APALACHICOLA BAY SYSTEM INITIATIVE

COMMUNITY ADVISORY BOARD

MEETING X SUMMARY REPORT—JANUARY 13, 2021

(APPROVED UNANIMOUSLY FEBRUARY 24, 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

January 13, 2021 Facilitator's Meeting Summary Report

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OVERVIEW OF ABSI COMMUNITY ADVISORY BOARD'S KEY ACTIONS

WEDNESDAY, JANUARY 13, 2021

I. MEETING SUMMARY AND OVERVIEW

At the January 13, 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 Project Workplan and schedule; received presentations on ABSI science and data collection, Apalachicola Bay Wild Oyster Harvesting Closure, FWC/NFWF oyster habitat restoration project, and Apalachicola Bay Mapping Project; received reports and updates on the December 2, 2020 Oystermen's Workshop, Community Outreach Subcommittee, and CAB Successor Group Subcommittee; discussed estuarine metrics; and, discussed restoration alternatives and issues. Specific actions included: reviewing and agreeing to proposed revisions to overarching approaches, 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. Jeff noted that Bob Jones is retired from FSU and would not be working on the ABSI project for the near term, and thanked Bob for his work on the project. Jeff noted that Felicia Coleman also retired from FSU and from her role as director of FSU Coastal and Marine Laboratory and thanked her for her participation. In addition, Jeff noted that Joel Trexler is the new director of the FSUCML and as a result he is now a member of the Project Team and will also be serving as the Project Team's liaison to the CAB Successor Group Subcommittee.

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, January 13, 2021 virtual meeting conducted via webinar and teleconference:

Georgia Ackerman, Chip Bailey, Jim Estes, Anita Grove, Chad Hanson, Jenna Harper, Shannon Hartsfield, Ricky Jones, Erik Lovestrand, Roger Mathis, Mike O'Connell, Steve Rash, Portia Sapp, Chad Taylor (Ken Jones alternate), and TJ Ward.

(15 of the 24 member participated—63%).

Absent CAB Members:

David Barber, Lee Edmiston, Tom Frazer, Frank Gidus, Chuck Marks, Alex Reed, Denita Sassor, John Solomon, and Paul Thurman.

Project Team Members Participating

Sandra Brooke, 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 January 13, 2021 meeting as posted/presented. Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Meeting X Agenda, Meeting IX Summary Report, and Oystermen's Workshop 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 Estuarine Metrics, and Management and Restoration Goals
- To Review and Prioritize Strategies
- To Identify Needed Next Steps, Information and Presentations, and Agenda Items for Next Meeting

Amendments to the Posted Agenda:

There were no amendments to the posted agenda.

(Attachment 2—January 13, 2021 ABSI CAB Agenda)

V. Approval of the November 12, 2020 Facilitator's Summary Report and December 2, 2020 Oystermen's Workshop Facilitator's Summary Report

The ABSI CAB voted unanimously to approve the Facilitator Summary Reports for the November 12, 2020 CAB meeting and the December 2, 2020 Oystermen's Workshop as posted/presented.

Amendments: There was no amendment offered to the Reports.

VI. Review of 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 would like to conduct at least 2 more oystermen workshops during 2021, and that the format for public workshops will be dependent on the status of the COVID-19 pandemic. Jeff noted that the next CAB would be on February 24, 2021.

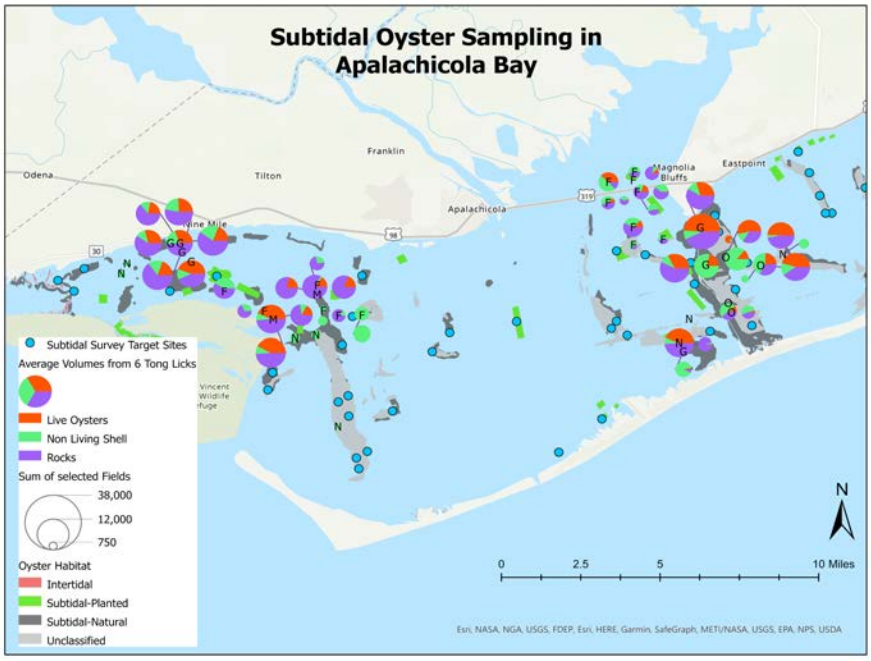
(Attachment 5—Workplan and Schedule)

