APALACHICOLA BAY SYSTEM INITIATIVE

COMMUNITY ADVISORY BOARD
PHASE IV MEETING I — 26 JANUARY 2022

FACILITATOR'S SUMMARY REPORT

VIRTUAL MEETING VIA WEBINAR AND TELECONFERENCE

MEETINGS FACILITATED AND SUMMARIZED BY JEFF A. BLAIR

Apalachicola Bay System Initiative Community Advisory Board
26 January 2022 Facilitator's Meeting Summary Report

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

WEDNESDAY, JANUARY 26, 2022

I. MEETING SUMMARY AND OVERVIEW

At the 26 January 2022 virtual meeting the Apalachicola Bay System Initiative (ABSI) Community Advisory Board (CAB) initiated Phase IV of the project. During the meeting the CAB conducted a social science survey administered by the University of Florida; received a review of Phase IV scope of work, goals, workplan, and meeting schedule; received a presentation on Collaborative Modeling; and received presentations on Ecological Model update and assumptions, River Flow Model update and assumptions, Hydrodynamic Model update and assumptions, and Riverine Model update and assumptions.

II. WELCOME AND INTRODUCTIONS

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

Jeff welcomed new CAB members as follows:

- Mike Allen – Scientist: Director of UF/IFAS Nature Coast Biological Station (NCBS)
- Jim Estes – FWC Division of Marine Fisheries Management
- Gayle Johnson – Apalachicola Oyster Company
- Katie Konchar – FWC Division of Habitat and Species Conservation

In addition, Jeff thanked the CAB member who opted to roll-off of the CAB for Phase IV as follows:

- Chip Bailey – Peregrine Charters
- Lee Edmiston – Citizen, Retired DEP/ANERR
- Tom Frazer – USF Dean of the College of Marine Science
- Denita Sassor – Outlaw Oyster Company, Aquaculture

SOCIAL SCIENCE SURVEY

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

III. ABSI CAB MEETING PARTICIPATION

The following CAB members participated in the Wednesday, January 26, 2022 meeting conducted virtually via webinar and teleconference:

Georgia Ackerman, Mike Allen, Jim Estes, Anita Grove, Chad Hanson, Jenna Harper, Shannon Hartsfield, Gayle Johnson, Katie Konchar (Zack Whalen, alternate), Erik Lovestrand, Chuck Marks, Roger Mathis, Mike O'Connell, Steve Rash, Portia Sapp, Chad Taylor, Paul Thurman, and TJ Ward.

(18 of 22 members participated — 82%).

Absent CAB Members:

Bert Boldt, Frank Gidus, Alex Reed, and John Solomon.

PROJECT TEAM MEMBERS PARTICIPATING

Jeff Blair, Sandra Brooke, Ross Ellington, Madelein Mahood, Joel Trexler, and Rachel Walsh.

(Attachment 2 — Meeting Participation)

MEETING FACILITATION

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

PROJECT WEBPAGE

Information on the Apalachicola Bay System Initiative project and the Community Advisory Board, including agenda packets, meeting reports, draft Plan frameworks, and related documents may be found at the ABSI CAB Webpage. Located at the following URL:
https://marinelab.fsu.edu/the-apalachicola-bay-system-initiative/

IV. AGENDA REVIEW AND APPROVAL

The ABSI CAB voted unanimously to approve the agenda for the 26 January 2022 meeting as presented. Following are the key agenda items approved for consideration:

- ✓ To Approve Regular Procedural Topics (Meeting Agenda and Summary Report)
- ✓ To Review Phase IV Scope of Work and Goals
- ✓ To Receive Presentation on Collaborative Modeling and Phase IV CAB Process
- ✓ To Receive Briefings on Project Predicative Models
- ✓ To Identify Next Steps: Information, Presentations, Assignments, Agenda Items for Next Meeting

Amendments to the Posted Agenda:

None.

(Attachment 3 — 26 January 2022 ABSI CAB Agenda)

V. APPROVAL OF THE 16 NOVEMBER 2021 CAB MEETING FACILITATOR'S SUMMARY REPORTS

The ABSI CAB voted unanimously to approve the 16 November 2021 CAB Meeting Facilitator Summary Report as presented.

Amendments: None

VI. REVIEW OF UPDATED PROJECT WORKPLAN AND SCHEDULE

Jeff Blair provided the CAB with a review of the updated Project Workplan and Schedule and answered members' questions. Jeff noted that the ABSI CAB completed Phases I – III of the project culminating with the unanimous adoption of the CAB's Draft Adaptive Management and Restoration Plan Framework*. The 26 January 2022 meeting represented the initiation of Phase IV, and is focused on the evaluation of the Draft Adaptive Management and Restoration Plan Framework's prioritized restoration and management strategies, restoration projects selection and implementation, and funding planning. In

addition, Phase IV will feature a public engagement initiative. The next CAB meeting is scheduled for March 30, 2022. Jeff reported as follows:

- Jeff noted that during Phase IV the CAB will work on evaluating the best combination of strategies that will achieve restoration and management objectives for the Bay using decision support tools including predictive models coupled with available and emerging data and research. The CAB will vet their draft recommendations with restoration and management agencies, and evaluate the priority and efficacy of strategies and actions, and identify specific recommended restoration projects and management approaches.
- The CAB's Community Outreach Subcommittee will initiate a community feedback initiative by soliciting and reviewing community input on the Plan Framework. The CAB's prioritized strategies will vetted with the larger ABS community through multiple formats including a questionnaire administered through a variety of methods including Facebook, online via the ABSI website, and direct mailings. In addition, public workshops will be held in-person and/or virtually depending on the COVID-19 pandemic status.
- The CAB will conduct planning for transitioning to a Successor Group whose role will be to organize a group of key stakeholders committed to working collaboratively for the long-term once the CAB process is complete to ensure that the Plan is implemented, monitored, and adaptively managed over time with the support of the Community. The Community Outreach Committee will continue to communicate and meet with community stakeholders providing them with information and updates regarding the purpose and progress of the ABSI.
- In addition, during Phase IV, FSU will continue working with the Restoration Funding Working Group to seek resources and political, governmental, and organizational 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.

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

(Attachment 6 — Workplan, Schedule, and Project Flowchart)
(Attachment 7 — ABSI CAB Restoration and Management Strategies)

VII. COLLABORATIVE MODELING AND CAB PHASE IV PROCESS PRESENTATION

Jeff Blair, CAB Facilitator, provided the CAB with a presentation on Collaborative Modeling and noted that this approach will be used for Phase IV of the project.

All presentations are available on the project webpage: https://marinelab.fsu.edu/absi/cab/.

Summary and Overview of Presentation
The 26 January 2022 presentation was focused on why collaborative modeling is the best approach to achieving consensus on recommended actions between diverse stakeholders for natural resource restoration and management projects. Following is a summary of the presentation:

What Is Collaborative Modeling

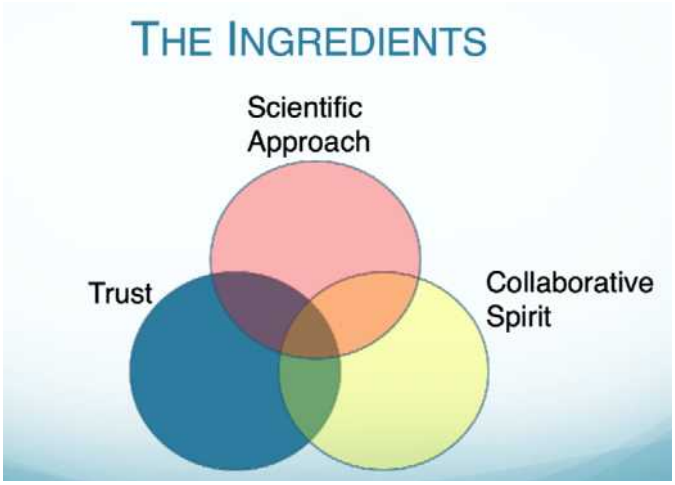
- A facilitated process to promote consensus decision-making with modeling to forecast potential effects of decisions.
- Combines good facilitation and conflict resolution practices with scientific modeling with the goal of making decisions or recommendations about restoration and management actions.
- Collaborative modeling is an approach to develop robust and acceptable solutions to environmental and natural resource management problem.
- It involves a group of stakeholders, scientists, decision makers, and facilitators working together.
- Has been used since at least the 1970s to assist with decision making for natural resource issues.

Why Use Collaborative Modeling

- Natural resource management problems are messy.
- Many differing and often conflicting objectives.
- Uncertainty about potential consequences of actions.
- Trying to make restoration and management decisions leads to conflicts among and between user groups.
- Stakeholders bring information, experience, and knowledge to the table, as well as the legitimate concerns and perspectives of those who are most impacted by the implementation of policy decisions.
- When done well, it can provide solutions that can achieve the diversity of stakeholders' goals.

Principles of Collaborative Modeling

- Stakeholders are willing to work together.
- All stakeholder representatives participate early and often.
- Model & process remain accessible and transparent to all participants.
- Builds trust and respect among parties.
- Easily accommodating new information and quickly simulating alternatives.
- Addresses questions that are important to all (decision makers & stakeholders).
- Parties share interests and clarify the facts before negotiating alternatives.
- Requires both modeling and facilitation skills.



Ingredients Required for Successful Collaborative Modeling

Role of Scientists

- Understand the importance of meaningfully involving stakeholders.
- Are committed to the fair and effective involvement of impacted stakeholders.
- Respect and fairly evaluate and include observational data based on stakeholders' experiences in their data sets.
- Communicate to stakeholders in a respectful and collaborative manner.
- Are responsive to considering the experiences and observations of those who are most impacted by proposed solutions.

