APALACHICOLA BAY SYSTEM INITIATIVE

COMMUNITY ADVISORY BOARD MEETING XI SUMMARY REPORT

FEBRUARY 24, 2021
(UNANIMOUSLY APPROVED APRIL 21, 2021)

VIRTUAL MEETING VIA WEBINAR AND TELECONFERENCE

FCRC CONSENSUS CENTER

FLORIDA STATE UNIVERSITY 1851

MEETINGS FACILITATED AND SUMMARIZED BY JEFF A. BLAIR

Apalachicola Bay System Initiative Community Advisory Board

February 24, 2021 Facilitator's Meeting Summary Report

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OVERVIEW OF ABSI COMMUNITY ADVISORY BOARD'S KEY ACTIONS

WEDNESDAY, FEBRUARY 24, 2021

I. MEETING SUMMARY AND OVERVIEW

At the February 24, 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, Apalachicola Bay Oyster Monitoring Program, and Initiating an Estuary Program in Pensacola and Perdido Bays; received reports and updates on the Community Outreach Subcommittee, and CAB Successor Group Subcommittee; and, discussed management alternatives and issues. Specific actions included: reviewing and agreeing to proposed revisions to strategies and actions in the Draft Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan Framework (Goals, Vision Themes, Outcomes, Objectives, Overarching Approaches, Strategies, and Actions).

II. Welcome and Updates

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, February 24, 2021 virtual meeting conducted via webinar and teleconference:

Georgia Ackerman, Lee Edmiston, Jim Estes (Alan Peirce alternate), Frank Gidus, Anita Grove, Chad Hanson, Jenna Harper, Shannon Hartsfield, Erik Lovestrand, Chuck Marks, Roger Mathis, Mike O'Connell, Steve Rash, Denita Sassor, Portia Sapp, Chad Taylor, and TJ Ward.

(17 of the 23 member participated—74%).

Absent CAB Members:

Chip Bailey, Tom Frazer, Alex Reed, Ricky Jones, John Solomon, and Paul Thurman.

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/

FCRC CONSENSUS CENTER

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 February 24, 2021 meeting as amended. Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Meeting XI Agenda, Meeting X Summary Report)
- To Receive Project Briefings and Community Advisory Board Requested Presentations
- To Receive Updates from Subcommittees (Community Outreach and CAB Successor Group)
- To Review and Approve Revised Plan Framework
- To Discuss Management and Restoration Goals
- To Identify Needed Next Steps, Information and Presentations, and Agenda Items for Next Meeting

Amendments to the Posted Agenda:

- The discussion of Estuarine Metrics was deferred to the next meeting.
- The prioritization of strategies exercise was deferred to a subsequent meeting.

(Attachment 2—February 24, 2021 ABSI CAB Agenda)

V. APPROVAL OF THE JANUARY 13, 2021 FACILITATOR'S SUMMARY REPORT

The ABSI CAB voted unanimously to approve the Facilitator Summary Reports for the January 13, 2021 CAB meeting as amended.

*Amendment***:** Page 12 was amended to correct the spelling from ~~draught~~ to drought.

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 at least 2 oystermen's workshops during 2021. Jeff reported that the next oystermen's workshop is scheduled for March 29, 2021, and the next CAB meeting for April 21, 2021.

- Jeff explained 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 and supported by 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.

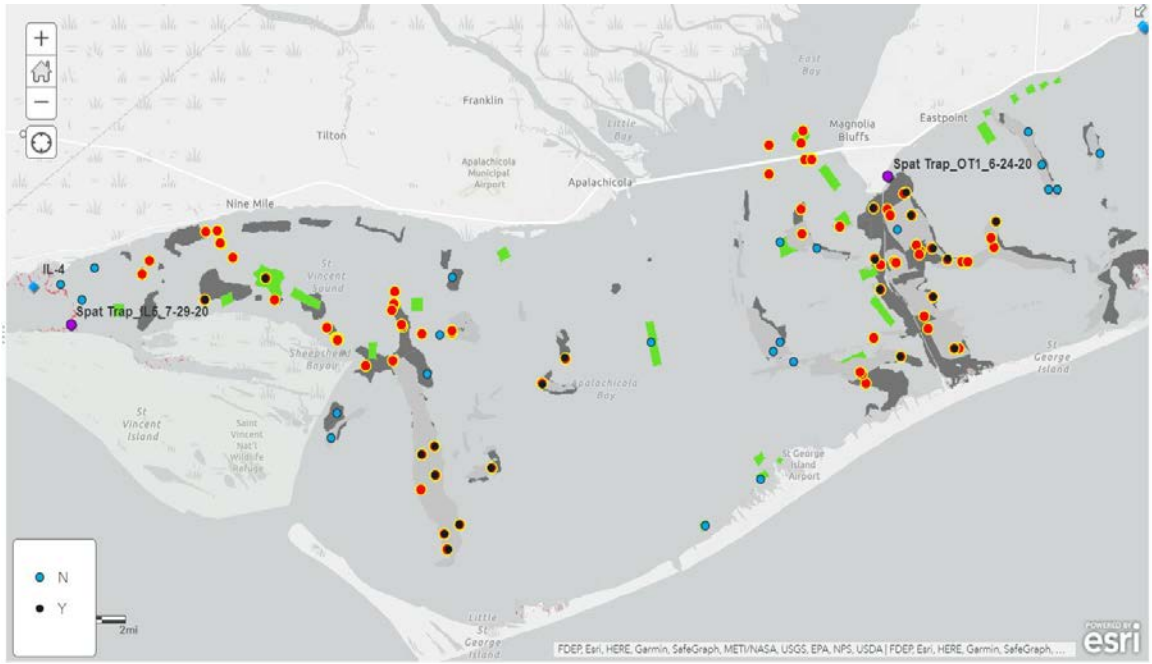
(Attachment 5—Workplan and Schedule)

VII. Project Briefings and Requested Presentations

ABSI Science and Data Collection Update

Sandra Brooke, FSUCML Faculty and ABSI Principal Investigator, provided the CAB with their regularly scheduled at each meeting update on ABSI science and data collection. Sandra reported:

- One of the YSI data loggers was moved from Lake Wimico to near Sikes Cut, and all are functioning well.
- Subtidal survey nearly completed. The data will be used to select a suite of sites for monitoring and research.
- Many sites are devoid of oysters.
- Drones show best results flying 50' above substrate; the data has not yet been cross calibrated with quadrats; the drone cannot discriminate live vs. dead oysters, but can identify clumps.