VII. Project Briefings and Requested Presentations

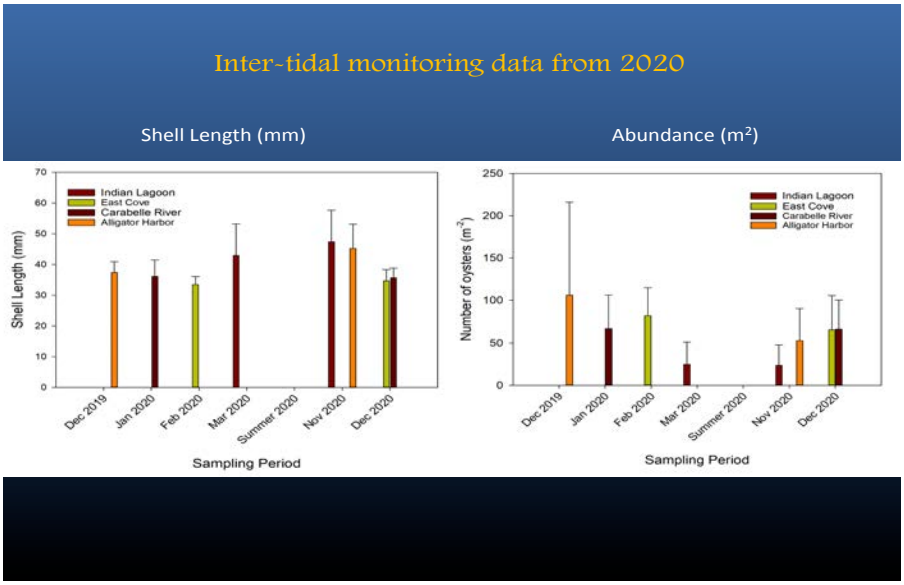
ABSI Science and Data Collection Update

Sandra Brooke, FSUCML, provided the CAB with their regularly scheduled at each meeting update on ABSI science and data collection. Sandra noted using a map the locations where YSI dataloggers were deployed, and indicated that they are in the process of calibrating tonging data taken from subtidal reefs with scuba data to create oyster density estimates. Sandra noted that live oysters were found at some sites in the Miles (NW of the Bay), and several more in the Cat Point area in the eastern end of the Bay. Sandra also used a map to show the locations for where intertidal habitat monitoring is being conducted, and reported that field data is being used to calibrate the drone data to increase the accuracy of drone images that will be used to estimate oyster population density. Sandra reviewed a graph of inter-tidal monitoring data focusing on data collected from December of 2019 – December of 2020 on shell length

and abundance for Indian Lagoon, East Cove, Carrabelle River, and Alligator Harbor, noting that there were minimal differences in shell length between sites and sampling times. It was noted that seasonal phases are not captured in on-going ground sampling, and that higher resolution drone surveys will help with this. Sandra noted that sampling will shift to late spring (spatfall) and late summer (higher mortality period).



Subtidal Oyster Sampling Locations (2020)



Inter-tidal Monitoring Data (2020)

Sandra concluded her update by noting there were additional studies being conducted for the ABSI project including a genetic study, a food web study, and development of hydrodynamic models. Following are updates on the other ABSI studies:

Genetic Study

- Samples collected from Apalachicola Bay, collections needed from elsewhere.
- Processing begins in January 2021.