Role of Stakeholders

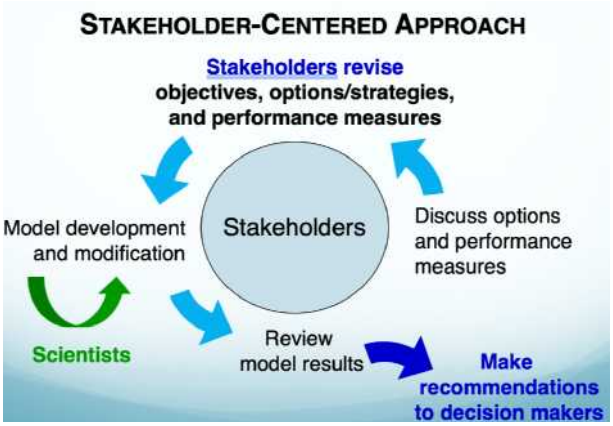
- Are willing to commit to the process for the duration, and honor consensus-developed recommendations.
- Understand the need and are willing to collaborate with different stakeholder groups as well as communicate with their constituents.
- Listen to understand. Seek a shared understanding even if when they don't agree.
- Will work to achieve common ground on issues, and to address other stakeholder groups' concerns.
- Are committed to developing consensus recommendations that are sustainable and implementable within realistic constraints.

Role of a Neutral Facilitator

- Include professional and neutral process experts in all phases.
- Consider an assessment phase to determine viability and who should participate.
- Ensure there is appropriate and credible stakeholder representation.
- Plan & design a transparent and fair process that fosters collaboration.
- Convene and facilitate a fair and transparent representative stakeholder consensus-building process.
- Recommend/Require a super-majority decision making threshold for approval (≥75%) to encourage collaboration and not vote counting.

The Process

- Document and share with the stakeholders the model and the process.
- Both the model and the process should remain transparent to all participants.
- Stakeholders decide on which options and outcomes to model.
- Computer model includes scientific and stakeholder knowledge.
- Computer model forecasts outcomes and stakeholders consider the results.
- Stakeholders decide how to revise options based on model simulation results.
- Stakeholders revise and combine options to achieve desired outcomes.
- Evaluate progress iteratively and interactively.
- Process is continued until a package of consensus science-based recommendations for restoration and management outcomes is agreed to.



Stakeholder-Centered Approach to Collaborative Modeling

Summary of Questions, Responses, and Comments:

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

- Input of SAB needed sooner rather than later. How can SAB be looped in earlier?
- JB: SAB is planned for the May meeting. SB- SAB are invited to all CAB meetings. SAB has been kept separate. Pandemic has prevented in-person meetings, but we want to have the SAB involved soon since many of the ABSI tasks have been accomplished.
- Agrees that SAB's input is needed. EC does not feel comfortable weighing in on science issues at CAB meetings as he is not a member.
- SB: in response to EC, a way must be found to integrate the models. We would like to develop tools that resource managers can use.
- EC: Some models can be made user friendly; some tools already exist for resource managers but this does not fall under the purview of my contract. We need to meet to explore "shiny" apps vs. macro decision analysis tools.
- Would like to find a vehicle for more effective interface between the CAB and modelers.
- I have not worked in the Bay for a decade (Mike Allen); what have we learned from the past decade of work on the Bay?
- SB: every CAB meeting I give an update on science. SAB meeting at the beginning of March, will give an extended presentation on science done thus far. CAB members can attend.
- We need to talk about hypotheses- spat limited? Substrate limited? Unusual mortality? It's not just ABSI data but data from other entities that is required to develop a matrix.
- JB: our intent is to do this. SB- is looking at some of these hypotheses.
- I agree, we need a summary document of the management and restoration activities that has taken place over the past decade (by entities other than ABSI); this information could be out of context with new ABSI results.
- It would be helpful if there was a summary document describing the research projects and data collected over the past decade in the ABS and make it available in an useable and accessible format.
- JB: the Planning Team will meet and review the above issues and respond back to the CAB.

Assignments/Next Steps

- ABSI leadership needs to plan out and assign decision support tools development to an appropriate collaborator or subcontractor.
- The ABSI Planning Team will evaluate the CAB's comments regarding compiling research and data on projects in the ABS and the role of the SAB, and report back to the CAB.

VIII. PREDICTIVE MODELS AND INITIAL ASSUMPTIONS CAB BRIEFING

A. ECOLOGICAL (OYSTER) MODEL UPDATE AND ASSUMPTIONS. ED CAMP, UF.

Ed Camp reported on development of his Ecological Model. Following is a summary of the presentation:

Role of the Ecological Model (Oyster Model)
The oyster population model is designed to fit into the broader modeling framework by providing predictions of what will happen to oyster populations and economies, taking into account information about the water quality from Steve Morey's Hydrodynamic model, which in turn will be using output from Steve Leitman's Hydrologic model.

Hydrologic Model
- Climate, water use and management → water, nutrients entering Bay.

Hydrodynamic Model
- Water entering bay → water quality throughout Bay.

Oyster Model
- Fishery, management and restoration, water → oyster populations and fisheries
- Complement FWRI (Melanie Parker's) sampling and analyses data.
- Inform FWC (Estes & Norberg) on management actions.

Model Process
1. Oysters and fisheries assumptions
2. Translate to math and statistical equations
3. Revise with CAB input
4. Fit to data
5. Repeat 3-4
6. Make predictions
   - Environment
   - Management
   - Restoration
- Once the model is calibrated and stakeholders are satisfied with the model it will be used to make predictions about how things like environment, management, or restoration actions are likely to affect oysters and their fisheries.

Updates
- **Simple Simulation Model**
  - Improved, ready for some testing.
- **Simple (Bay-wide) Stock Assessment Model**
  - Not fitting well to fisheries data, working with fisheries independent data now.
- **More Complex (Bay-wide) Stock Assessment Model**
  - Initial fitting but needs to be tweaked for oyster specific use.
- **Non-assessment Model**
  - Initial interesting results need to be confirmed.

- In the current state the model is spatially implicit, which means Ed's not yet doing specific bars or regions of the Bay.
- However, the key dynamics are still at play, with the exception of larval dispersal dynamics.

Questions about What to Model
Action 4-A: Evaluate management scenarios

- Seasonal (summer) closure to wild harvesting,
    - Can be done now
- Rotational closures
    - What areas defined? All open access?
- 5-day work weeks
    - Ok to model with effort reduction? But would actually reduce effort?
- Non-harvested spawning reefs (permanent closures),
    - Ok but needs spatial model asap.
- Limited entry
    - Is effectively modeled now
- Transferable license program
    - This would change who but not number of harvesters, right?
- Closures based on stock levels (stock assessment)
    - Can be big task, can we use historic measures (XXX/acre) for now?
- Reduced bag limits
    - Can be done implicitly now, but will need to tweak model to be better
- Bag tags
    - How would this most concretely effect harvest
- Relaying oysters to better habitat
    - Do you really want me to look at this? It's probably a bad/risky idea and it's going to require modeling the unfished areas.
- Additional enforcement presence
    - Can be done implicitly now
- Manage harvest areas to prevent the concentration of effort in specific locations (open larger areas)
    - This is a big deal, but we do want to get to spatial management

Summary of Questions, Responses, and Comments:
(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)

- Would it be productive to have evening session to evaluate options?
- EC: I would be happy to have separate meetings, but the CAB is a good forum too.
- JB: Going forward the CAB will provide guidance and feedback to the modelers during each meeting.
- We need to know spatial and temporal issues which are defined by human health parameters.
- PS: time-temperature matrix in key months determines whether there is harvesting.
- The way the sites are closed is dependent on weather and conditions and the result is to shift boats to concentrate on the open areas and this produces severe over-fishing. It really doesn't work by closing one section of the Bay. It would be better to close all sections when conditions merit it.
- EC: the model will be able to reproduce phenomenon of closures shifting effort to other sites. Will discuss what strategy oystermen use with Shannon, Roger and other oystermen. Need to understand the oystermen's' rationale for decision options.

- To what extent will these models be coupled? Will the models be layered on top of each other? How do they all fit together.
- JB: the OysterFutures models were coupled.
- EC: not easy; at the core of it, decisions are made at multiple levels. Spatial population model will have to make assumption on whether there are independent oyster populations or they are linked. If the latter, hydrodynamic model is important. We have a lot of information about how environmental factors impact oysters, this must be inputted into the models. There should be an oyster population model with a knob that shows the impact of changing salinity (influenced by management decisions).
- EC: Is it ok to ask stakeholders questions between meetings?
- JB: yes.
- EC: getting input from Shannon, Roger, TJ, and Steve Rash is important.
- JE: I met with SMART group, and they can provide valuable input.
- SMARRT meets in the evening; will look at availability in February.
- EC: Spatial scale of model – is it ok to define the main reefs as the locations where most oysters are harvested?
- EC: planning on using 10-6 reefs in the model, is this Ok?
- Spat varies depending on the time of the year.
- 2014-2016 trip tickets is a good way to see which bars to use based on harvest.
- Need to evaluate how to model rotational harvest and limited entry: Do we allow effort to change over time (more harvesters).

Assignments/Next Steps

- Ed will meet with the ABSI Planning Team to discuss a strategy for receiving feedback on the development of the Ecological Model.
- Ed will get with stakeholders between meetings to get their individual feedback on information used for the development of the Ecological Model.
- Ed will review the draft scenarios with the SMARRT group after the CAB provides their feedback and do this iteratively throughout this phase of the project.