Subtidal Sampling – almost complete coverage of known oyster habitat

Food Web Study:

- The study moving along.
- Samples of sediments and plankton have been processed from dry season.
- No significant reduction in terrestrial carbon from earlier study.
- Oysters and most fish have been collected and are being processed.
- Wet season samples will be collected in the spring.

Pollution Study:

- Sediments and cores underway (heavy metals, pesticides).

- Collaboration with FAMU scientist to investigate levels of pesticides and heavy metals in surface sediments and cores (historical values).

Research Stations:

- ABSI team is developing a series of research stations to address some unanswered questions such as why are oysters not establishing in some locations, how fast does shell dissolve under different conditions, how does recruitment, survival, growth, condition, reproduction and disease vary spatially and temporally throughout the bay including intertidal areas.
- Research stations are being developed to address key, unanswered questions.
- Genetics study continues (Yankeetown samples obtained).

Questions and Responses:

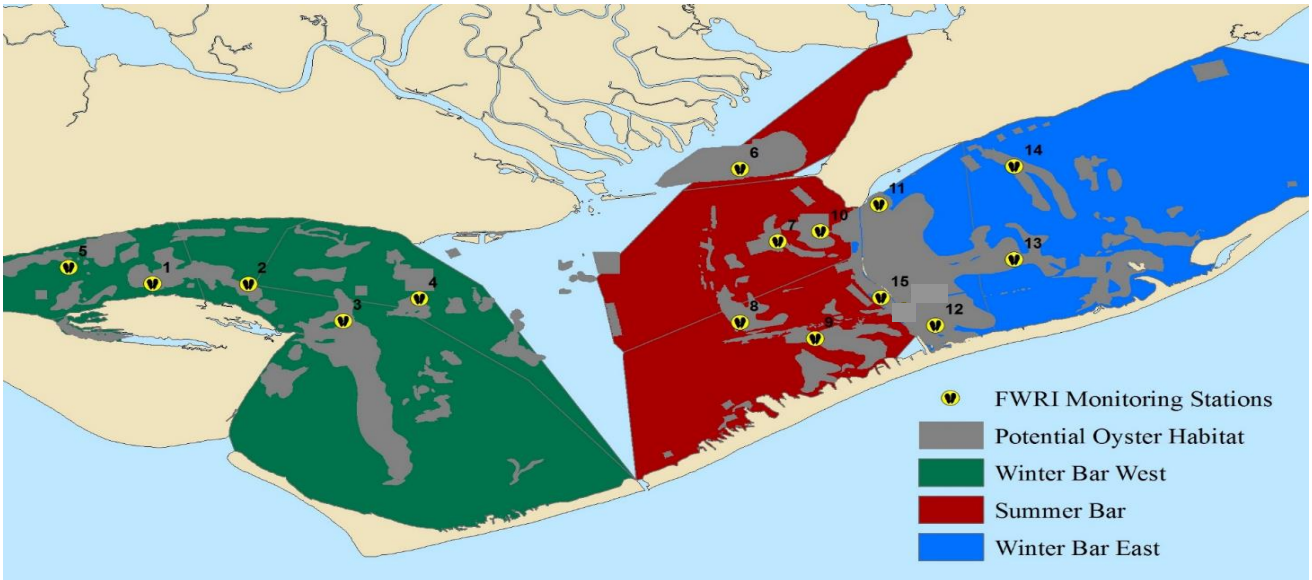
- Question: the map shows there are not many oysters in the Bay, what about the east side? SB response: In the east side there are some good spots for oysters. There are good oysters where lime rock has recently been deposited. Is this going to persist over time remains a question?
- Question: what is the status of Science Advisory Board? SB response: the SAB has not met recently, but plans to soon. The minutes of SAB meetings will be made available on the project webpage.

The full presentation is posted to the Project webpage.

APALACHICOLA BAY MONITORING PROJECT UPDATE

Matt Davis, Associate Research Scientist, Florida Fish and Wildlife Research Institute (FWRI), Fish and Wildlife Conservation Commission (FWC), provided the CAB with an update on FWRI's Apalachicola Bay Oyster Monitoring Program. Matt reported:

- FWC has been monitoring in the Bay since January of 2015.
- FWC has been doing monitoring elsewhere in the State for 20 years.
- Conducting Apalachicola Bay monitoring with 15 stations located in historic oyster reef sites.
- 15 stations divided between 3 sections each with 5 stations.



FWC Oyster Monitoring (monitoring conducted monthly, semi-annually, or quarterly)

Monthly Monitoring:

- Monthly recruitment monitoring using T-bars with shell strings (spat counting); recruitment in spring-fall with peak typically in fall; recruitment has declined over past 5 years.
- Monthly population monitoring; 50 oysters per section; monitor condition, shell pests, reproductive development and disease. Average infection with dermo is light.
- Monthly sedimentation monitoring at six stations; 2 each in each section. Each trap has 5 replicate cups retrieved by SCUBA; samples dried and weighed.

Semi-Annual Monitoring:

- Twice a year oyster surveys are conducted before and after the season; SCUBA collect ¼ meter squared quadrats in all 15 stations; densities higher in the summers; clear-cut decline over time.

Population Monitoring Data Collected on:

- Sample weight; Number and size of live oysters; Number of recently dead oysters; Number of oyster drills.

Population Monitoring Parameters:

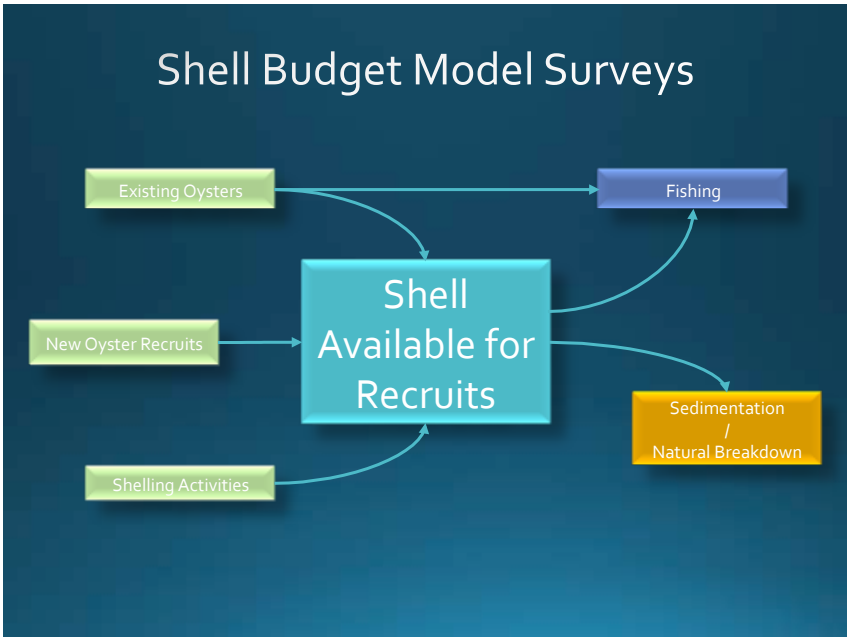
- Condition indexing; Shell pests; Reproductive development; Disease (Dermo).