Food Web Study

- Dry season samples collected and partially processed.
- Wet season samples will be collected in the spring of 2021.

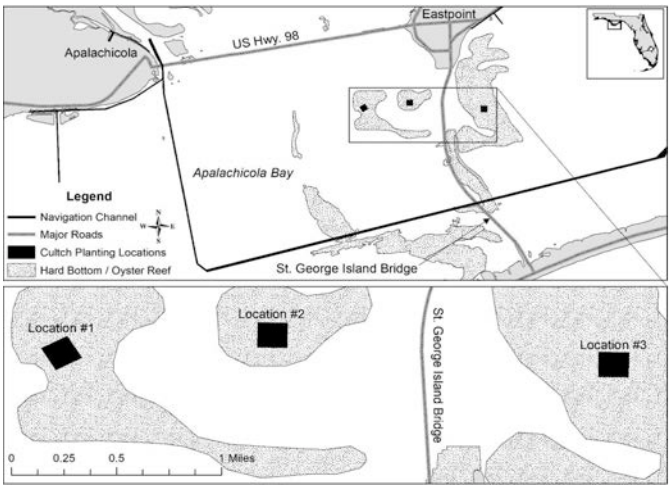
Hydrodynamic Models

- **Watershed model –** developing flow scenarios but need input on estuarine metrics.
- **Bay flow models –** model framework in development, will be running scenarios in a month or so.

APALACHICOLA BAY WILD OYSTER HARVESTING CLOSURE UPDATE

Jim Estes, Fish and Wildlife Conservation Commission (FWC), reported that at the FWC's December 16, 2020 meeting the Commission 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. Jim noted that Mike Norberg provided the Commission with the proposed closure presentation, and that Mike is leaving FWC to take a position in Okaloosa County as their Coastal Resource Coordinator starting January 16, 2021.

Jim also reported that FWC located $500,000 in funds remaining from a previous NFWF funded project that will be used to conduct an oyster reef restoration experiment in Apalachicola Bay in the Spring of 2021, and showed a map of the locations being considered for the project. Jim noted that larger limerock would be used for this restoration project and that similar work done in Suwannee Sound had been successful with this approach. Jim noted that fossilized shell and other smaller materials have disappeared from previous restoration sites and the larger limerock should prevent this. Although not tongable, the goal for this project is to create habitat that will be durable and provide spat production (stock areas) for the System and to enhance water quality. Jim indicated that FWC will be purchasing 12 YSI conductivity meters to provide data to supplement data generated by the ABSI project, and that 12 additional spat collectors will be deployed in the hope that the additional data will provide insight as to whether the Bay is spat limited.

