knowledge gained from experiments to recommend best practices for broad scale restoration in the ABS.

**Lead:** FSU | **Partners:** UF, FWC, CAB

3) Develop criteria for restoring specific reefs or reef systems damaged by environmental conditions or natural disasters.

• *Action 3-A.):* Evaluate degree of damage and potential for recovery.

• *Action 3-B.):* Develop an approach for mitigating damage (e.g., physical repair, spat supplements, or some combination of both).

• *Action 3-C.):* Determine periodicity of hatchery-produced spat addition (e.g., annually or longer) with a specific timeline for continuing the approach. This approach is not intended to create a put-and-take fishery.

**Lead:** FSU | **Partners:** UF, FWC, CAB

4) 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.

*Action 4-A.):* Map existing oyster reefs using multibeam sonar and backscatter, and ground-truth for accuracy.

*Action 4-B.):* Apply model that uses reproductive output, recruitment, natural mortality rates and fishery harvest to assess oyster population dynamics.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF
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- 5) 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.

*Action 5-A.):* Continue monitoring intertidal and begin monitoring sub-tidal reefs monthly and bi-annually using same protocols as FWC sub-tidal monitoring. Adjust to add metrics as needed. Data will be shared between FWC and ABSI.

*Action 5-B.):* Continue monitoring intertidal and begin monitoring sub-tidal habitats using same protocols as FWC. Data will be shared between FWC and ABSI.

*Action 5-C.):* Conduct ‘spot-checks’ at a large number (TBD) of different locations in the Bay to supplement the more intensive monitoring data. Document volume of rock/shell/oysters, number of spat, medium and market sized live oysters and boxes together with environmental data.

*Action 5-D.):* Collect long term in situ environmental data using ABSI instruments and integrate ANERR environmental and nutrient data as correlates with oyster metrics.

*Action 5-E.):* Generate health indicators for ABSI using monitoring data, and other ecological factors (e.g. oyster-associated communities and structural complexity).

<b>Lead:</b> FSU	<b>Partners:</b> FWC, ANERR
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- 6) Develop ecosystem models that forecast future environmental conditions and oyster population status.

- *Action 6-A.):* Collect data needed by the models, and follow up with testing the models to refine accuracy of output.
- *Action 6-B.):* Coordinate with appropriate state and federal agencies, pertinent out of state user groups, and other initiatives working on both geographically-constrained and basin-wide water-flow alterations and management strategies that contribute positively to the health of the ABS.

<b>Lead:</b> UF	<b>Partners:</b> FWC, FSU
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- 7) Assess existing ecosystem services metrics used for other oyster studies, and develop a list of ABSI specific metrics to assess change over time.

- *Action 7-A.):* Conduct literature review and work with Florida Oyster Recovery Science (FORS) working group to identify measurable indicators of changes in ecosystem services

- *Action 7-B.):* Integrate ecosystem services metrics into monitoring program.

<b>Lead:</b> FSU	<b>Partners:</b> UF, FWC, universities, government agencies
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- 8) Seagrass and other SAV, and wetland and riparian habitat should be restored concurrently to work synergistically with oyster habitat restoration to enhance restoration of the ABS.

<b>Lead:</b> Franklin Co.	<b>Partners:</b> DEP
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## GOAL B

### SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES

**VISION THEME B:** A restored Apalachicola Bay System has resulted in a sustainably managed and adequately enforced wild harvest oyster fishery while also providing opportunities for other economically viable and complementary industries, including tourism and aquaculture. This is accomplished by working collaboratively with stakeholders to create, monitor and fund a plan that ensures that protection of the habitat and the fishery it supports is supported by science, stakeholder input, and industry experience, and is implemented in a manner that provides both fair and equitable access to and protection for the resource.

**GOAL B:** productive, sustainably, and adaptively managed Apalachicola Bay System supports sustainable oyster resources.

**OUTCOME:** By 2030, an engaged and collaborative group of stakeholders will have contributed to and helped spearhead a fully funded science-driven plan to sustainably manage oyster resources in the Apalachicola Bay System.