Quarterly Monitoring:

- Quarterly shell budget model surveys estimate shell available for recruitment; net loss/gain to system; goal is to monitor impact of Bay closure; surveys on 10 x 2 acre parcels in 7 stations.
- Field collection and separate into components: live oyster shell, dead oyster shell, planted shell, shell hash, and subsurface substrate.

Shell Budget Model Surveys Collect Data on:

- Sample weight; Number and size of live oysters; Number of recently dead oysters; Number of oyster drills; Weight of substrate components.



Summary:

- Monthly
  - Recruitment Monitoring
  - Population Monitoring
  - Condition Index
  - Shell Pest
  - Reproduction
  - Dermo Disease
  - Sedimentation Monitoring

- Semi-annually
  - Oyster Surveys

- Quarterly
  - Shell Budget Model Surveys

Questions and Responses:

- Question: how could the monitoring regime be changed to conduct adaptive management? MD answer: not clear whether the current sampling method could be used for this purpose; sampling regime could be changed to improve resolution.
- Question: do you count spat on cinder block? MD response: No, spat only counted on suspended shell.
- Question: some historical bars are not actually historical bars. MD response: some stations sampled are not necessarily natural bars but are bars that have produced oysters in the past. JB suggested that MD talk with SH about sampling strategy and locations.
- Question: has there been an increase in spat recently? MD response: not a large increase in spat but some small areas show increase in oysters; wherever there is hard substrate there are oysters but the problem is a dearth of hard substrate.
- Question: what is the size of onset of reproduction and gender switch? MD response: not clear but 30-40 mm animals can be sexed.
- Question: how do you account for other materials in sampling? MD response: other materials can be distinguished fairly easily and likely do not constitute oyster habitat; they are put into the "other" category.
- Question: is there a target threshold for shell levels? MD response: ideally you want to see no change or even an increase; it is difficult to put a hard number on the amount of substrate.

The full presentation is posted to the Project webpage.

INITIATING AN ESTUARY PROGRAM IN PENSACOLA AND PERDIDO BAYS UPDATE

Donald Killorn, Executive Director, and Matt Posner, Transitional Advisor, Pensacola and Perdido Bays Estuary Program (PPBEP), provided an overview of the successful effort to initiate an estuary program in the Pensacola and Perdido Bays in Escambia and Santa Rosa counties. Donald and Matt reported:

History of Pensacola and Perdido Bays Estuary Program (PPBEP):

- 1989: Bay Area Resource Council (BARC) established.
- 2000: 1st Annual Bay Day event.

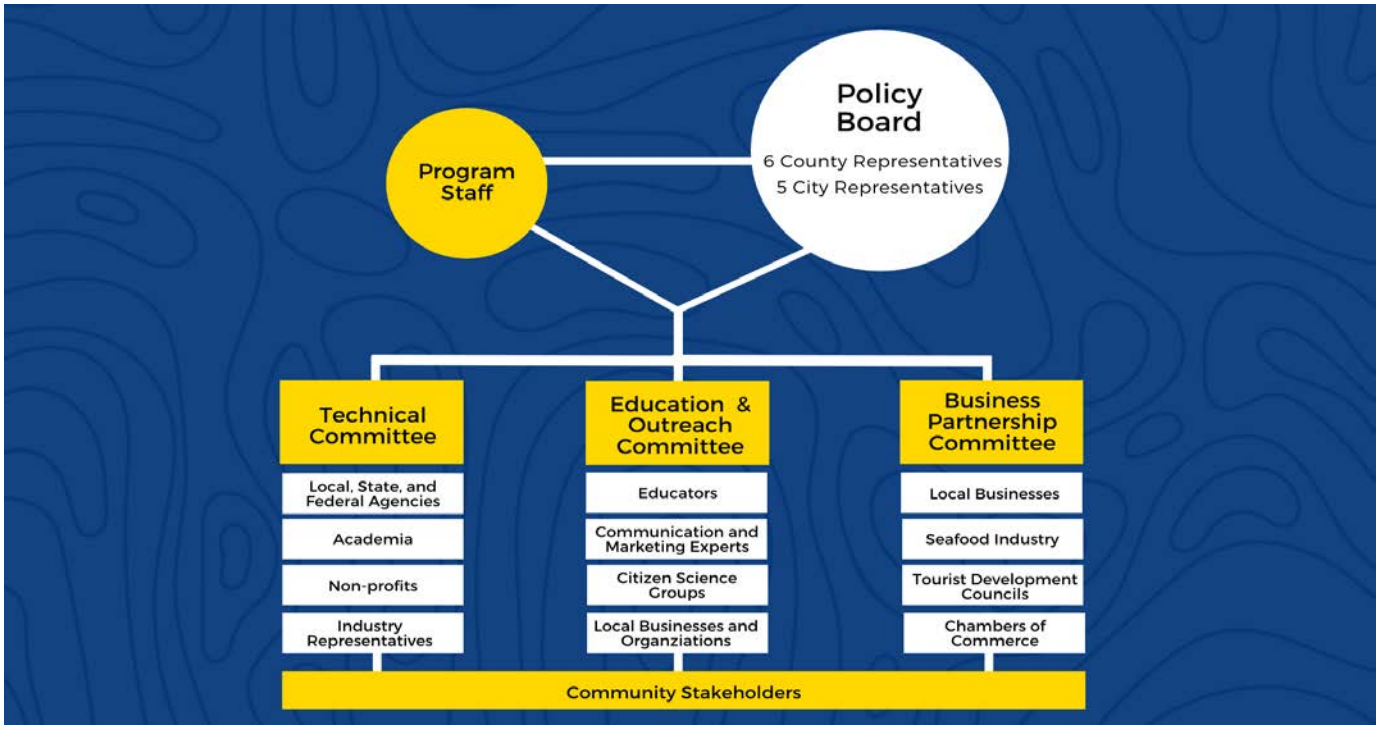
- 2010: Deepwater Horizon oil spill.
- 2017: EPA issues funding opportunity to establish a new estuary program in Northwest Florida.
- August 2017: EPA announces selection of BARC's proposal to establish the Pensacola & Perdido Bays Estuary Program (BARC).
- $2 million grant award from RESTORE Council and EPA.
- September 2018: BARC officially transitions into PPBEP.
- Governing Parties: Baldwin, Escambia, Santa Rosa, & Okaloosa Counties, and the cities of Orange Beach, Pensacola, Gulf Breeze, Milton, Century.

