

APALACHICOLA BAY SYSTEM INITIATIVE (ABSI)
ABSI COMMUNITY ADVISORY BOARD (CAB)

MEETING III SUMMARY REPORT

JANUARY 8, 2020
APALACHICOLA NATIONAL ESTUARINE RESEARCH RESERVE
EASTPOINT, FLORIDA

APPROVED BY THE COMMUNITY ADVISORY BOARD ON MARCH 11, 2020



FACILITATED AND SUMMARIZED BY ROBERT M. JONES AND JEFF BLAIR



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APALACHICOLA BAY SYSTEM INITIATIVE (ABSI)
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MEETING III EXECUTIVE SUMMARY

January 8, 2020

Jeff Blair, FSU FCRC Consensus Center and part of the FSU Facilitation Team, welcomed the members and the public to the 3rd meeting of the Apalachicola Bay System Initiative's Community Advisory Board. He introduced his partner member of the ABSI Facilitation Team, Bob Jones, together with whom he is responsible for the design and facilitation of the Community Advisory Board meetings and the consensus process, and the FSU Team member present, Felicia Coleman. Members of the Community Advisory Board introduced themselves and the facilitators reviewed and approved the Agenda, and approved without changes the Facilitator Summary for the 12-18-2019 Meeting II.

The Community Advisory Board reviewed and approved adding definitions for ecosystem services, Apalachicola bay system, and a healthy Apalachicola Bay system.

Felicia Coleman presented on oyster ecology reflecting their contributions to habitat, biodiversity and ecological resiliency. She noted that oysters are the dominant reef building species in estuaries of Northern Gulf of Mexico, forming large reefs in fine soft sediments in the intertidal and coarser sediments in subtidal areas and lending significant architectural complexity to areas that otherwise show little 3-D relief. She reviewed factors affecting oyster distribution and abundance such as salinity, temperature, seasonal river flow, competition for space and food at different life stages, species interactions, and predation and disease.

She noted that oysters are ecosystem engineers representing a keystone species that, as a result of their physical structure and their activities, enhance biological diversity, habitat and availability of resources to other organisms. Finally, she noted that oyster reefs are threatened worldwide with the highest percentage loss (90%) of any species in estuaries & coastal seas compared to pristine state due to poor management, poor water quality and coastal development.

Steve Leitman, Florida State University, presented an introduction to hydrologic model development by ABSI that will include (1) a hydrologic model of water flow and nutrients entering the Apalachicola Bay from the river, focusing on climate, water use, and water management (Leitman); (2) a hydrodynamic model focusing on water entering the bay from the Gulf and its effects on water quality throughout bay (Steve Morey, FAMU), and (3) an Oyster model focusing on water, management and restoration in terms of oyster populations and fisheries (Ed Camp, University of Florida, Fisheries and Aquatic Sciences, as part of the FWC award from NFWF).

For the riverine influence, Leitman noted that the model will be used to define potential freshwater inflow to the estuary consistent with the storage capacity of the reservoir system, consumptive demand management in the watershed and alternative climate scenarios. He will do this using an existing watershed model, STELLA, representing the current management approach for the Apalachicola – Chattahoochee –Flint (ACF) watershed. Leitman has been working with the U.S. Army Corps of Engineers, Mobile District – the managing entity for the reservoirs in the ACF watershed based on guidelines defined by the 2016 Water Control Manual -- to align the STELLA model with the HEC ResSim model used by the Corp. The STELLA model is a more flexible modeling tool than the HEC RecSim model because it allows consideration of a greater array of

management alternatives and has considerably shorter run time (e.g., for the 1973 record STELLA runtime is less than 15 seconds compared to over 2-hours for the HEC ResSim model). He concluded by asking the CAB what role they would like to play in the hydrologic modeling effort and how this could be helpful as they consider and ultimately recommend management options.

Ed Camp will guide the development of an oyster model (i.e. a quantitative representation of oyster populations and fisheries) informed by rigorous science and understood and approved by the CAB. His expertise is in quantitative and statistical models and points out that while he understands the general dynamics of how oysters and fisheries work, he is not well-versed in the local dynamics of this system and looks forward to drawing on the expertise of the CAB to get input on their work.