#### GOAL B OBJECTIVES

B1) To develop through a transparent and inclusive process a science-based ABS oyster recovery and adaptive management plan for both commercial and recreational industries that includes: broad stakeholder and community support; a long-term, comprehensive monitoring plan that will be carried out by state agencies and their contractors; a regulatory framework that allows for rapid modifications when needed to address changing environmental conditions; and enforceable regulations that contain penalties sufficient to deter violations and harm to the resource. It is imperative that this Plan be constructed with the direct involvement of entities within the State of Florida (e.g., FWC, FDACS, State Legislature) in cooperation with other relevant agencies to enhance the likelihood of its implementation.

B2) To make recommendations to FDACS for oyster aquaculture best management practices that allow for the unimpeded recovery of oysters reefs, the oyster fishery, and the ecological and societal health of the ABS ecosystem while providing economic opportunities to the aquaculture industry.

#### GOAL B RECOMMENDATION

**Closing the Apalachicola Bay to Wild Oyster Harvest.** At the March 11, 2020 ABSI CAB meeting the CAB's FWC representative requested that the CAB recommend whether to close Apalachicola Bay to all wild harvest of oysters (commercial and recreational). The CAB discussed the issue and unanimously recommended to FWC that they immediately close Apalachicola Bay to all wild harvest of oysters. This recommendation was reviewed and accepted by FWC, and the closure of the Bay to recreational and commercial wild oyster harvest proactively went into effect on August 1, 2020 via Executive Order pending approval of final rules. The oyster fishery closed area has well-defined boundaries (set by FWC in consultation with FDACS) and contained within the Apalachicola Bay System as defined in FWC's

Rule 68B-27, F.A.C.<sup>1</sup> At the December 16, 2020 meeting the FWC approved the final rules to temporarily suspend all wild oyster harvest and to prohibit on-the-water possession of wild oyster harvesting equipment (tongs) from Apalachicola Bay through December 31, 2025.

The CAB agreed that in subsequent meetings, it would make science-based recommendations for the criteria and performance metrics that should be met before reopening the Bay to wild oyster harvest. Under consideration are the following strategies related to closing the wild oyster fishery.

**GOAL B DRAFT STRATEGIES**

1. Recommend specific criteria and/or conditions, with related performance measures for the reopening of Apalachicola Bay to limited wild oyster harvesting.
  - *Action 1-A.):* Use ABSI ecosystem health metrics and FWC/UF models to develop criteria for opening and closing wild oyster harvest and for determining sustainable harvest.
  - *Action 1-B.):* Work with FWC and FDACS to ensure that definitions of oyster population health are not only based on harvest metrics.

2. Conduct an oyster stock assessment for the ABS with periodic updates.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, NGOs, citizen scientists, watermen
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3. 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.
  - *Action 3-A.):* Use a co-management advisory committee to assess and make a recommendation to the state.
  - *Action 3-B.):* Convene an Oyster Advisory Board within FWC to review and make recommendations on management and enforcement of the oyster fishery once wild oyster harvesting resumes in Apalachicola Bay.

*Note: This is not a new action; it was relocated from the previous Strategy #11.*

<b>Lead:</b> FWC	<b>Partners:</b> FDACS, FSU, UF, local governments
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4. 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.
  - *Action 4-A.):* Engage local stakeholders in determining total coverage (how much to protect), placement (where to protect), and size (how large) of all types of potential closed areas using gridded maps as well as distributions of selected fishery and ecologically important species.
5. Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and spawning and the recovery of oyster populations.

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<sup>1</sup> FWC’s Rule 68B-27.013, F.A.C. (as modified in the proposed draft rule language presented at the July 22, 2020, commission hearing): “Apalachicola Bay” or “Bay” means all waters within St. George Sound, East Bay in Franklin County, Apalachicola Bay, St. Vincent Sound in Franklin County, and Indian Lagoon in Gulf County, including canals, channels, rivers and creeks.