What An Estuary Program Is:

- Stakeholder driven, non-regulatory program.
- Involves community stakeholders in the decision-making process.
- Measurable goals for water quality, habitat, living resource restoration.
- Comprehensive Conservation Management Plan (CCMP), long-term strategic plan, identifies local prioritized action items.
- Science-based approach to developing and implementing the CCMP.

Mission of PPBEP:

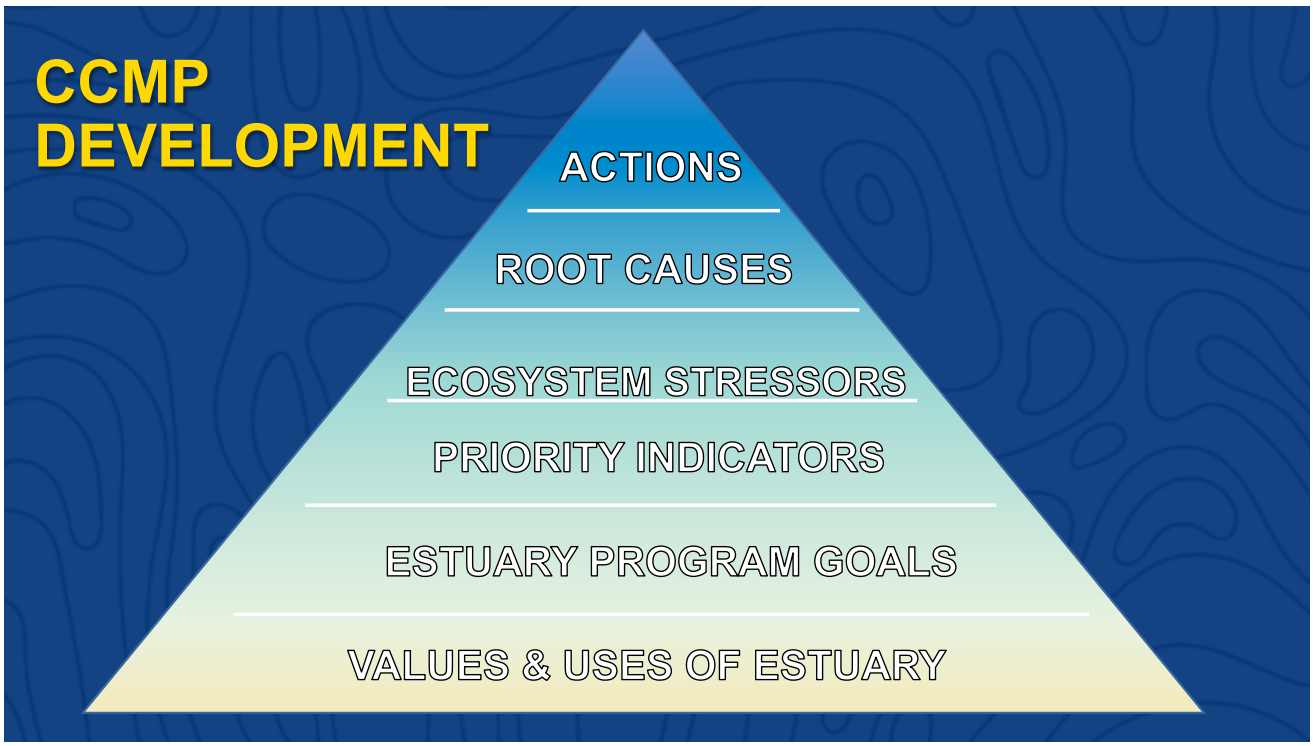
- To restore and protect the water quality and natural resources of the Pensacola & Perdido Bays and watersheds through partnerships, using a community-based, scientifically-sound approach to enhance resilience.
- Mission summary: A healthy and sustainable environment, economy, and community.



Program Structure

Comprehensive Conservation Management Plan (CCMP) Development:

- Watershed Coordination
- Community Outreach & Education
- Comprehensive Monitoring
- Address Priority Issues:
  - Stormwater management
  - Land use change
  - Pathogens, nutrients, sedimentation, & legacy pollutants
  - Domestic & Industrial Wastewater
  - Agriculture BMPs



- The policy board and program staff oversees three committees (technical, education & outreach and business partnership).

Issues:

- Pensacola and Perdido watersheds share boundaries with AL and GA and this is a challenge.
- CCMP: to be completed in summer of 2022.
- Oysters will be a major part of the CCMP.
- CCMP expected to be adaptive and is a 5-year plan.
- An estuarine program is a good option that the CAB should consider.

Questions and Responses:

- Question: why an estuarine program, and what about the differences between the watersheds? DK response: program responds to local issues and can be applied to any aquatic environment including the Apalachicola Bay; it is non-governmental and science-based that works with local stakeholders;

the beauty is the bottom-up approach to estuary management; Apalachicola Bay vs. PPB is that it differs in scale of the upstream water issues.

- Question: are the national estuary programs and NERR programs compatible? MP response: they are compatible; model is broadly applicable to all systems and there are numerous examples including Mobile Bay where both programs live side-by-side.
- JB: this is important information for the Successor Group to evaluate.
- Comment: Pensacola Bay vs., Apalachicola Bay, the issues in the basins including the oyster situations are very different; we need the state and federal agencies to share all of the information and get on the same page; every bay system has different issues.
- Comment: there are so few people in the Apalachicola Bay area; starting a new program might divert energy from the overall goal of restoration of the Bay.
- JB: reminded the CAP that an estuary program is just an option for consideration, the purpose is not to advocate for any specific approach at this point, and that all options should be evaluated.