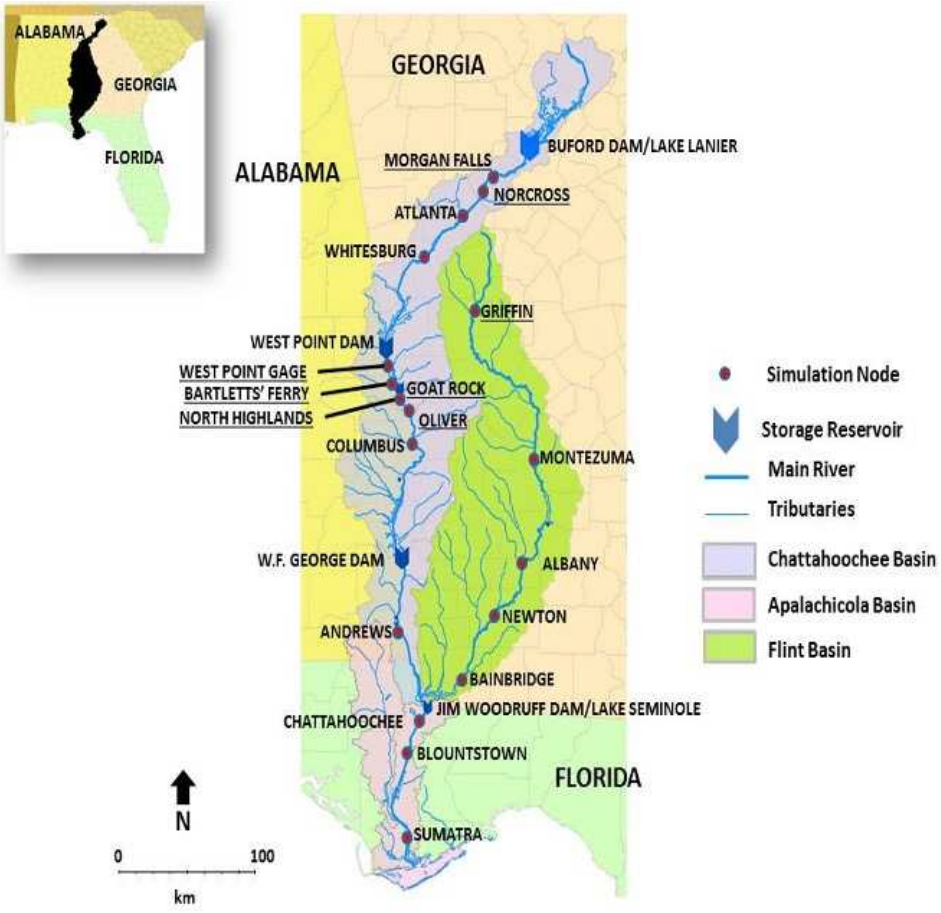
B. River Flow Model Update and Assumptions. Steve Leitman, FSU

Steve Leitman reported on the status of his River Flow (Hydrologic) Model. Following is a summary of the presentation:

Model Basics

- My role in the ABSI project is with the modeling of freshwater inflow into the Apalachicola River/estuary.
- The intent is for the freshwater inflow modeling to serve as input to the distributary, estuarine and ecological modeling.
- Freshwater inflow, hence climate, is factored into the model via an unimpaired flow set developed by the states of Alabama, Florida and Georgia and the U.S. Army Corps of Engineers and extends from 1939 to 2012.
- Climate change- challenge is to use historical data to predict the future when the future is changing.
- The base reservoir operating system in the model is the Water Control Manual.

- The current volume of consumptive demands is also included in the model.
- We have the capacity within the model to modify reservoir operations, consumptive withdrawals and basin inflow on a reach-by-reach basis.
- The water shed is divided into regions and parameters such as inflow and releases can be modified as needed to evaluate scenarios.



ACF Watershed and Locations of Simulation Nodes

- To utilize the model one needs to provide a detailed approach to managing the ACF reservoirs, a specific set of basin water inflow data on a reach-by-reach basis and a specified volume of consumptive demands on a reach-by-reach basis.
- The model runs for a 74-year time period extending from 1939 – 2012 and the output tells you what the resultant Jim Woodruff outflow will be for 74 different annual hydrographs as well as at all of the other nodes in the previous diagram.
- Within the model there is an ability to insert alternative climates which can include events which are more extreme than those developed in the historic record (e.g., more extreme droughts and more extreme floods).
- With this feature I can extend what the outflow from the model would be for over 800 different annual flow regimes.
- The output from the model provides river flow at many locations in the watershed and reservoir elevations at the principal federal reservoirs.

- A major question for model output is what does increasing or decreasing flow mean for the ecosystems of the Apalachicola River and estuary. Simply saying that you will get more water or less does not tell us enough.
- We need to understand the relationship between flow and the ecosystem components we are trying to sustain and support.

Performance Metrics

- For example, if it is determined that there is a need is to provide a freshet to the estuary in a period of extreme low flows, we need to know how much water, for how long and when it needs to be provided to make a difference with oyster survival and enhancement. When all of the parameters needed to define a freshet are provided, then the model can then define what is possible under the management capacity and restraints in the ACF basin in multiple climate conditions.
- The catch is that for some of the metrics, we simply do not know enough to do good job defining the metric.
- In this case we need to do the best we can in the present and then to set up a research programs to better define the metric.
- We are presently developing an initial set of metrics for both the river and estuary.
- An example of a riverine metric would be timing, duration and extent of inundation of the Apalachicola River floodplain. This metric would relate to tupelo swamps, fish spawning, mussels and other factors and the specifics of the metric could be different for each.
- An example of an estuarine metric would be frequency, duration and timing of lower flows entering the Apalachicola estuary. As the work being done under ABSI and FWC progresses, additional metrics to define better management will be developed.

Summary of Questions, Responses, and Comments:

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

- Evaluate pulses for different purposes – navigation, environmental, power, oysters/fisheries, how do balance out needs, and do we get needed pulses -politically?
- SL: Navigation is a double-edged sword - good if it is passive with no channel maintenance; need to know the trade-offs.
- Are you modeling what is likely to occur?
- SL: We need to know how much freshwater inflow into to Bay is possible and work within the System's constraints and what is actually possible.
- What is possible, what can and can't be done with small reservoirs on a large river.
- Need to work within the management capacity of the River
- SL: the model can define what controlled releases can and can't do.
- Need to define limits of management based on what is possible flow wise.

Assignments/Next Steps

- Steve Leitman to provide ABSI Team with the paper on the 2011 – 2012 drought.

C. Hydrodynamic Model Update and Assumptions. Steve Morey, FAMU

Steve Morey on development of his Hydrodynamic model. Steve noted he is working with Dr. Xu Chen from FAMU, and Adam Alfasso from FSU (Habitat Suitability Model). Following is a summary of the presentation:

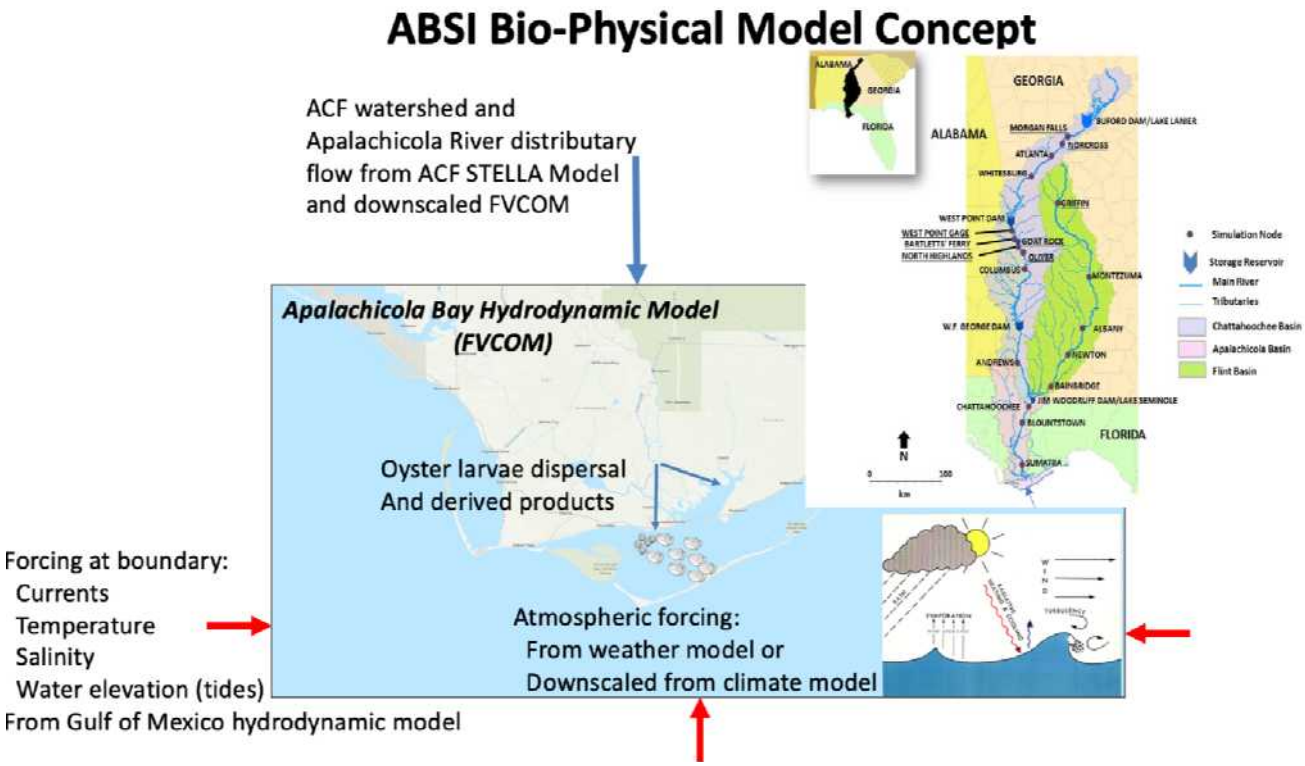
Overview and Coupling of Models

- Overview of how the models connect with each other: hydrodynamic model incorporates physics of system (physics of how fluids moved governed by boundary conditions) and this feeds into an oyster larvae dispersal model.
- River forcing is connected to Leitman's modeling and the riverine model.
- Configured model to Apalachicola Bay (for the ABSI project).

Model Results and Calibration

Model results include water surface elevation, model vs. observation (Temperature and Salinity).