- *Action 5-A.):* Evaluate management scenarios (e.g., seasonal (summer) closure to wild harvesting, rotational closures, 5-day work weeks, non-harvested spawning reefs (permanent closures), limited entry, transferable license program, closures based on stock levels (stock assessment), reduced bag limits, bag tags, relaying oysters to better habitat, additional enforcement presence, manage harvest areas to prevent the concentration of effort in specific locations (open larger areas)).
  - *Action 5-B.):* Develop strategies to potentially limit oyster harvest to periods outside of peak spawning season.
- Note: This is not a new action; it was relocated from the previous Strategy #11.*
- *Action 5-C B.):* Evaluate existing allowable and minimally destructive alternative gear type options and harvest methods, including the use of experimental gear for wild oyster harvesting.

<b>Lead:</b> FWC	<b>Partners:</b> oystermen, FSU, UF, Sea Grant
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6. Restore and create reef structures suitable for sustained oyster settlement and production for harvesting.
  - *Action 6-A.):* Include oystermen in discussions to evaluate cultching techniques and materials for growing oysters (e.g., historical non-traditional, trees), adding spat on shell or other substrates.
  - *Action 6-B.):* Include oystermen in discussions on spatial configuration of reefs (height, width, contours, etc.), locations (existing reefs and hard bottom), use of larger rock to protect restored reefs from siltation and sedimentation from prevailing currents and storms.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, Sea Grant, watermen and aquaculture organizations, local county programs
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- *Action 6-C.):* Design and implement projects to achieve oyster fishery production targets.
- *Action 6-D.):* Design projects that include both fished and non-fished reefs.

<b>Lead:</b> FWC	<b>Partners:</b> FSU, UF, NOAA for funding
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7. Recommend policies and actions that retain and recycle shell for habitat replenishment in the ABS.
  - *Action 7-A.):* Develop agency rules and policy that require shell retention and recycling for habitat replenishment through a fee or incentive program.
  - *Action 7-B.):* Obtain legislative support for statutes that support or require shell recycling and oyster habitat replenishment. (e.g., Texas House Bill 51 (2017); [North Carolina General Statute §130A-309.10](#) (2010); Maryland House Bill 184; Florida statute Chapter 157 (McClellan 1881).
  - *Action 7-C.):* Establish partnerships with local organizations, stakeholder groups, industry, universities in shell recycling programs.

8. Investigate oyster shell and oyster relay programs to move both cultch and live oysters to more favorable habitat.
  - *Action 8-A.):* Use model and mapping information on larval source areas and environmental conditions to inform the potential programs.
  - *Action 8-B.):* Research similar relay programs in other areas as potential models and cautionary tales.

<b>Lead:</b> FDACS/FWC	<b>Partners:</b> FSU, UF, Sea Grant, FDEP, FDOH, stakeholders (oystermen)
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9. 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.

- *Action 9-A.):* Use model outputs to identify the oyster population abundance that can support sustainable harvest.
- *Action 9-B.):* Use model outputs to identify percentage of productive reef area required to support sustainable harvest.
- *Action 9-C.):* Use model outputs to identify annual; recruitment required to support sustainable harvest.
- *Action 9-D.):* Use model outputs to determine amount and frequency of habitat replacement to maintain productive oyster reefs.

<b>Lead:</b> FSU/UF	<b>Partners:</b> FWC, stakeholders
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10. Evaluate combining a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster harvest fishery as evaluated in relation to appropriate performance metrics.

*Action 10-A.):* Develop standards for a potential limited entry fishery.

*Note: This is not a new action it was relocated from the previous Strategy #12.*

<b>Lead:</b> FSU/UF	<b>Partners:</b> FWC, stakeholders
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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.

- *Action 11-A.):* Develop maps using FDACS data showing all aquaculture activities in the ABS, superimposed on existing maps of essential fish habitat and fishing activities to identify potential conflicts.
- *Action 11-B.):* Utilize habitat and activity maps from *Action 5. A.* to identify potential new oyster restoration areas and areas that could be used as spawning reefs to enhance recruitment and productivity nearby harvested reefs.

*Note: This is not a new strategy; it was the previous strategy #10.*

<b>Lead:</b> FDACS	<b>Partners:</b> FSU, UF, FWC, oystermen
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12. 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.