The full presentation is posted to the Project webpage.

VIII. Subcommittee Updates and Reports

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. To date the Subcommittee issues a newsletter with updates after each CAB meeting, continues reaching out to local media sources, post updates on Facebook, has made a presentation to the Apalachicola City Commission, participated in a WFSU Perspectives broadcast. The Subcommittee is working on scheduling a presentation to the Franklin County BOCC, participated in the ANEER Symposium, Sandra Brooke will being doing an online SciCafe on ABSI, and working on approaches for conducting public workshops during the COVID-19 pandemic including exploring conducting a sequence of public workshops outdoors consisting of smaller target audiences.

CAB Successor Group Subcommittee

Anita Grove and Shannon Hartsfield reported that the Subcommittee has met twice and is struggling with their exact scope of work and their role relative to the Restoration Implementation Working Group. Anita will send around a draft plan for committee comment including a draft scope of work, stakeholder groups, operational procedures, transitional organizational structure, and a work plan.

IX. 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. 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)

X. 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. Following are the management approaches and associated CAB member perspectives.

Summer fishing closures

- Good idea; don't like rotational closures; whole Bay should be open when the fishery is open.
- Good idea; it gives the bars a break.
- Water quality should be monitored year round.
- Where and when the oyster fishery is open is based on having water quality standards sufficient for safe human consumption of oysters.
- Zones should be different when the harvest season is open. We need to work on the zones.
- The summer closure should be a total closure with no options or variations to allow harvesting.
- If closed during summer, the whole bay should be open during harvest months.
- Oystermen have traditionally done other work in the summer so it makes sense to close the fishery for the summer.
- With a summer closure oystermen can have the time to get into aquaculture to supplement their incomes and remain working in commercial fishing.

  Summer closure is a good idea; aquaculture can fulfill the need for oysters in retail and restaurants, so that takes the pressure to harvest during the summer off.

Rotational closures (e.g. summer bars vs. winter bars, partial bar closures)

- Don't like rotational closures; need to open the entire Bay all at one time when the fishery is open unless the water quality is bad.
- In other areas minor bars are part of a rotational harvest strategy, as micro management areas that open and close during the harvest season; a middle approach for rotational harvesting.
- It's a problem for law enforcement to enforce closed areas around open areas, and it pushes the oystermen into concentrating in smaller harvest zones.
- Winter water quality is also a problem for opening and closing zones; there are really only about 1-2 months when the fishery is open in winter due to water quality.
- We need to get with FWCLE to ensure they can regulate harvest to make any type of rotational harvest work.

Managing harvest areas to prevent the concentration of effort in specific locations

- In general the oystermen expressed support for opening the entire Bay (unless water quality is bad) during the open harvest season to spread the effort out and avoid over harvesting of bars.
- FWC will need a larger presence to enforce effectively; the problem is that harvesters all tend to congregate and harvest where the oyster concentrations are so they end up in the same areas anyway.
- When most of the harvest is complete, some harvesters take undersize oysters.
- There should be a stepped sequence to close the fishery when the limits are being reached to avoid concentrating all of the effort on the same bars (overharvest issue).
- Regulations: the CAB needs to get feedback on what approaches are enforceable.
- Consider creating an Oyster Advisory Board (OAB) within FWC once harvesting resumes in the Bay.

Limited entry fishery

- The oystermen mostly support this if it is implemented fairly so locals who have been full-time in the oyster fishery can continue fishing as a way of life and make a living.
- Limited entry is essential for the Bay to survive long-term. We have to do this.
- This is a very sensitive issue; the devil will be in the details for how to fairly implement this.
- This will keep the oystermen who wild harvest oysters as their primary living working at a manageable and sustainable level.
- This will also hold oystermen accountable, if you depend on your license for your income to oyster harvest in a limited fishery, then you have a strong incentive to follow the rules.
- Most Franklin County folks have been oystering at one time or another, so we have to come up with a fair system for who gets into the fishery.
- Need to design a fair system, for example determine who has been primarily oystering for x number of years (e.g., 10 years of landings/trip tickets).
- Blue crab fishery should be looked at as a possible model for determining entry requirements.
- Need to determine how much harvest can occur and still sustain the oyster fishery, and based on this how many individuals can participate in a limited entry fishery.
- There is an issue with using trip tickets for determining who should be eligible for a limited entry fishery. The dealers don't always turn in all of the tickets. I checked my tickets turned into to dealers against the FWC database reflecting what the dealers turned in and not all of my landings were reported. Consider using 2000 - 2010 data for determining landings and who was working full time oyster harvesting.
- The demand might not be as high as we think, many oystermen have changed careers, and making better money, and won't want to enter the fishery.
- Might consider a rotational entry system that varies form year-to-year to allow a larger number of participants into the fishery, and to ensure that the participation matches up with what is sustainable to harvest.
- The system also needs to have an appeals process.

Permanent refuge non-harvest (no fishing) areas

- Look to land management practices like for silviculture, there are areas that are not harvested. These general land-based practices could apply to the Bay.
- Look for depleted reefs to use for brood/larval production with proximity to harvest reefs based on larval transport and based on hydrodynamics etc. to determine the best locations for non-harvest areas. Also use areas where the water not safe for eating but good for oysters to provide ecological services such as cleaning the water.
- Always had closed areas; USACE buried some of these such as East Bay due to freshwater flow.
- The Bay has always had areas that were closed; hard to define boundaries of non-harvest areas within specific bars. Closed areas will need to be spatially distant from harvest areas. Concerns about specific details of delineating non-harvest areas.
- Using imaginary lines to close off part of a bar such as Cat Point, creates problems for harvesters and for enforcement.
- Need to work with oystermen to select the best locations for closed areas relative to harvest areas.
- Need to close an area ¼ mile from where you are harvesting to avoid problems. Need a major gap between where you can and can't harvest.

- The closure of the Bay in summer is the sanctuary (2 spat sets in Spring/Summer).
- Some places create non-harvest areas by using non-harvest material that can't be tonged. This can be done to divide reefs into harvest and non-harvesting areas and avoid the imaginary lines issue.
- The CAB should have a short presentation on where refuge reefs might be located relative to harvest reefs from other places. Chad Hanson has contacts to scientists who can help with this information.