- Model results: sea-level elevations match real data well; temperatures match observations; salinity – winds seem to be very influential, model picks up long-term variability (degree of match depends on location). Need to validate salinity results from the model.
- Cat Point: very high degree of variability in a small area.
- Dry Bar: shows very sharp boundaries of high vs, low salinity; salinity fronts are observable in the field.
- Model the impact of river flow regimes in different years during March, dry-wet-normal seasons.
- Habitat suitability model- environmental variables and observed presence/absence of oysters; output will predict suitable habitats for oysters (or not).
- Working on defining boundary conditions, refining the scale (considering larger area for accuracy).



ABSI Bio-Physical Model Concept

ABSI Hydrodynamic Model Configuration

- Finite Volume Coastal Ocean Model (FVCOM)
- Mesh Resolution: 800m - 30m (water and land)
- Vertical Grid: 10 layers
- Surface Forcing: CFSR (atmospheric model)
- and Wind Observations
- River Discharge: USGS or Leitman's Model
- River Temperature: NOAA NOS station
- Initial Condition (U, V, T, S): HYCOM Reanalysis (velocity, temp, salinity)
- Boundary Condition (Tide, T, S): HYCOM Reanalysis
- Model Periods run to date: 1998, 2011-2012, 2019

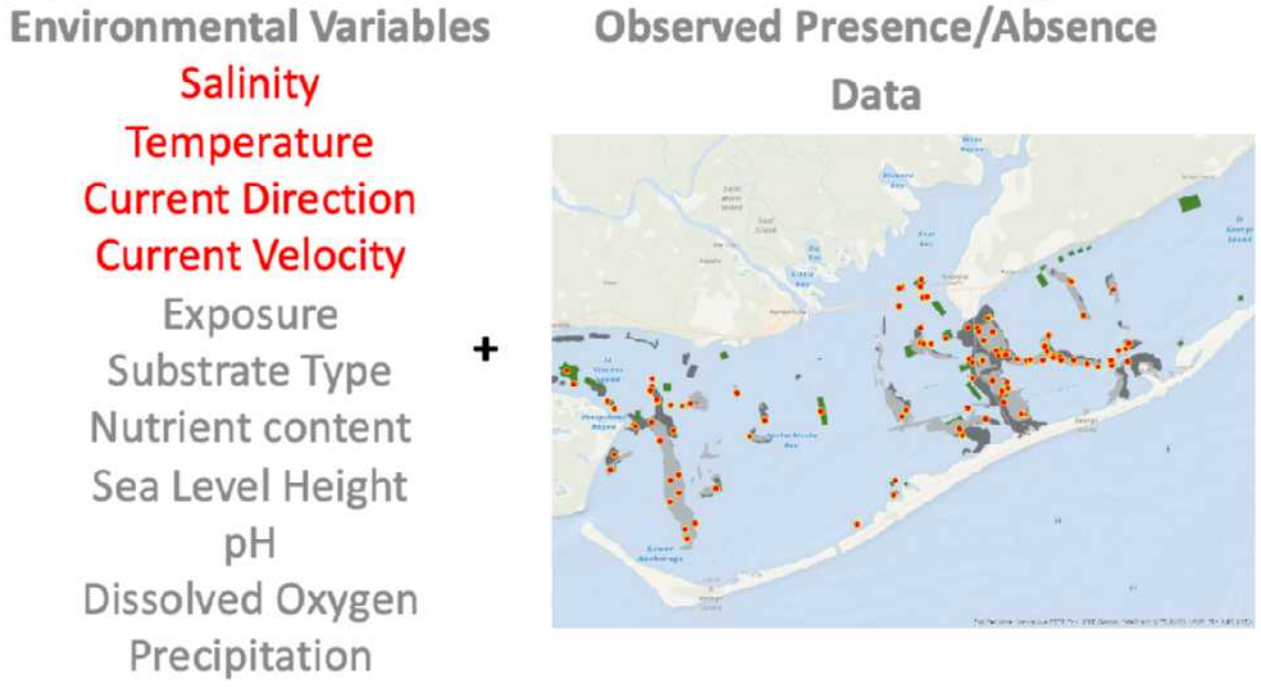
Hydrodynamic Model-Derived Product

Model output is analyzed to develop derived products informative to the stakeholder community and to inform restoration efforts.

- Model hindcasts to estimate past conditions in the bay
- Predictions of possible future scenarios (freshwater flow/climate)
- Statistical analyses that can provide information for forecasting future conditions
- Mapped products of environmental variables
- Input to Larval dispersion models
- Input to habitat suitability models

Habitat Suitability Model

The hydrodynamic model variables can be used as input to Oyster Habitat Suitability Models.



Habitat Suitability Models - Environmental Variables Modeled and Observed Presence/Absence Data

Summary of Questions, Responses, and Comments:
(Note initials are only used to identify ABSI Team members, presenters, and state agency representatives)

- When will the Habitat Suitability Model (HSM) ready for oysters in Bay?
- SM: Preliminary outputs will be ready this summer, better results by the end of year (2022).
- Are the confidence intervals included? Yes.
- Time scale different intervals/variables select best results (daily or weekly)
- Is it a challenge to evaluate other species besides oysters with the models?
- A) depends on what we are looking for. The model works best for species that stay in the same location. Can incorporate biology for species like crabs. However, finfish are more broad and difficult for the HSM, the species needs to have a larval stage in the Bay to be modeled well.

D. Riverine Model Update and Assumptions. Ken Jones, Rhumbline Consultants

Ken Jones reported on the status of the Riverine model. Following is a summary of the presentation:

East River/Distributary Model

- East River is part of the Apalachicola Riverkeeper NFWF funded project.
- Collaboration between Slough Restoration project and ABSI
  - Jiahua Zhou PhD Candidate UF
  - Xu Chen PhD Research Associate at FAMU (ABSI)
- Combined use of ABSI model FVCOM
- Model is split from Bay model due to precision needed in the smaller distributaries
- Model domain Sumatra, Brothers River, East River and Distributaries
- Includes Jackson River and Lake Wimico, boundary at Gulf County
- Lower river boundary conditions (tide and salinity) provided by ABSI Bay Model for each of the flow conditions.
- Model use:
  - * Slough Restoration – looking at changes in flow in East River with restoration of the top 2 miles
  - * ABSI estuarine model – characterizing the quantity and location of freshwater discharges into East Bay relative to total Apalachicola River flows.

Freshwater Flow Before and After Slough Restoration

- At low to medium flows 20% of flow is distributed from the river to East Bay
- At medium to high flows 30% is to the bay
- Over half the flow is distributed to upper East Bay through the East River

Flows (Before/After)		Percent Increase in flow after dredging
Low	5900 cfs	58%
Medium	12,500 cfs	38%
High	33,760 cfs	32%
Extreme	77,020 cfs	26%

Freshwater Flow Before and After Slough Restoration

- Great deal of bathymetric data collected on tributaries of East River for FVCOM model.
- 20% at low flows and 30% at high flows go through tributaries.
- Dredging will increase flows at all range of flows, especially at lower flow regimes.
- Project will clear/dredge the top 2 miles of East River - as it flows to East Bay.
- More flow goes into the East River and East Bay than thought from 20% to 30% depending on flow levels – increases after dredging

Summary of Questions, Responses, and Comments:

- There were no questions or comments.

Note: The four modeling presentations summarized above are available on the project webpage: https://marinelab.fsu.edu/absi/cab/.

IX. PUBLIC COMMENT

The facilitator invited members of the public to provide comments.

Public Comments:

- None were offered.

X. NEXT MEETING OVERVIEW AND ISSUES

The 30 March 2022 meeting will focus on providing feedback on restoration and management scenarios (strategies) and performance measures for development of the Ecological Model, a comprehensive review and discussion of draft management approaches (strategies) with FWC Division of Marine Fisheries Management, and discussion on the Community Outreach Subcommittee's proposed Public Engagement Initiative strategy and approach.

NEXT STEPS AND AGENDA ITEMS

- Facilitator's Summary Report of the 26 January 2022 CAB meeting.
- Agenda Packet for the 30 March 2022 CAB meeting.
- Review of updated Workplan and Meeting Schedule.
- Science and data collection update.
- Subcommittees and Working Group updates.
- Public Engagement Initiative Plan and strategy discussion.
- Guidance regarding restoration and management scenarios and performance measures for development of the Ecological (Oyster) Model.
- Comprehensive review and discussion on draft management strategies with FWC Division of Marine Fisheries Management

MEETING CHAT COMMENTS

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

MEETING EVALUATION

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

ADJOURNMENT

The Facilitator thanked CAB members, ABSI Project Team members, and the public for their participation, and adjourned the meeting at 12:00 AM on Wednesday, January 26, 2022.