- *Action 12-A.):* Develop strategies to increase FWC enforcement presence and number of checkpoints.
- *Action 12-B.):* Develop strategies to ensure uniformity in the harvestable and marketable size of oysters.
- *Action 12-C.):* Work with FWC and FDAC to implement enforcement changes.

*Note: Action 12-C is not a new action; it was only re-lettered, and the remaining actions under the previous Strategy #11 were moved to other existing strategies in this section.*

*Note: This is not a new strategy; it was the previous strategy #11.*

<b>Lead:</b> FWC/FDACS	<b>Partners:</b> FSU-CAB, oystermen, oyster dealers
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## GOAL C

### A FULLY FUNDED ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN SUPPORTED BY APALACHICOLA BAY SYSTEM STAKEHOLDERS

**VISION THEME C:** The Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan is science-based and developed with engagement and support from the Apalachicola Bay System stakeholders, and is fully funded.

**GOAL C:** The Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan is supported by the Apalachicola Bay System stakeholders, and is fully funded.

**OUTCOME:** By 2030, the Apalachicola Bay System is a productive and sustainably managed ecosystem. A fully funded and well-executed science-based Ecosystem-Based Adaptive Management and Restoration Plan that incorporates the monitoring necessary for evaluation and adaptation is broadly supported by Apalachicola Bay System stakeholders with guidance from a permanent stakeholder advisory board.

#### GOAL C OBJECTIVES

C1) To establish a fully funded permanent, representative stakeholder process to monitor the long-term implementation of the Plan.

C2) To support efforts to identify funding sources and define mechanisms for full implementation of the Plan.

#### GOAL C DRAFT STRATEGIES

##### CAB Proposed Strategies During the ABSI Process

- 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.
  - *Action 1-A.):* Continue CAB meetings and public workshops as outlined in the FCRC proposal for 2021.
- 2) During 2021, the ABSI Team will form a sub-committee within the CAB to evaluate the efficacy of forming a CAB successor group. The intent of a successor group would be to ensure continuity between the CAB members and the agencies responsible for oyster management. [Status: initiated]
  - *Action 2-A.):* The subcommittee will define a plausible scope of work for the successor group, including evaluating regulatory processes and engaging with and being accountable to decision-makers and the public for the actions laid out in the Plan and the implementation thereof.
  - *Action 2-B.):* The subcommittee will evaluate the best organizational structure for ensuring longevity of the successor group, including working under the auspices of a state agency, an estuary program, or private/public partnerships.
- 3) A successor group to the CAB will be developed and in place by the time the Plan is completed.

- *Action 3-A.):* The successor group actively engages with state programs to encourage their adoption of ABSI’s long-term monitoring guidelines and metrics for assessing water quality, oyster abundance, and demographics and to regularly review and update these guidelines and metrics to maintain a healthy and sustainable oyster harvest and ecosystem.
- *Action 3-B.):* The successor group will monitor the Plan’s implementation and make recommendations for revisions required to adaptively respond to changing conditions.
- *Action 3-C.):* The successor group encourages agencies to prioritize the Plan’s recommendations for investing more funding in the management and restoration of oyster resources.
- *Action 3-D.):* The successor group should evaluate whether to initiate the development of an Apalachicola Bay Estuary Program (ABEP) to coordinate and lead in the implementation and monitoring of the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan. The successor group should explore whether it’s a better model to be a part of EPA’s National Estuary Program or to model the ABEP after the EPA program with funding provided from other entities as was done with the St. Andrew and St. Joe Bays Estuary Program.