Stock-based temporary closures (establish a density threshold (TBD) that when reached the reef is closed until the density increases back to a sustainable harvest level)

- Thought 300 bushels/acre was the threshold established for when the harvest would be stopped to allow recovery of the reef.
- We hit this threshold in 2010 and oyster density was declining quickly.
- We all need to learn to stop harvesting when the density is too low (300)
- Need to match monitoring with density. Maybe slow down at 350 or some other level above 300 so the numbers always stay above the 300 threshold (fine-tune and adapt the management for sustainability).
- Manage Bay by regulation for the market
- We are limited what we can catch legally (bag limit), and with a limited number of people (limited entry system) allowed to harvest, this will make enforcement easier.

Daily harvest limits vs. fishery or individual quotas

- Daily limit is all you can catch e.g. 2 bags/person, so don't need an individual quota.
- Don't like a quota, people game the system and pay people to harvest for them.
- Prefer bag limit.

Elimination of the 'buffer' (undersized) oysters for seafood dealers

- Dealers should be held accountable, as well as the harvester. Need to check dealers at their fish-house and put illegal oysters back on the bars. Don't wait to stop the trucks and then throw the oysters in the dump.
- In Louisiana dealers put their tags on the oystermen's already tagged bags to hold them both accountable to law enforcement.
- Reputable dealers won't but undersize oysters, if they don't buy them then harvesters won't bring them to sell. If dealers have no repercussions they will buy and sell shorts. Need to hold all in the chain accountable.
- 5% under 3" should we eliminate this buffer?
- FWC: 5% buffer is to avoid mistakes and not penalize honest mistakes for 2.5" oyster in bag. The buffer is not the reason undersize harvesting and selling is going on.
- FWC not going into fish-houses was a problem in Apalachicola and is still going on in other parts of the State. This needs to change so dealers have an incentive not to buy and sell undersize oysters.
- FWC needs to review enforcement penalty structure and hold dealers accountable.
- A big issue is that some harvester don't cull strictly for only 3" and larger and get mad if you don't keep oysters that are just undersize.
- Need to ensure harvester clean and cull oysters properly and legally and that dealers only but them from harvesters that do this.
- Need incentives to clean up oyster so only 3" are brought into the dealers.

- Currently harvesters get paid by the pound, so there is no incentive to clean and cull the oysters and lose the extra weight you could get paid for.
- Need strong enforcement to prevent harvesting undersize oysters.
- FDACS inspectors report undersize oysters to FWC, but have no authority to seize them.

The following management approaches will be evaluated at the April 21, 2021 CAB meeting:

- Implement annual fisheries dependent and independent stock assessments
- Enforcement – Identify what is needed from FWC Law Enforcement.
- Managing oyster reef harvest with a metric (e.g., 300 bushels per acre)
- Reduced bag limits
- Bag tags
- Relaying oysters from intertidal to subtidal locations within the Bay as a management strategy
- 5-day work-week
- Additional CAB member proposed management approaches

(Attachment 7—Strategies and Actions Responsive to Oystermen's Recommendations)

XI. Public Comment

The facilitator invited members of the public to provide comments.

Public Comments:

- None were offered.

XII. Next Meeting Overview and Issues

There will be a second Oystermen's Workshop on March 29, 2021. The Workshop will provide an opportunity for an invited group of oystermen to provide feedback on a suite of possible management approaches that the CAB is currently evaluating. The Workshop will be for invited oystermen only and take place at the Apalachicola National Estuarine Research Reserve (ANEER). CDC and FSU social distancing and mask wearing requirements will be in force during the Workshop. The meeting will also be conducted virtually and CAB members and the public are invited to observe the Workshop via the Zoom link posted to the project webpage. The Workshop agenda and summary report will also be posted to the project webpage as follows: https://marinelab.fsu.edu/absi/cab/.

The April 21, 2021 CAB meeting will focus on discussing restoration and management options, on any revisions to the Plan Framework (Goals, Objectives, Strategies, and Actions), and on prioritization of strategies for each of the Plan's Goal areas (A – E). The April meeting will be conducted as a virtual meeting via webinar.

Adjournment

The Facilitator thanked CAB members, ABSI Project Team members, and the public for their participation, and adjourned the meeting at 12:00 PM on Wednesday, February 24, 2021.

ATTACHMENT 1
MEETING PARTICIPATION LIST

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

**The names of CAB members participating in the meeting are indicated in bold font.*

PROJECT TEAM AND FACILITATORS	
FLORIDA STATE UNIVERSITY	
Sandra Brooke	Marine Biologist
Ross Ellington	Professor Emeritus of Biological Science
Madelein Mahood	Outreach and Education
Joel Trexler	FSUCML Director
FCRC CONSENSUS CENTER, FLORIDA STATE UNIVERSITY	
Jeff Blair	Community Advisory Board Facilitator

**The names of Project Team members participating in the meeting are indicated in bold font.*

ALTERNATES FOR CAB MEMBERS	
Alen Peirce for Jim Estes	FWC

MEMBERS OF THE PUBLIC	
Anne Birch	The Nature Conservancy (TNC)
Scott Borsum	University of Florida (UF)
Ed Camp	University of Florida (UF)
Matt Davis	Fish and Wildlife Research Institute (FWRI)/FWC
Josh Gabel	Senator Marco Rubio's Office
Carrie Jones	FDACS
Ken Jones	Riparian Counties Stakeholders Coalition
Juliana Kaiser	Senator Marco Rubio's Office
Donald Killorn	Pensacola and Perdido Bays Estuary Program
Matt Posner	Pensacola and Perdido Bays Estuary Program
Cole Scott	Florida State University (FSU)
Anthony Sogluizzo	Florida State University (FSU)

ATTACHMENT 2
JANUARY 13, 2021 MEETING AGENDA

ABSI COMMUNITY ADVISORY BOARD MEETING XI OBJECTIVES
✓ To Approve Regular Procedural Topics (Meeting XI Agenda, Meeting X Summary Report) ✓ To Receive Project Briefings and Community Advisory Board Requested Presentations ✓ To Receive Updates from Subcommittees (Community Outreach and CAB Successor Group) ✓ To Discuss Management Goals ✓ To Review and Prioritize Strategies ✓ To Identify Needed Next Steps, Information and Presentations, and Agenda Items for Next Meeting