ATTACHMENT 1
KEY TO COMMON PROJECT ABBREVIATIONS

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

ATTACHMENT 2
MEETING PARTICIPATION LIST

MEMBER	AFFILIATION
AGRICULTURE/ACF STAKEHOLDERS/RIPARIAN COUNTIES	
1. **Chad Taylor**	Riparian County Stakeholder Coalition/ACF Stakeholders/Agriculture
BUSINESS/REAL ESTATE/ECONOMIC DEVELOPMENT/TOURISM	
2. **Chuck Marks**	Business (Insurance Industry)
3. **Mike O'Connell**	SGI Civic Club/SGI 2025 Vision
4. John Solomon	Apalachicola Bay Chamber of Commerce
ENVIRONMENTAL/CITIZEN GROUPS	
5. **Georgia Ackerman**	Apalachicola Riverkeeper
6. **Chad Hanson**	The Pew Charitable Trusts
LOCAL GOVERNMENT	
7. Bert Boldt	Franklin County Commissioner
8. **Anita Grove**	Apalachicola City Commissioner
RECREATIONAL FISHING	
9. Frank Gidus	CCA Florida
SEAFOOD INDUSTRY	
10. **Shannon Hartsfield**	Seafood Management Assistance, Resource Recovery Team (SMARRT) and Oysterman
11. **Gayle Johnson**	Apalachicola Oyster Company
12. **Roger Mathis**	Oysterman and Seafood Dealer (R.D.'s Seafood)
13. **Steve Rash**	Water Street Seafood
14. **TJ Ward**	Buddy Ward & Sons Seafood
STATE GOVERNMENT	
15. **Jenna Harper**	ANERR/DEP
16. **Jim Estes**	FWC Division of Marine Fisheries Management
17. **Katie Konchar***	FWC Division of Habitat and Species Conservation
18. Alex Reed	FDEP Office of Resilience & Coastal Protection
19. **Portia Sapp**	FDACS Division of Aquaculture
20. **Paul Thurman**	NWFWMD
UNIVERSITY/RESEARCHERS/SCIENTISTS	
21. **Mike Allen**	Scientist: Director of UF/IFAS Nature Coast Biological Station (NCBS)
22. **Erik Lovestrand**	UF/IFAS/Florida Sea Grant/Franklin County Extension

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

** Members whose designated alternates participated for them.*

PROJECT TEAM AND CAB FACILITATOR	
FLORIDA STATE UNIVERSITY	
Sandra Brooke	Marine Biologist
Ross Ellington	Professor Emeritus of Biological Science
Madelein Mahood	Outreach and Education
Joel Trexler	FSUCML Director
Rachel Walsh	Outreach and Education
FACILITATED SOLUTIONS, LLC	
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	
Alternate	**CAB Member**
Zack Whalen	Katie Konchar
The names of CAB member's alternates participating in the meeting are indicated in bold font.	

MEMBERS OF THE PUBLIC	
1. Adam Alfasso	FSU/ABSI
2. Gina Alvarez	FWC
3. Xochitl Bervera	Unknown
4. Anne Birch	TNC
5. Ed Camp	University of Florida (UF)
6. Xu Chen	FAMU/ABSI Modeler
7. Laura Geselbracht	TNC, ABSI Science Advisory Board (SAB)
8. Rebecca Jetton	Apalachicola Riverkeeper Board Member
9. Carrie Jones	FDACS
10. Steve Leitman	Florida State University (FSU)/ABSI Modeler
11. Steve Morey	FAMU/ABSI Modeler
12. Bill Pine	UF, ABSI Science Advisory Board (SAB)
13. Anthony Sogluizzo	FSU/ABSI

ATTACHMENT 3
26 JANUARY 2022 MEETING AGENDA

ABSI COMMUNITY ADVISORY BOARD PHASE IV MEETING I OBJECTIVES
✓ To Approve Regular Procedural Topics (Meeting Agenda and Summary Report) ✓ To Review Phase IV Scope of Work and Goals ✓ To Receive Presentation on Collaborative Modeling and Phase IV CAB Process ✓ To Receive Briefings on Project Predicative Models ✓ To Identify Next Steps: Information, Presentations, Assignments, Agenda Items for Next Meeting

ABSI COMMUNITY ADVISORY BOARD PHASE IV MEETING I AGENDA — 26 JANUARY 2022		
All Agenda Times—Including Public Comment and Adjournment—Are Approximate and Subject to Change		
1.)	**8:30 AM**	**WELCOME AND ROLL CALL**
2.)	**8:35**	**SOCIAL SCIENCE SURVEY**
3.)	**8:40**	**AGENDA REVIEW AND MEETING OBJECTIVES**
4.)	**8:45**	**APPROVAL OF FACILITATOR'S SUMMARY REPORT (NOV. 16, 2021 MEETING)**
5.)	**8:50**	**REVIEW OF PHASE IV PROJECT MEETING SCHEDULE AND SCOPE OF WORK AND GOALS FOR PHASE IV**
6.)	**9:15**	**COLLABORATIVE MODELING AND CAB PHASE IV PROCESS PRESENTATION** • *Collaborative Modeling Principles and CAB Process.* Jeff Blair, Facilitated Solutions. (20) • *Question and Answers*
~9:45 AM		***BREAK***
7.)	**10:00**	**PREDICATIVE MODELS AND INITIAL ASSUMPTIONS BRIEFING** • *Ecological Model Update and Assumptions.* Ed Camp, UF. (20) • *River Flow Model Update and Assumptions.* Steve Leitman, FSU. (20) • *Hydrodynamic Model Update and Assumptions.* Steve Morey, FAMU. (20) • *Riverine Model Update and Assumptions.* Ken Jones, Rhumbline Consultants. (20) • *Questions and Answers*
8.)	**~12:00 PM**	**PUBLIC COMMENT**
9.)	**~12:10**	**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 March 30, 2022 CAB meeting • Meeting evaluation
~12:15 PM		***ADJOURN***

ATTACHMENT 4
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 17 respondents.

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*
4.6 of 5	**10**	**6**	**1**	**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**	**7**	**1**	**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	**13**	**3**	**1**	**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	**10**	**6**	**1**	**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*
4.6 of 5	**10**	**7**	**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*
4.7 of 5	**11**	**5**	**1**	**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*
4.7 of 5	**11**	**4**	**2**	**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**	**2**	**1**	**0**	**0**

9.) What do you think worked well using the virtual Zoom platform for the meeting? How could the virtual format be improved for future meetings?

----------Open Ended Survey Question Responses Sent Directly to Rachel Walsh----------

- 11:59:28 **From Xu Chen to Rachel Walsh (Direct Message):**
  I give 5 very satisfied with the zoom platform

- 11:59:45 **From Anita Grove to Rachel Walsh (Direct Message):**
  Zoom is good. No improvements at this point.

- 12:00:02 **From Xu Chen to Rachel Walsh (Direct Message):**
  No suggestion yet for future improvements.

- 12:00:18 **From Chad Hanson to Rachel Walsh (Direct Message):**
  Responses
  1: I think zoom works great, ability to see presentations and interact. Probably allows for higher participation.
  2) I'm even open for having longer zoom meetings with a lunch hour break in the future if necessary.

- 12:01:16 **From Chadwick Taylor to Rachel Walsh (Direct Message):**
  I'm satisfied.

ATTACHMENT 5
MEETING CHAT SUMMARY (ZOOM)

MEETING CHAT

- 08:37:03 **From Steve to Everyone:**
  I do not have audio or video.

- 08:37:23 **From Maddie Mahood to Everyone:**
  https://ufl.qualtrics.com/jfe/form/SV_4MK34cYCwDvLQjk

- 08:53:41 **From Maddie Mahood to Everyone:**
  They are! The SAB gets the invitations.

- 09:36:27 **From T.J. Ward to Everyone:**
  Models that compare harvesting oyster reefs during spawning season to those who do not could be something to show.

- 09:44:37 **From T.J. Ward to Everyone:**
  There are different spawn sets between the spring to summer. Data should be available from Apalachicola bay during its closure during the summer months before you were allowed to harvest year round.

- 10:09:58 **From T.J. Ward to Everyone:**
  Separating by summer and winter season puts pressure on those reefs.

- 10:11:05 **From T.J. Ward to Everyone:**
  when it is closed during summer and it is open only winter it spreads harvesters across the bay without as much pressure on certain areas.

- 10:12:04 **From T.J. Ward to Everyone:**
  Also, our summer bars at the mouth of the estuary which would make the spawn spread across the Bay.

- 10:17:55 **From T.J. Ward to Everyone:**
  An economical standpoint, farmed-raised oyster could supply the market during summer months.

- 10:21:59 **From Edward Camp to Everyone:**
  Hey TJ, I can see your comments and I will respond as soon as I stop sharing! But I see them and will address. Thank you for making them!

- 10:29:28 **From Jenna, Shannon, Roger to Everyone:**
  One note from Shannon: Not only does seasonal closure concentrates effort, but also daily water quality closures for specific areas. If part of the bay is closed, the whole bay needs to be closed.

- 10:29:28 **From Michael Allen to Everyone:**
  Just wanted to get a sense of where the data synthesis regarding what has been learned from recent restoration and management changes, and how that process is set to parallel the modeling effort.

- 10:37:42 **From Edward Camp to Everyone:**
  Addressing Mike Allen's question about where we are on synthesis. It's hard to underestimate how important that is. I can talk about this more later, but I agree that it would be really good to have some standard analysis (modeling) of oyster monitoring data. This is something the FORS group has also discussed, and I think will be helpful on.
  Sandra, I think it might be good to see if the SAB would be able to give an update and evaluation of whether we're where we need to be this data synthesis. Obviously some has been done, but is it finished enough?

- 10:40:22 **From T.J. Ward to Everyone:**
  https://books.google.com/books?id=zI_aBAAAQBAJ&pg=PR27&lpg=PR27&dq=%27dr.+livingston%27+%27oyster%27+research&source=bl&ots=qfDIysy4J_&sig=ACfU3U2sTNfjiVTi3bCVQkWARWodTbFjwg&hl=en&sa=X&ved=2ahUKEwj8wd-c38_1AhWqKEQIHVLZCioQ6AF6BAhKEAM#v=onepage&q='dr.%20livingston'%20'oyster'%20research&f=false

- 11:01:37 **From Edward Camp to Everyone:**
  To Shannon and Jenna and Roger: Understood, I think. In the model, we should have the ability to have some different, bay-wide closures that are not related to fisheries. I don't know yet how much that will be linked to Steve Morey's and Steve Leitman's models. What that means is I'm not sure if we'll be able to say "here's how river operations will eventually effect fishery closures". My guess is that may be a stretch.

- 11:38:43 **From Steve Rash to Everyone:**
  Some areas harvest specific amounts from specific areas then rotate to different areas. The amount harvested from each area is closely monitored and regulated. When the whole bay is opened and a relatively small number of harvesters makes enforcement much more difficult.

- 11:50:31 **From Steve Rash to Everyone:**
  I can meet in the evening if that is what the group needs.