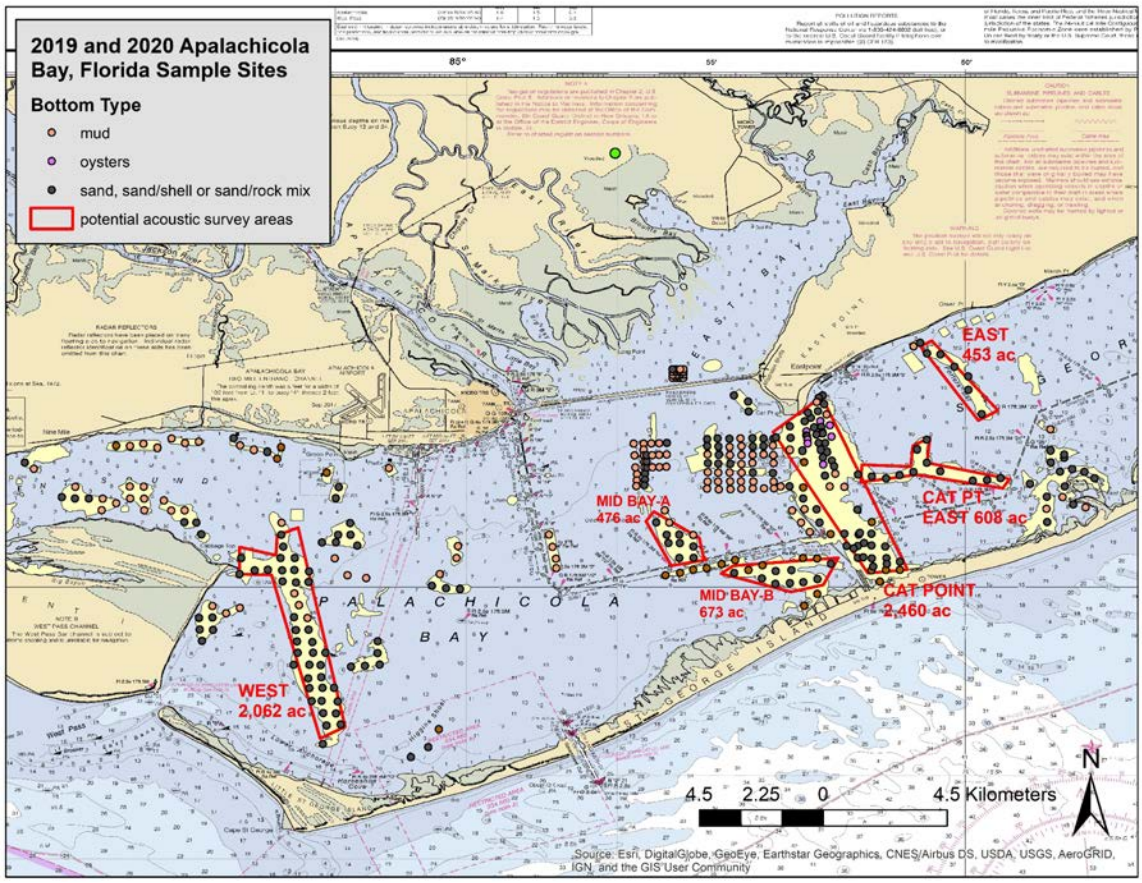


Proposed Locations for FWC NFWF Funded Oyster Reef Habitat Restoration Project

OVERVIEW OF APALACHICOLA BAY MAPPING PROJECT

Ray Grizzle, University of New Hampshire, provided an overview of his mapping oyster reefs in Apalachicola Bay project. Ray noted that he had done a previous project funded by FWC to collect sonar (acoustic) data on subtidal natural/harvested reefs, to ground-truth the reefs with patent tongs and compare the results with data from FWC diver-excavated quadrats, and to determine an effective approach for larger scale mapping.

The current mapping project scope of work is to conduct oyster reef mapping at least 3000 acres of Apalachicola Bay and is a component of an FWC restoration project funded by NFWF. Ray indicated that the overall goal of the mapping portion of the project is to determine benthic composition and spatial location and extent of potential oyster substrate and live oysters in the study areas. The major deliverable will be a final report that contains three-dimensional maps (i.e., providing x, y and z components where practical) based on a combination of sonar methods for subtidal reefs, satellite and other aerial imagery for intertidal reefs, field-based ground-truthing, and synthesis of the resultant data to construct final maps of the distribution of both subtidal and intertidal oyster reefs in both study areas. Ray clarified that for the shallower water of Apalachicola Bay sidescan sonar would produce the best results. Ray stated that in Apalachicola Bay oysters occur in subtidal and intertidal zones, that sonars were used (by USGS in 2006) to map subtidal reefs, and online satellite imagery was used to produce a new map of intertidal reefs. Ray showed maps of sites where preliminary sampling was conducted in November of 2020 to narrow down coverage and to identify target polygons, and where sampling was conducted during 2019 and 2020.



Apalachicola Bay Sampling Sites

VIII. Oystermen's Workshop and Subcommittee Updates and Reports

Oystermen's Workshop

Sandra Brooke and Jeff Blair provided the CAB with an overview of the Oystermen's Workshop conducted on December 2, 2020. During the Workshop the oystermen provided feedback on where the best locations would be for fisheries restoration and non-harvest reefs, the best cultch material to use for oyster fishery restoration and for oyster ecosystem restoration, and on a range of possible management options/approaches for restoring the health of the Bay System and the oyster fishery. Jeff noted that the Strategies Evaluation Worksheet was revised to add new strategies and note existing strategies responsive to the oystermen's feedback. It was noted that the oystermen expressed that they are dedicated to restoration of the fishery and want be active participants in ABSI discussions and in restoration work.

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

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 including: issuing a newsletter with updates after each CAB meeting, reaching out to local media sources, posting on Facebook, getting on local commissions' agendas, participating in an NPR Perspectives broadcast, 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 they are planning to convene the ABSI CAB Successor Group Subcommittee prior to the next CAB meeting, and they would have provide a report of the Subcommittee's first meeting during the February 24, 2021 CAB meeting.