ABSI COMMUNITY ADVISORY BOARD MEETING XI AGENDA—FEBRUARY 24, 2021		
All Agenda Times—Including Public Comment and Adjournment—Are Approximate and Subject to Change		
1.)	**8:30 AM**	**WELCOME, REVIEW OF VIRTUAL MEETING PARTICIPATION GUIDELINES, AND ROLL CALL**
2.)	**8:35**	**SOCIAL SCIENCE SURVEY**
3.)	**8:40**	**AGENDA REVIEW AND MEETING OBJECTIVES**
4.)	**8:45**	**APPROVAL OF FACILITATORS' SUMMARY REPORT (JANUARY 13, 2021)**
5.)	**8:50**	**REVIEW OF PROJECT MEETING SCHEDULE AND WORKPLAN**
6.)	**8:55**	**PROJECT BRIEFINGS AND REQUESTED PRESENTATIONS** • *ABSI Science and Data Collection Update.* Sandra Brooke, FSUCML • *Apalachicola Bay Oyster Monitoring Program.* Matt Davis, FWRI/FWC • *Initiating an Estuary Program in Pensacola and Perdido Bays.* Donald Killorn, Executive Director, and Matt Posner, Transitional Advisor, PPBEP
7.)	**9:35**	**SUBCOMMITTEE UPDATES AND REPORTS** • Community Outreach Subcommittee Status Update and Report (Chad Hanson) • CAB Successor Group Subcommittee Status Update and Report (Anita Grove)
	~9:50	*BREAK*
8.)		**DISCUSSION OF MANAGEMENT GOALS**
9.)		**A.) A HEALTHY AND PRODUCTIVE BAY ECOSYSTEM** • Review and Prioritize Strategies
10.)		**B.) SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES** • Review and Prioritize Strategies
11.)		**C.) A FULLY FUNDED ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN SUPPORTED BY ABS STAKEHOLDERS** • Review and Prioritize Strategies
12.)		**D.) AN ENGAGED STAKEHOLDER COMMUNITY AND INFORMED PUBLIC** • Review and Prioritize Strategies

13.)		**E.) A THRIVING ECONOMY CONNECTED TO A RESTORED ABS** • Review and Prioritize Strategies
14.)	**~11:45**	**PUBLIC COMMENT**
15.)	**11:55**	**NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING** • Review of action items and assignments • March 29, 2021 Oystermen's Workshop II participation and process overview (Oystermen's review of and comments on management alternatives) • Identify agenda items and needed information and presentations for the April 21, 2021 CAB meeting • Meeting evaluation
~12:00 PM		*ADJOURN*

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.7 of 5	**11**	**4**	**0**	**0**	**0**

2.) The meeting objectives were met.

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.6 of 5	**9**	**6**	**0**	**0**	**0**

3.) The presentations were effective and informative.

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.8 of 5	**12**	**3**	**0**	**0**	**0**

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.8 of 5	**12**	**3**	**0**	**0**	**0**

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.8 of 5	**12**	**3**	**0**	**0**	**0**

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.9 of 5	**13**	**2**	**0**	**0**	**0**

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.6 of 5	**10**	**4**	**1**	**0**	**0**

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

Average Rating	*5. Strongly Agree*	*4. Agree*	*3. Not Sure*	*2. Disagree*	*1. Strongly Disagree*
4.9 of 5	**14**	**1**	**0**	**0**	**0**

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

- Great meeting and discussion. I think everyone is getting comfortable with the platform and this allowed a good discussion.

ATTACHMENT 4
MEETING CHAT SUMMARY (ZOOM)

08:31:20 **Steve Rash:** I must have my audio and video off but I am here.
08:32:01 **Maddie Mahood**: Okay thanks Steve!
08:37:15 **Georgia Ackerman**: What is the oystermen workshop date?
08:37:16 **Steve Rash:** Approved
08:37:35 **Maddie Mahood:** It will be Monday, March 29th at 2:00 – 5:00 pm.
08:37:36 **Portia Sapp:** March 29
08:37:47 **Georgia Ackerman:** Thanks!
08:47:42 **Maddie Mahood:** https://ufl.qualtrics.com/jfe/form/SV_8qPH9AS1VnUbeMC
09:24:08 **Matt Davis:** matthew.davis@myfwc.com
10:06:16 **TJ Ward:** It is private-based and seems great but I have asked before on how your are going to correlate with Corp of Engineers. Seems like that has been decades of hold up.
10:11:04 **Anita Grove:** Jeff I have a comment
10:12:12 **Mike O'Connell:** Great presentations…..thanks for all the work
10:13:16 **TJ Ward:** Shannon has hit the nail on the head.
10:26:29 **Matt Posner | PPBEP:** Thanks for the opportunity! To Shannon's point, so long as everyone has an equal seat at the table and issues are discussed and addressed in a transparent manner, you will be successful. If anyone would like to follow up afterward, feel free to shoot me an email at mjposner@myescambia.com
10:35:40 **Anita Grove:** The link to Thursday's talk is https://attendee.gotowebinar.com/register/4432111992499119630
10:35:53 **Maddie Mahood:** Thank you Anita!
10:47:42 **Anita Grove:** Franklin isn't on the plan.

Evaluation Question:
12:01:03 **Maddie Mahood**: 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----------

12:02:22 **Portia Sapp:** Great meeting and discussion. I think everyone is getting comfortable with the platform and this allowed a good discussion.

ATTACHMENT 5
WORKPLAN AND SCHEDULE

UPDATED AS OF THE FEBRUARY 24, 2021 CAB MEETING		
PHASE I—STANDING UP AND ORGANIZATION OF THE ABSI CAB		
ABSI Assessment Process	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.
ABSI CAB Questionnaire	Sept. 2019	Questionnaire report on the CAB members' views on successful short and long-term outcomes and on critical ABSI challenges and issues.
Meeting I. 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.
Meeting II. 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
Meeting III. 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
PHASE II—SCOPING OF ABSI ISSUES, IDENTIFICATION OF PERFORMANCE MEASURES & STRATEGIES		
Meeting IV. 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.
Meeting V. 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.
CAB Strategies	June 2020	CAB Worksheet to identify potential strategies for each of the five goals.
Meeting VI. 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.
Meeting VII. Virtual Meeting	Sept. 9, 2020	Member-requested presentations. Identification, evaluation and refinement of objectives, strategies and performance measures for Goals A-E. Public Comment.
Meeting VIII. 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.
Meeting IX.	Nov. 12, 2020	Member-requested presentations. Agreement on Apalachicola Bay System