- 11:51:11 **From Maddie Mahood to Everyone:**
  Great, thanks Steve!

- 11:55:38 **From Edward Camp to Everyone:**
  Thank you Steve.

- 11:57:58 **From Rachel Walsh to Everyone:**
  Thank you everyone for a great first meeting of CAB Phase IV! Please answer the following questions, feel free to DM me directly. Thanks!

ATTACHMENT 6
WORKPLAN AND SCHEDULE

UPDATED AS OF THE 26 JANUARY 2022 CAB MEETING

PHASE I (2019) — STANDING UP AND ORGANIZATION OF THE ABSI CAB — *Status Complete*

May 2019 – December 2019 (Assessment Process, Questionnaire, and 2 CAB Meetings)

PHASE II (2020) — SCOPING OF ISSUES, IDENTIFICATION OF PERFORMANCE MEASURES & STRATEGIES — *Status Complete*

Jan. 2020 – Dec. 2020 (7 CAB Meeting & 1 Oystermen's Workshop)

PHASE III (2021) — BUILDING CONSENSUS ON CAB RECOMMENDATIONS FOR THE ABS ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN

Adoption of Final Draft Management and Restoration Plan Framework for Phase IV Evaluation — *Status Complete*

Jan. 2021 – Nov. 2021 (7 CAB Meeting & 2 Oystermen's Workshops)

PHASE IV (2022) — EVALUATION OF DRAFT ADAPTIVE MANAGEMENT AND RESTORATION PLAN FRAMEWORK'S RESTORATION AND MANAGEMENT STRATEGIES, RESTORATION PROJECTS SELECTION AND IMPLEMENTATION, AND FUNDING PLANNING — *Status Initiated*

Dec. 2021 – Dec. 2022 (6 CAB Meetings, Public Workshops – TBD

1. **COMMUNITY ADVISORY BOARD (CAB).** CAB initiates Phase IV and works on evaluating the best combination of strategies that will achieve management and restoration objectives for the Bay using decision support tools including predictive models coupled with available and emerging data and research. The CAB vets recommendations with management and restoration agencies. The CAB evaluates the priority and efficacy of strategies and actions and identifies specific recommended restoration projects and management approaches.

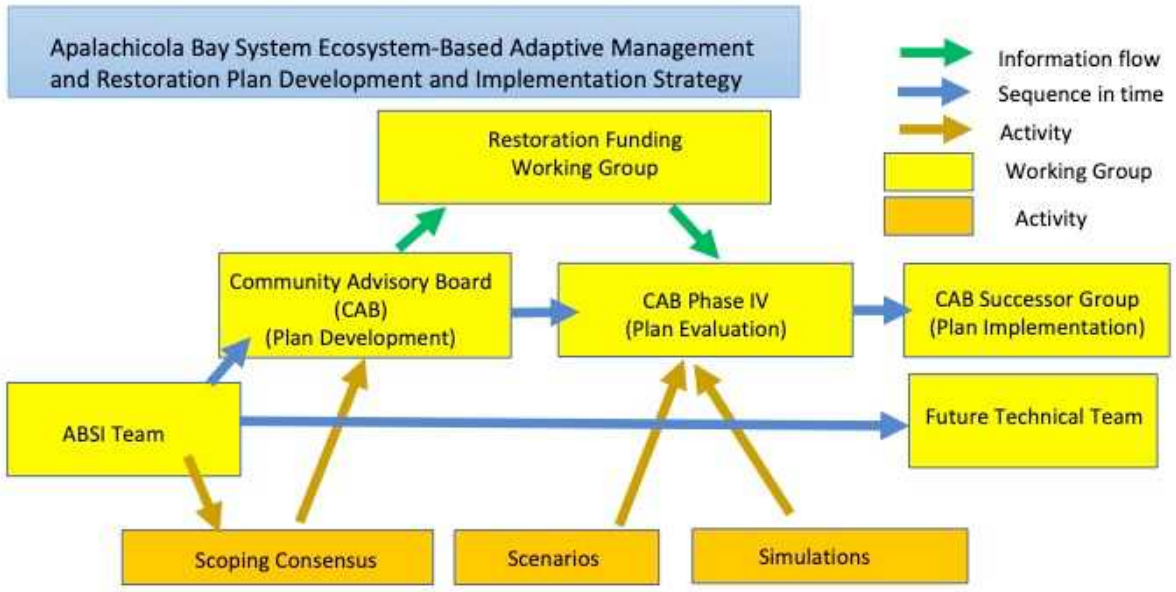
   PUBLIC ENGAGEMENT IN 2022. The CAB working through its Community Outreach Subcommittee will initiate a community feedback initiative by soliciting and reviewing community input on the Plan Framework. The CAB will vet the results of their prioritized strategies with the larger ABS community through multiple formats including a questionnaire administered through a variety of methods including Facebook, online via the ABSI website, and direct mailings. In addition, public workshops will be held in-person and/or virtually depending on the COVID-19 pandemic status.

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

Meeting I. Virtual	**Jan. 26, 2022** • Review of Predictive Models	Initiation of Phase IV of ABSI. Overview of scope and goals for Phase IV. Briefing on collaborative modeling and CAB process for Phase IV. Briefing on ABSI predicative models (Ecological/Oyster, Hydrologic, Hydrodynamic, and Riverine). Public Comment.

Meeting II. ANERR or Virtual TBD	**Mar. 30, 2022** • Ecological/Oyster Model guidance • Management Strategies discussion with FWC	Science and data collection update. Sub-committee reports. Public Engagement Initiative strategy and plan discussion. Guidance regarding restoration and management scenarios and performance measures for development of the Ecological (Oyster) Model. Comprehensive review and discussion on draft management strategies with FWC Division of Marine Fisheries Management. Public comment.
Meeting III. ANERR TBD	**May 25, 2022** • Model Simulation Results & Scenarios Refinements • Discussion with FDACS on Management Strategies	Member-requested presentations, and science and data collection and decision support tools update. Sub-committee reports. Briefing/update on decision support tools (in addition to the predictive models). Comprehensive review and discussion on draft management approaches (strategies) with FDACS Division of Aquaculture. Review and discussion of model simulation results for initial priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) strategies. Agreement on next suite of scenarios for model simulations. Public Engagement Initiative results review. Public comment.
Meeting IV. ANERR or Virtual TBD	**July 27, 2022** • Model Simulation Results & Scenarios Refinements • Discussion with FWC/DEP/ANERR on Restoration Strategies	Member-requested presentations, and science and data collection and decision support tools update. Sub-committee reports. Comprehensive review and discussion on draft restoration approaches (strategies) with FWC Division of Habitat and Species Conservation/ANERR/DEP Office of Resilience & Coastal Protection. Review and discussion of model simulation results for initial priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) strategies. Agreement on next suite of scenarios for model simulations. Public Engagement Initiative results review. Public comment.
Meeting V. ANERR or Virtual TBD	**Sept. 28, 2022** • Model Simulation Results & Scenarios Refinements • Discussion with SAB on Restoration and Management Strategies	Member-requested presentations, and science and data collection and decision support tools update. Sub-committee reports. Comprehensive review and discussion on draft restoration and management approaches (strategies) with Science Advisory Board. Review and discussion of model simulation results for initial priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) strategies. Agreement on next suite of scenarios for model simulations. Public Engagement Initiative results review. Public comment.
Meeting VI. ANERR or Virtual	**Nov. 30, 2022** • Model Simulation Results & Scenarios Refinements	Member-requested presentations, and science and data collection and decision support tools update. Sub-committee reports. Review and discussion of model simulation results for initial priority Habitat Restoration (Goal A) and Fisheries Management (Goal B) strategies. Agreement on next suite of scenarios for model simulations. Public Engagement Initiative results review. Public comment.

ABSI CAB Process Flowchart and Project Area Map



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

ABSI Project Area Map

ATTACHMENT 7
ADOPTED ABSI PLAN FRAMEWORK — 16 NOVEMBER 2021
RESTORATION AND MANAGEMENT STRATEGIES

FINAL DRAFT APALACHICOLA BAY SYSTEM ECOSYSTEM-BASED ADAPTIVE MANAGEMENT AND RESTORATION PLAN FRAMEWORK
ADOPTED UNANIMOUSLY — 16 NOVEMBER 2021

OVERVIEW. The strategies and actions associated with Goals A – E in Section I and II were evaluated by the Community Advisory Board (CAB), and serve as the key components of the CAB's package of consensus recommendations included as the Final Draft Apalachicola Bay System Ecosystem-Based Adaptive Management and Restoration Plan Framework* for Phase IV** evaluation that was voted on and unanimously adopted at the conclusion of Phase III during the 16 November 2021 meeting.

The Community Advisory Board (CAB) will initiate Phase IV of the ABSI project in early 2022 with the primary focus of using available and emerging research and data, which will be incorporated into and evaluated by decision support tools including predictive models. These tools will be used to evaluate the CAB's recommendations relative to specific performance measures and expected outcomes by forecasting the effects of policy actions on the likelihood of achieving oyster management and restoration objectives with the goal of implementing the best combination of management and restoration approaches, and priority restoration projects, for achieving the overarching goal of the Apalachicola Bay System Initiative of restoring the health of the Apalachicola Bay System.

In addition, the CAB will begin a Community Engagement Initiative to seek and evaluate community feedback on the Adopted Final Draft Plan Framework.