IX. Discussion of Estuarine Metrics

Sandra Brooke noted that Steve Leitman who is working on freshwater inflow modeling for 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. Steve Leitman noted that both his and Steve Morey's modeling efforts for ABSI are focused on how to assess whether specific flow regimes are impactful to Bay health, and what scenarios would work best to achieve this. In order to accomplish this they need to determine what are the appropriate metrics for assessing the impact of timing and extent of inundation, and that both physical and biological metrics are needed and need to link back to flow.

The CAB discussed a range of possible estuarine metrics including salinity, turbidity, oyster mortality, and nutrient levels. The issue of physical vs. biological timescales for determining when flows are needed was identified as another key component to be evaluated, and understanding the impacts of freshets and their timing on the health of the System was noted. Steve noted that the biologists should determine what is needed in terms of biological time scales for flow regimes before the modelers can determine what is possible to deliver and when. In addition, understanding these variables can help to determine when water flow pulses would be most helpful to the Bay System to replicate optimal or acceptable conditions for oyster and habitat health. It was agreed that Sandra 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.

X. Review and Approval of Revised Approaches, 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 package as drafted with no additional proposed changes. The revised ABSI Plan Framework is included as *Attachment 6* of this Report.

(Attachment 4—Meeting Chat Summary)
(Attachment 6—Revised ABSI Plan Framework)

XI. Discussion of Restoration Goals

The CAB was led in a facilitated discussion on restoration goals. CAB members were asked to respond to each question from their observations, experience and stakeholder perspectives. Following are the questions with corresponding CAB member comments.

Which ecosystem services do you think should be a priority for oyster restoration efforts?

- The quality of the habitat (assessment), and the spatial configuration and footprint of the restored habitat.
- Fisheries production results (e.g., oysters/unit area).
- Abundance and types of other marine species found in restored areas.
- Shoreline protection and reduction of erosion.
- Nutrient filtration and water cycling results.
- Water quality improvements.
- The historical culture of Franklin County as a seafood industry community with working waterfronts, and related businesses is restored and thriving.
- The amount of local seafood that is served in area restaurants, and resulting economic benefit and increased tourism based on the seafood industry.
- Enhancing recreational activities: fishing effort is better on productive bars (time spent on bar).
- Species that are desirable are on the oyster bars: speckled trout, sheepshead; redfish black drum, flounder are found around the edges of bars. If oysters are present on a bar than other desirable species are too, and vice-versa; the presence of indicator species such as croakers. In the past you would see catfish and small crabs on oyster bars and they tend to indicate better health of the system; crab traps are set near bars for this reason.

What factors should be used to determine priority areas for oyster restoration and why?

- Focus on areas that show the best life in the water.
- Look to the areas that are trying to come back.
- Hard bottom areas.
- Formerly productive areas.
- Areas closest to spat production and settlement.
- Use results of modeling to identify new productive areas to restore.

- FWC spat trap data will help for subtidal oyster habitat locations.
- Creating new areas that have never before been productive has not produced productive habitat that lasts. Best to do restoration where there has been productive habitat in the past.
- Intertidal and subtidal bars have different needs for restoration, need to prioritize with the limited funds available, and agree on the objectives for the restoration project.
- Restricted water quality areas: evaluate whether these areas could be used to create non-harvest reefs that could contribute to spat production and water quality improvements.
- Intertidal bars are mostly used for recreational harvest in the Bay.
- We don't have many areas that are not open to harvest (coon bars area) in Apalachicola Bay.
- Increase the size (footprint) of existing bars in productive areas.

What size of materials do you think should be used for oyster restorations? Large solid structures? Small 'tongable' materials? Both?

- Use the limerock that is currently being used, it works.
- Could try an approach that uses larger cultch (limerock) that can't be tonged around the outside perimeter of the reef (west and east sides) to create a barrier to protect the reef from sedimentation, storm surge, and other conditions that tend to cover up reefs, and use smaller tongable rock inside the perimeter that could be used for harvesting.