Virtual Meeting		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.
Oystermen's Workshop #1	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.
PHASE III—BUILDING CONSENSUS ON CAB RECOMMENDATIONS FOR THE ABS ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN		
Meeting X. Virtual Meeting	Jan. 13, 2021	Member-requested presentations. Sub-committee reports. Discussion of estuarine metrics and restoration goals. Public comment.
Meeting XI.	**Feb. 24, 2021**	Member-requested presentations. Sub-committee reports. Review and approval of revised Draft Plan Framework. Discussion of management goals. Public comment.
Oystermen's Workshop #2	March 29, 2021	Oystermen's review and comments on draft Management approaches and Plan Framework (Strategies and Actions for Goals and Objectives)
Meeting XII.	April 21, 2021	Member-requested presentations. Presentation on modeling scenarios for potential restoration locations. 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.
Oystermen's Workshop #3	***Tentatively May—TBD***	Review draft Plan Framework with Oystermen, and Oystermen's input.
Meeting XIII.	June 16, 2021	Review and agreement on Draft Plan Framework (Goals, Objectives, Strategies, Actions) relative to goals and objectives. Public comment.
Meeting XIV.	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.
Public Workshop and/or Oystermen's Workshop #4 Date TBD		***Schedule & format dependent on status of the COVID-19 pandemic.*** Review and public comments on Revised Draft ABS Ecosystem-Based Adaptive Management Plan and implementation strategies.
Meeting XV.	Oct. 20, 2021	Review of public comment, agreement on recommendations for inclusion in the Plan. Public comment.
Meeting XVI.	Nov. 17, 2021	Complete Phase III of project. Final CAB approval of Management and Restoration recommendations for the Plan. Briefing on Phase IV. Public Comment.
PHASE IV—RESTORATION IMPLEMENTATION PLANNING		
Tentatively January 2022		• 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. • Restoration Partners Working Group convened to seek resources and political support for CAB's priority recommendations. • 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.

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^2) 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.

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

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).

Lead: FSU	***Partners:*** FWC, ANERR

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.

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

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.

Lead: FSU	***Partners:*** UF, FWC, universities, government agencies

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.

Lead: Franklin Co.	***Partners:*** DEP

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.[1] 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.

Lead: FWC	***Partners:*** FSU, UF, NGOs, citizen scientists, watermen

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.

Lead: FWC	***Partners:*** FDACS, FSU, UF, local governments

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.
   - *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,

[1] 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.

manage harvest areas to prevent the concentration of effort in specific locations (open larger areas)).

- *Action 5-B.):* Evaluate existing allowable and minimally destructive alternative gear type options and harvest methods, including the use of experimental gear for wild oyster harvesting.

Lead: FWC	***Partners:*** oystermen, FSU, UF, Sea Grant

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.

Lead: FWC	***Partners:*** FSU, UF, Sea Grant, watermen and aquaculture organizations, local county programs

   - *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.

Lead: FWC	***Partners:*** FSU, UF, NOAA for funding

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.

Lead: FDACS/FWC	***Partners:*** FSU, UF, Sea Grant, FDEP, FDOH, stakeholders (oystermen)

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.

Lead: FSU/UF	***Partners:*** FWC, stakeholders

10. 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 10-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 10-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.

Lead: FDACS	***Partners:*** FSU, UF, FWC, oystermen

11. 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 11-A.):* Develop strategies to increase FWC enforcement presence and number of checkpoints.
    - *Action 11-B.):* Develop strategies to ensure uniformity in the harvestable and marketable size of oysters.
    - *Action 11-C.):* Develop strategies to potentially limit oyster harvest to periods outside of peak spawning season.
    - *Action 11-D.):* Develop standards for a potential limited entry fishery.
    - *Action 11-E.):* Propose strategies to FWC and FDACs for implementation.
    - *Action 11-F.):* 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.

Lead: FWC/FDACS	***Partners:*** FSU-CAB, oystermen, oyster dealers

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.

Lead: FSU	***Partners:*** CAB, CAB sub-committee, other stakeholders

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.

Lead: FSU-ABSI	***Partners:*** Restoration Partners Working Group; Successor Group

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.

Lead: CAB outreach subcommittee	***Partners:*** FSU, CAB, other stakeholders

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 be 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[2] 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.

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.

Lead: ABSI CAB Successor Group	***Partners:*** Stakeholder groups, Chamber of Commerce, local government

[2] 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)

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.

Lead: ABSI CAB Successor Group	***Partners:*** Stakeholder groups, Chamber of Commerce, local government

SECTION III
STRATEGIES RATED AS NOT ACHIEVING CONSENSUS AND ARCHIVED (NONE)

ATTACHMENT 7
ABSI STRATEGIES AND ACTIONS RESPONSIVE TO OYSTERMEN'S COMMENTS PROVIDED DURING DECEMBER 2, 2021 OYSTERMEN'S WORKSHOP

OVERARCHING APPROACHES

Approach 2.) Include commercial fishermen in discussions of and to help work on restoration design and implementation (locations, size, total coverage, clutching, etc.), establishment of permanent closed areas, shell recycling, shelling, oyster relaying, mentoring, and workforce entry development, etc.

GOAL A—A HEALTHY AND PRODUCTIVE BAY ECOSYSTEM

Strategy 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).

Strategy 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.

GOAL B—SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES

Strategy 4.) *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.

Strategy 5.) Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and spawning and the recovery of oyster populations.

- *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.):* Evaluate existing allowable and minimally destructive alternative gear type options and harvest methods, including the use of experimental gear for wild oyster harvesting.

Strategy 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.
- *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.

Strategy 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.

Strategy 11.) 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 11-A.):* Develop strategies to increase FWC enforcement presence and number of checkpoints.
- *Action 11-B.):* Develop strategies to ensure uniformity in the harvestable and marketable size of oysters.
- *Action 11-C.):* Develop strategies to potentially limit oyster harvest to periods outside of peak spawning season.
- *Action 11-D.):* Develop standards for a potential limited entry fishery.
- *Action 11-E.):* Propose strategies to FWC and FDACs for implementation.

GOAL D—AN ENGAGED STAKEHOLDER COMMUNITY AND INFORMED PUBLIC

Strategy 2.) *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.

GOAL E—THRIVING ECONOMY CONNECTED TO A RESTORED ABS

Strategy 4.) Work with oystermen and other community stakeholders to promote post-recovery Apalachicola oysters.

Strategy 9.) Engage commercial fishermen in the restoration of the bay and encourage future participation in restoration such as monitoring, shell recycling, shelling, and relaying.

STRATEGIES TO REFER TO OTHER ENTITIES

Strategy 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.