<b>Lead:</b> FSU	<b>Partners:</b> CAB, CAB sub-committee, other stakeholders
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- 4) Create a comprehensive funding approach for the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan implementation including a comprehensive analysis for future grant funding for strategies, including support for sustainable monitoring deriving from the Plan.
- *Action 4-A.):* Evaluate and seek funding sources for implementation of management and restoration strategies included in the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan (e.g., state agencies, region-wide Gulf trustee implementation group for NRDA funding.)
  - *Action 4-B.):* Evaluate and seek grant opportunities from recommendations included in the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan.
  - *Action 4-C.):* Allocate sufficient funding for habitat restoration based on oyster habitat suitability mapping and modeling and restoration and management targets (e.g., Develop funding source for cultch used in oyster reef restoration.)
  - *Action 4-D.):* Allocate sufficient funding for restoration of harvested reefs and aquaculture farms based on oyster habitat suitability mapping and modeling.
  - *Action 4-E.):* Evaluate and seek funding sources to generate awareness, education, and support for a healthy oyster and ABS ecosystem.
  - *Action 4-F.):* Develop and seek long-term funding for a comprehensive monitoring program that is used across programs and projects with a dashboard on metrics and indicators to leverage resources, standardize the metrics and indicators measured, and to share data.
  - *Action 4-G.):* Work across estuary programs to fund and leverage large scale monitoring for the Panhandle Region – Perdido to Suwanee.
  - *Action 4-H.):* Develop and seek a funding source to provide cultch for habitat restoration.

<b>Lead:</b> FSU-ABSI	<b>Partners:</b> Restoration Partners Working Group; Successor Group
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## GOAL D

### AN ENGAGED STAKEHOLDER COMMUNITY AND INFORMED PUBLIC

**VISION THEME D:** Stakeholders of the Apalachicola Bay System are committed to working together to disseminate relevant information and advocate for a sustainably managed oyster-based ecosystem. In so doing, the group will facilitate innovative research, development and implementation of best management practices and serve as a hub for information exchange as well as new innovation, education and communication opportunities.

**GOAL D:** A productive and well-managed Apalachicola Bay System is supported by an actively engaged and informed stakeholder community and public.

**OUTCOME:** By 2030, stakeholders, private and nonprofit civic leaders, and the public are informed of the importance of sustaining the health of the Apalachicola Bay System, and are engaged and working actively together along with elected and appointed leaders and managers to invest in and implement the Plan.

#### GOAL D OBJECTIVES

D1) To coordinate community engagement efforts to increase public awareness of and support for a healthy and well-managed ABS ecosystem; and to ensure that businesses, industries, non-profits, and local governments are supportive and included in these efforts.

D2) To measure public and stakeholder understanding of the issues important to the health and restoration of the Bay and socio-economic indicators.

#### GOAL D DRAFT STRATEGIES

- 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. [Status: initiated]
- 2) Build, with the help of the CAB, community support and stewardship by educating stakeholders on the importance of maintaining healthy oyster reefs and by engaging them in the Bay restoration through a variety of hands-on programs.
  - *Action 2-A.):* Form a sub-committee within the CAB that can spearhead an outreach and community engagement effort and develop a community outreach strategy intended to inform and educate stakeholders and the public about the research, the Plan developing through ABSI, and focusing on a healthy ABS ecosystem. The intended audience includes local city, county, and state government officials, businesses and organizations, citizens of every age, and other interested stakeholder groups.
  - *Action 2-B.):* Define what makes a successful shell recycling program, and work with local groups, businesses and other stakeholders to help initiate its development.
  - *Action 2-C.):* Develop a “Bay Stewards” program to honor, reward, and provide incentives for businesses and individuals that demonstrate their stewardship of the resource.

- 3) Support and participate in providing educational opportunities for students at all levels (primary & secondary school through college) to understand the value of their coastal ecosystems, importance of stewardship and the role oysters play in ecosystem health and fisheries.

*Action 3-A.):* Work with existing entities (e.g., [WeatherStem](#), [Scientist in Ever Florida School \(Florida Museum\)](#)) to expose more K-12 students to the research being conducted by ABSI.

*Action: 3-B.):* Provide training and financial support for new workforce entrants in the Franklin County Community through an aquaculture internship program.

*Action 3-C.):* Provide research opportunities for undergraduate and graduate students in science that supports the ABSI mission.