Need to Determine the Objectives and Purpose for a Restoration Project

- Restoration does not need to be one size fits all, how it should be done depends on the purpose/goals/objectives for the specific restoration project. Need to determine this before making decisions on how to do the restoration.
- Set goals and then determine the best locations for protected reefs for the purpose of providing spat and ecosystem services such as water filtration/cleaning.
- Set goals such as: restore and sustain the oyster fishery, provide x amount of ecosystem services.
- After restoration is complete need to monitor and evaluate whether the goals for the project were met.
- Determine how much habitat is needed in order to provide for x amount of productivity.
- Need to make sure that the depth of the restored reefs are sufficient not to impede navigation.
- Restoration plans also have to be evaluated in terms of a cost/benefit analysis relative to the amount of funds available and the specific goals for the restoration project.
- The ABSI CAB Successor Group should work on finding funding sources for restoration projects such as grants and proposals. It should be part of their scope of work.

What kind of performance metrics should we consider as indicators of successful oyster restoration?

- Use the performance measures discussed today, and the existing list in the Strategies Evaluation Worksheet.
- NRDA has oyster restoration performance metrics that should be reviewed.

Apart from oysters, are there other parts of the ABS that need restoration (e.g., seagrasses, additional species)?

- Seagrass (not a good indicator). Might not be a good metric for oyster reef health.

- SAV tends to expand during years of drought while oysters decline and vice-versa. This observation should be evaluated to determine whether this correct. In addition, salinity levels play a role in this equation, and are impacted by storms, surges and sediment.
- SAVs abundance tends to expand and contract based on the clarity of water, and this is dependent on river flow volume changes.
- Need to evaluate and enhance the overall water quality in Bay (e.g., clarity, bacteria, nutrient levels, etc.) and the water quality results should be determined both before and after restoration efforts to compare and determine whether the restored habitat is enhancing the water quality over time.

Additional CAB Member Comments

- It was noted that relay programs in the past were perceived to have damaged stock and did not produce significant results. The oystermen liked these projects because of the money, but there was damage to bars and breeding populations, and the results were not successful in terms of restoration goals.
- Jeff Blair noted that the CAB would have an in depth discussion on specific strategies and actions at a subsequent meeting and they would at that time agree on which strategies and actions are likely to be viable and which should be culled out.
- CAB members noted that it is important to maintain a record of how the oystermen's comments were incorporated into the CAB's recommended strategies and actions per the notations contained in the January 13, 2021 Strategies Worksheet.
- Jeff Blair noted that the Project Team would ensure that this is done.

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 February 24, 2021 meeting will focus on discussing management options and prioritizing strategies for each of the ABSI Plan Goal areas. The February 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 11:53 AM on Wednesday, January 13, 2021.

ATTACHMENT 1
MEETING PARTICIPATION LIST

MEMBER*	AFFILIATION
Agriculture/ACF Stakeholders/Riparian Counties	
1. Chad Taylor [Ken Jones]	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. David Barber	Barber's Seafood
13. Shannon Hartsfield	Franklin County Seafood Workers Association and Oysterman
14. Roger Mathis	Oysterman and R.D.'s Seafood
15. Steve Rash	Water Street Seafood
16. Denita Sassor	Outlaw Oyster Company, Aquaculture
17. TJ Ward	Buddy Ward & Sons Seafood
State Government	
18. Jim Estes	FWC Division of Marine Fisheries Management
19. Jenna Harper	ANERR/DEP
20. Alex Reed	FDEP Office of Resilience & Coastal Protection
21. Portia Sapp	FDACS Division of Aquaculture
22. Paul Thurman	NWFWMD
University/Researchers	
23. Tom Frazer	UF/DEP Governor's Science Advisor
24. Erik Lovestrand	UF/IFAS/Florida Sea Grant Franklin County

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

FSU Project Team and Facilitator	
Florida State University	
Sandra Brooke	Marine Biologist
Ross Ellington	Professor Emeritus of Biological Science
Madelein Mahood	Outreach and Education
Gary Ostrander	Vice-President for Research
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	
Ken Jones for Chad Taylor	Riparian Counties Stakeholder Coalition

Members of the Public	
Steve Leitman	Florida State University (FSU)
Cole Scott	Florida State University (FSU)
Anthony Sogluizzo	Florida State University (FSU)
Ed Camp	University of Florida (UF)
Scott Borsum	University of Florida (UF)
David Reeves	National Fish and Wildlife Foundation (NFWF)
Mike Norberg	Florida Fish and Wildlife Conservation Commission (FWC)
Ray Grizzle	University of New Hampshire and ABSI Science Advisory Board
Wayne Williams	Oysterman