** Comprised of Five Goals and associated Visions, Outcomes, Objectives, Prioritized Strategies, Actions, Roles, and Performance Measures and Estuarine Metrics*

*** Phase IV: Evaluation of the Draft Adaptive Management and Restoration Plan Strategies, Restoration Projects Selection and Implementation, and Funding Planning*

FINAL DRAFT PLAN ORGANIZATION

SECTION I: CAB ABSI PLAN PRIORITIZED STRATEGIES

- Goal A: A Healthy and Productive Bay Ecosystem [4 Objectives, 8 Strategies, and 19 Actions]
- Goal B: Sustainable Management of Oyster Resources [2 Objectives, 12 Strategies, and 44 Actions]
- Goal C: Ecosystem-Based Adaptive Management and Restoration Plan Supported by Apalachicola Bay System Stakeholders [2 Objectives, 4 Strategies, and 15 Actions]
- Goal D: An Engaged Stakeholder Community and Informed Public [2 Objectives, 3 Strategies, and 6 Actions]

SECTION II: STRATEGIES TO BE REFERRED TO OTHER PROGRAMS OR ENTITIES

- Goal E (Outside of ABSI Scope): A Thriving Economy Connected to a Restored Apalachicola Bay System [4 Objectives, 10 Strategies, and 1 Action] (Lead: CAB Successor Group)
- Additional Strategies Outside of the ABSI Scope [5 Strategies and 1 Action] (Lead: CAB Successor Group)

SECTION III: STRATEGIES EVALUATED AND NOT ACHIEVING CONSENSUS

SECTION IV: PRIORITIZED STRATEGIES, LEADS, PARTNERS, AND RESOURCES

SECTION V: PERFORMANCE MEASURES AND ESTUARINE METRICS

SECTION VI: TERMS AND DEFINITIONS AND ABSI BOUNDARY MAP

SECTION VII: KEY TO COMMON ABBREVIATIONS

SECTION I
COMMUNITY ADVISORY BOARD ABSI FINAL DRAFT PLAN STRATEGIES

OVERARCHING APPROACHES

1. Use the following ABSI-approved name for developing the 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
ELEMENTS TO BE CONSIDERED FOR THE PLAN

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 PRIORITIZED STRATEGIES

PRIORITY 1 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.
   - *Action 1-C.):* Relay live oysters to jump start restoration experiments by moving oysters within the same general location and applying them to form a shallow layer of oysters over existing healthy reefs (not recommended as a management approach).

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

3) 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 3-A.):* Map existing oyster reefs using multibeam sonar and backscatter, and ground-truth for accuracy.
   - *Action 3-B.)*: Apply model that uses reproductive output, recruitment, natural mortality rates and fishery harvest to assess oyster population dynamics.

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

4) Develop criteria for restoring specific reefs or reef systems damaged by environmental conditions or natural disasters.
   - *Action 4-A.):* Evaluate degree of damage and potential for recovery.
   - *Action 4-B.):* Develop an approach for mitigating damage (e.g., physical repair, spat supplements, or some combination of both).
   - *Action 4-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, FDACS, CAB

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/habitat 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.): 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-C.): Collect long-term in situ environmental data using ABSI instruments and integrate ANERR environmental and nutrient data as correlates with oyster metrics.
   Action 5-D): Generate health indicators for ABSI using monitoring data, and other ecological factors (e.g., oyster-associated communities and structural complexity).

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

PRIORITY 2 STRATEGIES

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, FDACS, 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, FDACS, universities, government agencies

PRIORITY 3 STRATEGIES

8) Seagrass and other submerged aquatic vegetation (SAV), and wetland and riparian habitat should be restored concurrently on appropriate substrate/bottom to work synergistically with oyster habitat restoration to enhance restoration of the ABS.

Lead: DEP	***Partners:*** Franklin Co., FSU, UF, FWC, FDACS

GOAL B
SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES
ELEMENTS TO BE CONSIDERED FOR THE PLAN

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 the protection of the habitat and the fishery it supports is based on science, stakeholder input, and industry experience, and is implemented in a manner that provides both fair and equitable access to and protection of 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. This Plan must 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 oyster's 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 PRIORITIZED STRATEGIES

PRIORITY 1 STRATEGIES

1. Evaluate a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster fishery as measured in relation to relevant performance metrics for determining success.
   - *Action 1-A.):* Evaluate and develop standards for a potential limited-entry fishery that would be managed adaptively with the number of entrants in the fishery based on the current sustainable harvest level. Evaluate the potential for establishing a limited-entry oyster fishery program and various management strategies through a transparent representative stakeholder driven consensus-building process that includes vetting the plan with local oystermen and FWC law enforcement.
   - *Action 1-B.):* Implement a Bay-wide summer wild harvest fishery closure.
   - *Action 1-C.):* Provide daily harvest limits in conjunction with a Monday – Friday five-day harvest week.
   - *Action 1-D.):* Implement a recreational wild oyster harvest limit of for example, one 5-gallon bucket of oysters, and allow recreational harvest during the same season the fishery is open to commercial harvest using the same gear.

[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.

- *Action 1-E.):* Manage harvest areas to prevent the concentration of effort in specific locations by allowing all of the legal and approved (FDACS) harvest areas of the Bay to be open during the harvest season and harvesting hours (Strategy 10-B and 10-C above).
- *Action 1-F.):* Establish the 5% undersize oyster limit for both harvesters and dealers.
- *Action 1-G):* Clarify that it is an allowable practice for oystermen to weigh oyster bags while on the water to ensure the bags meet the weight limit regulations.
- *Action 1-H.):* Implement stock-based temporary wild harvest closures in conjunction with regular stock assessments of the oyster density.
- *Action 1-I.):* Evaluate and determine a metric used to manage oyster reef harvest at a sustainable threshold. Consider a graduated set of thresholds.
- *Action 1-J.):* Implement an annual stock assessment using fisheries dependent and independent data, with data collection methods and site selection done in collaboration with oystermen, for determining a sustainable level of wild oyster harvest for each season.

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

2. Recommend specific criteria and/or conditions, with related performance measures for the reopening of Apalachicola Bay to limited wild oyster harvesting.
   - *Action 2-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 2-B.):* Work with FWC and FDACS to ensure that definitions of oyster population health are not only based on harvest metrics.

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

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

4. Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and the recovery of oyster populations.
   - *Action 4-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 4-B.):* Develop strategies to limit oyster harvest to periods outside of peak spawning season.
   - *Action 4-C):* 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

5. Work with FWC Law Enforcement to develop enforcement strategies and appropriate penalties sufficient to deter harvest or sale of undersized oysters as well as violations that harm wild or leased oyster reefs and other natural resources, and that will support restoration efforts in the ABS.
   - *Action 5-A.):* Develop strategies to increase FWC enforcement presence and number of checkpoints to provide a deterrent to illegal activities.
     - Provide law enforcement presence during peak harvesting periods, and

on the water during harvest season hours.

- *Action 5-B.):* Develop strategies to ensure consistent practices are used for enforcement of regulations regarding the harvestable and marketable size of oysters. (See Actions *5-F* and *5-G*)
- *Action 5-C.):* Revise statutes and/or rules as needed to require FWC to check harvested oysters for size-limit enforcement* before they are washed and processed. Once processed, enforcement of oyster size-limits should be limited to oysters under 2.75" because processing changes shell height.
  ** Sampling and other data collection activities shall not be impacted by this recommendation.*
- *Action 5-D.):* Evaluate and enhance, as needed, the regulations and enforcement practices to ensure dealers accurately identify the source of oysters after processing and packaging.
- *Action 5-E.):* Evaluate and revise, as needed, the statutory and/or regulatory requirements to ensure that FWC has authority to enforce oyster regulations at the dealers' location.
- *Action 5-F.):* Work with FWC and FDACS to implement recommended enforcement changes.
- *Action 5-G.):* Work with oystermen to evaluate current rules and regulations to ensure they are enforced consistently, fairly, and practically with an understanding of real-world on-the-water harvesting practices and constraints.
- *Action 5-H.):* Evaluate and seek authority to implement a tiered system of penalties for purposeful violators (increased fines and license suspensions ranging from increased length of suspension to the permanent loss of license) to keep purposeful violators out of the industry.
- *Action 5-I.):* Encourage community and industry support for consistent judicial imposition of penalties within the exiting penalties framework for oyster harvest violations, including imposing stricter penalties for habitual and willful violators.
- *Action 5-J.*): Prior to the opening of each harvest season FWC should conduct a joint workshop between FWC law enforcement and the oystermen to review the current rule and regulations, identify any changes, discuss enforcement approaches relative to harvest practices and constraints on the water, and to provide mutual two-way education, and enhance communication and collaboration between FWC and oystermen.
- *Action 5-K.):* Work together and with other stakeholders to seek funds to support the recommended increased law enforcement presence in the Bay.

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

6. Evaluate the development of a policy that would require setting sustainable harvest goals and placing limitations on or a complete closure to harvesting based on the results of data (e.g., stock assessment) collected and evaluated under a comprehensive monitoring program designed to sustainably manage the resource.
   - *Action 6-A.)*: Convene a co-management advisory committee comprised of state and federal agencies, and other appropriate experts, to assess and make recommendations on oyster habitat needs in conjunction with harvest management strategies.
   - *Action 6-B.):* Convene an Oyster Advisory Board within FWC to review and make recommendations on management and enforcement of the oyster fishery once wild oyster harvesting resumes in Apalachicola Bay.

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

7. Restore and create reef structures suitable in size, location, and substrate type for healthy and sustainable oyster settlement, production, and harvesting.

- *Action 7-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 7-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 7-C.):* Design and implement restoration projects to achieve oyster fishery production targets.
- *Action 7-D.):* Design restoration projects that include both fished and non-fished reefs.

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

PRIORITY 2 STRATEGIES

8. Recommend policies and actions that retain and recycle shell for habitat replenishment in the ABS.
   - *Action 8-A.):* Develop agency rules and policies that require shell retention and recycling for habitat replenishment through a fee or incentive program.
   - *Action 8-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; Chapter 157, F.S. (McClellan 1881).
   - *Action 7-C.):* Establish and/or expand partnerships with local organizations, stakeholder groups, industry, and universities in shell recycling programs.

9. Use decision-support tools to develop a system of potential closed areas that are well defined in terms of size, location, and longevity and include rotational and seasonal harvest areas, as well as long-term closed areas in strategic locations to provide habitat for year-round protection for brood stock and enhanced spawning opportunities.
   - *Action 9-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.