<b>Lead:</b> CAB outreach subcommittee	<b>Partners:</b> FSU, CAB, other stakeholders
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**SECTION II**  
**STRATEGIES OUTSIDE THE SPECIFIC SCOPE OF ABSI AND TO BE**  
**REFERRED TO OTHER PROGRAMS OR ENTITIES**

The strategies that are not a part of the Ecological (Goal A), Sustainable Management of Oyster Resources (Goal B), The Management and Restoration Plan (Goal C), and An Engaged Stakeholder Community and Informed Public (Goal D) components of the Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan including: training, marketing, education, communication, economic development, and funding are being moved to this category. They will be included as recommendations in an appendix, and the CAB should identify a responsible entity to refer the recommendations to for their development, implementation, monitoring, and maintenance.

**GOAL E**  
**A THRIVING ECONOMY CONNECTED TO A**  
**RESTORED APALACHICOLA BAY SYSTEM**

**VISION THEME E:** A restored Apalachicola Bay System sustains a vibrant commercial oyster fishery, a thriving aquaculture industry and recreational and tourism-related activities and development opportunities that underpin a strong local economy and resilient coastal community.

**GOAL E:** The broader Apalachicola Bay Region is thriving economically as a result of a fully-restored Apalachicola Bay System.

**OUTCOME:** By 2030, the broader Apalachicola Bay Region is thriving economically as a result of a restored Apalachicola Bay System that reflects a unique coastal cultural heritage, based on a vibrant oyster fishery, while simultaneously providing new opportunities for sustainable and responsible development, business, recreation and tourism.

**GOAL E OBJECTIVES**

E1) To ensure that economic indicators of the commercial oyster fishery and associated industries in the ABS demonstrate increasing viability and growth.

E2) To ensure that industries and businesses within the ABS are compatible with a healthy and well-managed ABS ecosystem.

E3) To develop growth management policies, plans and regulations affecting the ABS that are compatible with a healthy and well-managed ABS ecosystem while maintaining a thriving economy and supporting cultural heritage.

E4) To develop an oyster aquaculture industry that provides economic opportunities and is complementary to the wild harvest fishery.

## **GOAL E DRAFT STRATEGIES**

- 1) Work with existing partners (e.g., the Chamber of Commerce, Apalachee Regional Planning Council, and city and county staff) to monitor and report on the economic benefits of a restored ABS, including key economic indicators relevant to the commercial oyster fishery and associated industries in the region. This can be displayed as a dashboard that includes key economic indicators over time based on restoration efforts in the Apalachicola Bay System (ABS).
- 2) Recommend monitoring<sup>2</sup> and enforcement programs continue with appropriate metrics to measure output from and impact of harvest on oyster reefs.
- 3) Support planning tied to economic indicators that consider future conditions (climate, SLR, reduced river flow) and their effects on the ABS.
- 4) Work with oystermen and other community stakeholders to promote post-recovery Apalachicola oysters.
- 5) Develop complementary industries in wild oyster harvest and oyster aquaculture that provide new economic opportunities by building a network of experts that can help Franklin County citizens build successful programs through business training, identifying sources of funding for equipment, and developing products that will enhance and diversify local industries.
- 6) Develop new markets for selling oysters to areas within and outside of Florida in part by investing in location (Apalachicola Bay) branding.
- 7) Review land development regulations to provide flexibility while supporting and enhancing efforts to maintain and revitalize working waterfronts in Apalachicola and Eastpoint to ensure preservation of Franklin County's cultural heritage and a viable seafood industry.
- 8) Coordinate with the local business community and governing bodies (i.e., city and county commissions) to ensure that growth management plans, land use and development regulations meet strong standards that are compatible with and minimize the environmental impact of industry and business activities within the ABS and are conducive to a healthy ecosystem.

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<sup>2</sup> Ongoing fisheries-dependent and fisheries-independent monitoring by FWRI, coupled with ABSI complementary data based on request of watermen. Both entities are sharing data with one another which is critical for ABSI model development. (We remain unable to get FWRI data)

- 9) Engage commercial fishermen in the restoration of the bay and encourage future participation in restoration such as monitoring, shell recycling, shelling, and relaying.
- 10) Coordinate with and encourage recreational businesses and activities that recognize the importance of and support a sustainable commercial oyster fishery and the importance of the seafood industry to the Region's cultural heritage.
  - *Action 10-A*): Coordinate and work with initiatives such as the Regional Recreation Economy Alliance to leverage resources to support the local economy.