ATTACHMENT 2
JANUARY 13, 2021 MEETING AGENDA

ABSI COMMUNITY ADVISORY BOARD MEETING X OBJECTIVES
✓ To Approve Regular Procedural Topics (Meeting X Agenda, Meeting IX Summary Report, and Oystermen's Workshop 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 Estuarine Metrics, and Management and Restoration 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 X AGENDA—JANUARY 13, 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 REPORTS (NOVEMBER 12, 2020 AND DECEMBER 2, 2020 OYSTERMEN'S WORKSHOP)**
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 • *Apalachicola Bay Wild Oyster Harvesting Closure Update.* Jim Estes • *Overview of Apalachicola Bay Mapping Project.* Ray Grizzle
7.)	**9:35**	**OYSTERMEN'S WORKSHOP AND SUBCOMMITTEE UPDATES AND REPORTS** • Oystermen's Workshop Overview • Community Outreach Subcommittee Status Update and Report • CAB Successor Group Subcommittee Status Update and Report
	~9:50	*BREAK*
8.)	**10:00**	**DISCUSSION OF ESTUARINE METRICS**
9.)		**DISCUSSION OF MANAGEMENT AND RESTORATION GOALS**
10.)		**A.) A HEALTHY AND PRODUCTIVE BAY ECOSYSTEM** • Review and Prioritize Strategies
11.)		**B.) SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES** • Review and Prioritize Strategies
12.)		**C.) A FULLY FUNDED ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN SUPPORTED BY ABS STAKEHOLDERS**

		• Review and Prioritize Strategies
13.)		**D.) AN ENGAGED STAKEHOLDER COMMUNITY AND INFORMED PUBLIC** • Review and Prioritize Strategies
14.)		**E.) A THRIVING ECONOMY CONNECTED TO A RESTORED ABS** • Review and Prioritize Strategies
15.)	**~11:45**	**PUBLIC COMMENT**
16.)	**11:55**	**NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING** • Review of action items and assignments • Identify agenda items and needed information and presentations for the February 24, 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	**9**	**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*
4.2 of 5	**7**	**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*
4.7 of 5	**9**	**4**	**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*
4.6 of 5	**8**	**5**	**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	**10**	**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*
5 of 5	**13**	**0**	**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*
4.8 of 5	**11**	**2**	**0**	**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	**12**	**1**	**0**	**0**	**0**

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

- The open-ended discussions were great.

ATTACHMENT 4
MEETING CHAT SUMMARY (ZOOM)

- 09:04:27 From T.J. Ward to Everyone: Drone analysis will not be promising with out 'on ground' monitoring. Just walked 10 'coon bars' this weekend during low tide and without being hands on data will not be correct.
- 09:20:27 From T.J. Ward to Everyone: What will be the timing of putting lime rock? If cultch is not put on reefs close to spawning then spat will not set as well.
- 09:24:45 From Jenna Harper and Roger Mathis to Everyone: Jim - how big are the test sites?
- 09:24:57 From Edward Camp to Everyone: T.J., if that answer wasn't complete enough, let me know and I'll try to get you some additional information
- 09:29:32 From jim.estes to Everyone: Jenna,
- 09:30:45 From jim.estes to Everyone: We do not know the ultimate size yet, as we are working with contractor to determine how high we will pile the material. I would guess more than five acres per site.
- 09:31:33 From jim.estes to Everyone: TJ-please do not hesitate to call me about the cultch issue.
- 10:17:54 From T.J. Ward to Everyone: Edward, it was but I will definitely like to see additional information.
- 10:18:00 From T.J. Ward to Everyone: Thank you Jim.
- 10:18:28 From T.J. Ward to Everyone: How are we going to able to correlate with the Army Corps of Engineers to manage freshwater flow?
- 10:28:16 From T.J. Ward to Everyone: Compare trip tickets of oystermen's production along with the recorder river level.
- 10:32:24 From Edward Camp to Everyone: To T.J.'s last question, Bill Pine and some of his group has evaluated this in two recent peer-reviewed publications:
- 10:32:31 From Edward Camp to Everyone: (1) Apalachicola: https://bioone.org/journals/journal-of-shellfish-research/volume-35/issue-4/035.035.0409/A-Complex-Relationship-between-Freshwater-Discharge-and-Oyster-Fishery-Catch/10.2983/035.035.0409.full
- 10:33:03 From Edward Camp to Everyone: (2) Suwannee River: https://afspubs.onlinelibrary.wiley.com/doi/full/10.1002/mcf2.10117
- 10:34:28 From Ken Jones to Everyone: Dara Wilbur did a paper while at WMD in the 90's on oyster landings and river flow.
- 10:34:41 From Chad Hanson to Everyone: TJ - do the trip tickets just report what's caught in the bay at large, or is there more localized areas or even bars reported on those that could be used for the modeling/metrics?
- 10:35:52 From Edward Camp to Everyone: Ken, is this the Wilbur paper you referenced?
- 10:35:54 From Edward Camp to Everyone: https://www.sciencedirect.com/science/article/pii/S027277140580112X
- 10:38:36 From Portia Sapp to Jeff Blair (Direct Message): Typo in #5 change to cultching.
- 10:44:36 From Anita Grove to Everyone: Under Overarching approach, can we move up #5 to # 2 or 3?
- 11:01:55 From T.J. Ward to Everyone: Trip tickets also show harvest area for each commercial harvester.