10. Use ecological quantitative modeling and other decision support tools to evaluate strategies and actions, and define performance criteria for an oyster population that can sustain a pre-determined level of wild oyster harvest, with a stipulated number of harvesters (limited entry), and protocols to ensure sustainability.
    - *Action 10-A.):* Use model outputs to identify the oyster population abundance that can support sustainable harvest.
    - *Action 10-B.):* Use model outputs to identify percentage of the total reef area that is sufficiently productive to support sustainable harvest.
    - *Action 10-C.):* Use model outputs to identify annual; recruitment required to support sustainable harvest.
    - *Action 10-D.):* Use model outputs to determine amount and frequency of habitat replacement to maintain productive oyster reefs.

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

11. Work with FDACS to ensure that oyster aquaculture practices and locations in the Bay are compatible with the goals and strategies for restoration and management of the ecosystem and are compatible with wild fisheries and the important cultural role of a working waterfront and seafood industry.
    - *Action 11-A.):* Develop maps using FDACs data showing all aquaculture activities in the ABS, superimposed on existing maps of essential fish habitat, fishing activities, seagrass beds, and natural existing hard bottom (reefs/bars) to identify potential conflicts.
    - *Action 11-B.):* Utilize habitat and activity maps from *Action 5. A.* to identify potential new oyster restoration areas and areas that could be used as spawning reefs to enhance recruitment and productivity nearby harvested reefs.

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

12. Investigate oyster shell and oyster relay programs to move both cultch and live oysters to more favorable habitat (relay programs are recommended to only be used for restoration experiments).
    - *Action 12-A.):* Use model and mapping information on larval source areas and environmental conditions to inform the potential programs.
    - *Action 12-B.):* Research similar relay programs in other areas for potential models and cautions.

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

PRIORITY OF STRATEGIES BY GOAL AREA ALL STRATEGIES WITHIN EACH PRIORITY LEVEL (1 – 3) ARE OF EQUAL PRIORITY AND WILL BE IMPLEMENTED BASED ON A LOGICAL SEQUENCING	
Priority 1 Strategies (10, 9, 8) = Important To Do Now	
GOAL A	**GOAL B**
1.) Restore and create reef structures suitable for sustained oyster settlement that enhance ecosystem services in designated restoration areas. (#1 – 9.6) *(#1 overall rank for Goal A – 9.6 mean/average)*	1.) Evaluate a suite of management approaches that in combination achieve the goal of maintaining a sustainable wild oyster fishery as measured in relation to relevant performance metrics for determining success. (#1 – 9.3) *(#1 overall rank for Goal B – 9.3 mean/average)*
2.) Use experimental evidence and habitat suitability analyses to determine the most suitable substrate (e.g., limestone, granite, spat-on-shell, artificial structures) for restoring, enhancing, and/or developing new reef structures that will increase productivity in the Apalachicola Bay oyster ecosystem. (#2 - 8.7)	2.) Recommend specific criteria and/or conditions, with related performance measures for the reopening of Apalachicola Bay to limited wild oyster harvesting. (#2 – 9.0)
3.) 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. (#3 - 8.6)	3.) Conduct an oyster stock assessment for the ABS with periodic updates. (#3 – 8.8)
4.)^ Develop criteria for restoring specific reefs or reef systems damaged by environmental conditions or natural disasters. (#4 – 8.2)	4.) Manage the commercial oyster industry and recreational oyster fishing to provide for sustainable spat production and the recovery of oyster populations. (#4 – 8.75)
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. (#4 – 8.2)	5.) Work with FWC Law Enforcement to develop enforcement strategies and appropriate penalties sufficient to deter harvest or sale of undersized oysters as well as violations that harm wild or leased oyster reefs and other natural resources, and that will support restoration efforts in the ABS. (#5 – 8.6)
^*Priority #4 and #5 above received the same ranking.*	6.) Evaluate the development of a policy that would require setting sustainable harvest goals and placing limitations on or a complete closure to harvesting based on the results of data (e.g., stock assessment) collected and evaluated under a comprehensive monitoring program designed to sustainably manage the resource. (#6 – 8.5)
	7.) Restore and create reef structures suitable in size, location, and substrate type for healthy and

	sustainable oyster settlement and production, and harvesting. (#7 – 8.3)
Priority 2 Strategies (7, 6, 5) = Important But Less Time Sensitive	
GOAL A	**GOAL B**
6.) Develop ecosystem models that forecast future environmental conditions and oyster population status. (#6 – 7.2)	8.) Recommend policies and actions that retain and recycle shell for habitat replenishment in the ABS. (#8 – 7.7)
7.) Assess existing ecosystem services metrics used for other oyster studies and develop a list of ABSI specific metrics to assess change over time. (#7 – 6.7)	9.) Use decision-support tools to develop a system of potential closed areas that are well defined in terms of size, location, and longevity and include rotational and seasonal harvest areas, as well as long-term closed areas in strategic locations to provide habitat for year-round protection for brood stock and enhanced spawning opportunities. (#9 – 7.6)
	10.) Use ecological quantitative modeling and other decision support tools to evaluate strategies and actions, and define performance criteria for an oyster population that can sustain a pre-determined level of wild oyster harvest, with a stipulated number of harvesters (limited entry), and protocols to ensure sustainability. (#10 – 7.5)
	11.) Work with FDACS to ensure that oyster aquaculture practices and locations in the Bay are compatible with the goals and strategies for restoration and management of the ecosystem and are compatible with a wild fisheries and the important cultural role of a working waterfront and seafood industry. (#11 – 6.8)
	12.) Investigate oyster shell and oyster relay programs to move both cultch and live oysters to more favorable habitat (relay programs are recommended to only be used for restoration experiments). (#12 – 5.9)
Priority 3 Strategies (4, 3, 2, 1) = As Time and Resources Allow	
GOAL A	**GOAL B**
8.) Seagrass and other SAV, and wetland and riparian habitat should be restored concurrently on appropriate substrate/bottom to work synergistically with oyster habitat restoration to enhance restoration of the ABS. (#8 – 4.73)	

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

ORGANIZATION	RESOURCES AVAILABLE AND COLLABORATION INITIATIVES
Riparian County Stakeholder Coalition (RCSC)	• Staff assistance (Ken Jones, coordinator and engineer). • Request funds from the 6 RCSC counties for funding specific stipulated projects. • Established working stakeholder relationships including working with the Apalachicola-Chattahoochee-Flint Stakeholders (ACFS) group on a Sustainable Water Management Plan for the equitable distribution of water to the Basin. • Collaborating with the ABSI on water flow metrics development in the Basin. • Working with stakeholders including Tri-Rivers Commission on navigation issues for the tri-rivers region (ACF).
Florida Fish and Wildlife Conservation Commission (FWC)	• Implementing Bay oyster restoration project funded by NFWF. • Potential funding for future smaller restoration projects. • Restoration design and monitoring assistance. • Collaborating with the ABSI on water flow metrics development in the Basin. • Science, data, and research support.
City of Apalachicola	• Committed to serving on the ABSI CAB for at least 4 more years to help guide the development of the Bay Management Plan. • Help with convening the CAB Successor Group that will help oversee the implementation of the Bay Management Plan. • Agree to uphold current local regulations that help ensure Apalachicola Bay is free of pollution and allows commercial fishermen to use city boat ramps to access the water.
Apalachicola Riverkeeper	• Nimble and can move fast to take action as needed. • Assist with public outreach initiatives including meeting with and educating stakeholders on issues. • Provide field trips to take stakeholders and decision-makers to see locations and issues in the field. • Social media support and communications. • Assist with collaborative initiatives such as working and coordinating with existing partners including Apalachicola-Chattahoochee-Flint Stakeholders (ACFS) and the Riparian County Stakeholder Coalition (RCSC). • Working on watershed restoration initiatives including the current Apalachicola River Slough Restoration project that also includes collaborating with ANERR and other stakeholders. • Share science and data with stakeholders.

Florida Department of Agriculture and Consumer Services (FDACS)	• Assist with collaboration and communication between stakeholders. Staff assistance. • Field office and laboratory support. • Provide data and research including water quality sampling data and monitoring.
The Pew Charitable Trusts	• Working on various management plans across the Region. • Working with National Estuarine Research Reserves (NERR) across the Country • Resources including staffing, funding, research, and data. • Committed to funding the facilitation of ABSI for initial part of Phase IV. • Committed to the development of a broader state-wide oyster management plan. • Committed to staying involved in the development and implementation of the ABS Plan. • Staff to assist with communication, analysis of data and issues, social media and blogs. • Committed to working and communicating with other stakeholders including The Nature Conservancy (TNC). • Pew has an extensive network of stakeholder partners and a national presence. • Assist with funding for projects and in identifying other funding sources. • Funding of economic assistance initiatives such as purchasing farm-raised oysters for restoration projects.
Water Street Seafood	• Operational oyster processing house. • Water-side facilities and dock to assist with the project. • Can provide oyster shells at market price or donate on a limited basis. Have experienced staff that could assist.
Apalachicola National Estuarine Research Reserve (ANERR)	• Research and monitoring support. • Education, outreach, and training support. • Education to local schools. • Opportunities working with the Conservation Corps of the Forgotten Coast. • Aquaculture education grants. • Relationships and working with agencies. • Working with partner agencies to receive NOAA funding. • Mapping support from existing coastal mapping program, and that could be potentially developed into a single state-wide GIS layer.

STRATEGIES AND ACTIONS WITH PROPOSED LEADS, PARTNERS, AND RESOURCES

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

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

ATTACHMENT 8
ABSI OVERARCHING MESSAGE INITIAL IDEAS

ABSI OVERARCHING MESSAGE INITIAL IDEAS

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

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

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

The overarching messaging discussion will continue during Phase IV of the ABSI project.