<b>Lead:</b> ABSI CAB Successor Group	<b>Partners:</b> Stakeholder groups, Chamber of Commerce, local government
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**ADDITIONAL STRATEGIES OUTSIDE OF ABSI SCOPE  
TO BE REFERRED TO OTHER PROGRAMS OR ENTITIES**

- 1) Develop surveys or other tools that can be used to measure and track changes in stakeholder and public understanding of the issues important to the health and restoration of the Bay.
- 2) Engage the general public (students, residents and tourists) in learning about the history and the ecological and economic importance of the Apalachicola Bay region, including the natural resources, and lumber, cotton shipping, and fishing industries.
- 3) Build Gulf-wide mechanism for communities interested in the restoration and revitalization of fisheries to exchange best practices and lessons learned. [Status: this is developed through FWC]
- 4) Provide training and financial support for new workforce entrants (particularly young entrants) interested in being employed in existing industries as well as and developing industries in new fisheries, aquaculture, and restoration science.
- 5) Work with State legislators and state agencies to develop funding strategies, and incentives for involving local watermen, seafood dealers, restaurants, aquaculture operations, and private citizens in oyster reef restoration efforts that will increase the viability of oyster resources.
  - *Action 5-A*): Identify source of shell, or other restoration material.

<b>Lead:</b> ABSI CAB Successor Group	<b>Partners:</b> Stakeholder groups, Chamber of Commerce, local government
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**ATTACHMENT 7**  
**ESTUARINE METRICS**

<b>ESTUARINE METRICS</b>	
<b>CATEGORY</b>	<b>ASSOCIATED METRICS</b>
<b>Environmental</b>	<p>For eastern oysters, the optimal range of salinities is 15-25 ppt and temperatures are 20-30°C. Use hydrodynamic models to estimate:</p> <ul style="list-style-type: none"> <li>• Spatial and temporal footprint of optimal salinity conditions under different flow regimes (and temperatures if possible).</li> <li>• Spatial and temporal footprint of unfavorable conditions (&lt; 10 ppt, &gt; 25 ppt) under different flow regimes.</li> </ul> <p>Use <i>in situ</i> instruments to validate and parameterize models to increase accuracy. Use ANERR data (current and historical) to hindcast environmental conditions (temp, salinity, oxygen, turbidity, pH, nutrients) relative to historical water flows.</p>
<b>Biological - Oysters</b>	<p>Measurable biological responses may be <i>immediate</i> (e.g. mortality in response to extreme conditions), <i>delayed</i> (e.g. high mortality from predation/disease in response to extended high salinities) or <i>sub-lethal</i> (e.g. reduced growth in response to long-term suboptimal conditions). The following variables can be measured during monthly monitoring and results interpreted in the context of observed or modeled environmental conditions.</p> <p>Biological metrics include:</p> <ul style="list-style-type: none"> <li>• Mortality (boxes) – juveniles, sub-adults, adults.</li> <li>• Recruitment - river outflow can change current regime and environmental conditions, which influence larval survival, and dispersal.</li> <li>• Condition index – decreases under sub-optimal conditions.</li> <li>• Disease (Dermo) prevalence – increases in high salinity warm conditions. Primarily affects adults.</li> <li>• Reproductive status – can be impacted under long-term suboptimal conditions.</li> </ul>
<b>Ecological - Oysters</b>	<ul style="list-style-type: none"> <li>• Oyster population dynamics – number of live, dead and boxes for juvenile, sub-adult and adult oysters can identify size-related mortality events.</li> </ul>
<b>Ecological - Other Species</b>	<ul style="list-style-type: none"> <li>• Predator abundance (high salinities facilitate predators such as oyster drills, crown conch, stone crabs).</li> <li>• Occurrence of pests (boring sponge, blister worms) and parasites (flatworms).</li> <li>• Use FWC Fisheries independent monitoring data to assess distribution of fishes (and managed invertebrate species) relative to river flow and modeled/observed environmental data.</li> </ul>