- 11:11:59 From Edward Camp to Everyone: I am working with FWC and a graduate student to evaluate the apparent effects of the oyster decline on the recruitment of finfish around the bay.
- 11:12:14 From T.J. Ward to Everyone: But north of North of the Bridge needs to be a preserve.
- 11:12:55 From Edward Camp to Everyone: We're looking a wide suite of species, including all those mentioned as well as some non-sport fish. If there is interest we can present some of this information later. The analyses would be impossible without the FWC FWRI independent monitoring, which provides really nice data.
- 11:13:41 From T.J. Ward to Everyone: You are not allowed to shrimp or use nets north of the bridge so why is there not a reason we can close north of the bridge indefinitely which could also disperse spat across the bay.
- 11:13:41 From Edward Camp to Everyone: We can also evaluate the effects of the apparent oyster decline on the actual recreational fisheries metrics, such as catches and CPUE. This would be using the MRIP database, which is something I use a lot.
- 11:22:38 From Chad Hanson to Everyone: Ed - how far along is that finfish habitat use study? I think a presentation to the CAB would be great when the timing is right
- 11:25:31 From Edward Camp to Everyone: We have draft results for the fisheries independent component. There is no immediate project to understand how the fisheries-dependent metrics (CPUE, catch) have responded, but some of those analyses can be more quickly analyzed. We could give a presentation on the fisheries dependent component with a few weeks notice.

  11:47:52 From T.J. Ward to Everyone: Maybe good ideas from this assessment. Section L and N definitely. https://www.govinfo.gov/content/pkg/CZIC-sh138-e36-1984/html/CZIC-

ATTACHMENT 5
WORKPLAN AND SCHEDULE

UPDATED AS OF JANUARY 13, 2021		
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 management and restoration goals. Prioritization of Strategies. Public comment.
Meeting XI.	Feb. 24, 2021	Review of any public input on Draft Plan Framework. Review of scenarios and consensus rating of strategies and actions using decision-support tools relative to goals and objectives. Public comment.
Oystermen's Workshop #2	March 24, 2021	Oystermen's review and comments on Draft Plan Framework (Goals, Objectives, Strategies, and Actions).
Meeting XII.	April 21, 2021	Review of scenarios and consensus rating of draft strategies and actions using decision-support tools relative to goals and objectives. Public comment.
Oystermen's Workshop #3	***Tentatively May—TBD***	Review draft Plan with Oystermen, and Oystermen's input.
Meeting XIII.	June 16, 2021	Review of scenarios and consensus rating of draft strategies and actions using decision-support tools 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	*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. Recommendations for Management and Restoration for the Plan finalized.
PHASE IV—RESTORATION IMPLEMENTATION PLANNING		
	Dec. 1, 2021	Restoration Implementation Planning Working Group.

ATTACHMENT 6
REVISED APPROVED ABSI PLAN FRAMEWORK

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.

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.

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.

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.

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).

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.

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.

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

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.

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.

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.

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.

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.

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.

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.

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 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 encourages agencies to prioritize the Plan's recommendations for investing more funding in the management and restoration of oyster resources.
   - *Action 3-C.):* 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.

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.

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.

[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)

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

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.

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.