The members reviewed the goal statements discussed at the first two CAB meeting and adopted the following revised goal statement based on the discussion:

“The ABSI Community Advisory Board will develop a package of consensus recommendations informed by the best available science, data, and stakeholders’ experiences for the management and restoration of the Apalachicola Bay System, and to ensure there is a reliable mechanism and process for the monitoring, funding, and implementation of the Apalachicola Bay System Ecosystem-Based Management and Restoration Plan.

A primary focus is on oyster reef restoration with full consideration of factors affecting the biology, ecology and sustainable management of the resource. Restoration related actions, as indicated above, should be informed by the best available science and shared stakeholder values, which in turn, result in an economically viable, healthy, and sustainable Apalachicola Bay System.

The process will be designed so that members can explore and evaluate oyster fishery practices and management options, and restoration policies in the Apalachicola Bay System. The Community Advisory Board’s consensus recommendations, in the form of an Apalachicola Bay System Ecosystem-Based Management and Restoration Plan, will be directed to the Apalachicola Bay System Initiative project team, natural resource managers and environmental regulators, and other agencies/entities as appropriate.”

The vision themes developed by the CAB represent key topical issue areas that characterize the desirable future for the oyster reef ecosystem and the Apalachicola Bay. The following themes, goals, outcomes and objectives were refined and adopted by the CAB at this meeting

A.) A Healthy and Productive Bay Ecosystem

Vision Theme: 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: 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.

Objectives:

A1) Restoration and management plans for the ABS consider changes in management and future environmental conditions, such as freshwater flow (e.g., quantity, timing, hydrodynamics), water quality including temperature and salinity, sea level rise, and habitat change.

A2) Ecosystem services and ecological health indicators derived from Apalachicola Bay System recovery are defined and measurable, with identified target and threshold levels.

A3) Measurements of oyster reef and population conditions are defined and quantifiable, with target and threshold levels identified.

A4) Impacts and activities from activities and future climate scenarios affecting the health and restoration of the ABS ecosystem are considered and addressed to minimize negative effects to the ABS ecosystem. *(Moved-Previously Objective E5)*

A5) Policies and programs are established and implemented that provide the means to return a significant portion of the harvested oyster shell back to the ABS for substrate needed for larval recruitment to enhance population productivity. *(moved from B4)*

A6) Observations, experiments and modeling efforts conducted through ABSI and related efforts will identify viable strategies for restoration.

B.) Sustainable Management of Oyster Resources

Vision Theme: A restored Apalachicola Bay System has resulted in a sustainably managed wild harvested oyster fishery while also providing opportunity ~~also~~ for other economically viable and complementary industries, including aquaculture. This is accomplished by working collaboratively with stakeholders to create, monitor and fund a plan that ensures that protection of the fishery and habitat, is implemented in a manner that is supported by science, data, and field and industry experience and observation, and provides fair and equitable access to the resource.

Goal: A 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.

Objectives:

B1) A comprehensive monitoring plan for oyster resources is established, implemented, ~~and~~ evaluated for the ABS with strong coordination among the various entities conducting work in the Bay.

B2) By year four (2022), a science-based oyster management plan is developed with strong stakeholder and community support and implemented by the State of Florida (e.g., FWC, FDACS, State Legislature, etc.) for the ABS that considers, at a minimum: rotational harvest, open and closed areas (both permanent and seasonal), harvesting methods, limited entry, surcharge fees, the recreational fishery component, shell recycling, and a shell budget.

B3) Regulations for oyster management are well-enforced with sufficient penalties that deter violations and harm to the resource.

B4) The oyster aquaculture industry is regulated using best management practices that enable economic opportunities while preventing negative effects to the ABS ecosystem and its users.

C.) A Thriving Economy Connected to a Restored Apalachicola Bay System

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

Goal: The broader Apalachicola Bay Region is thriving economically as a result of a fully restored Apalachicola Bay System.

Outcome: By 2030, the broader Apalachicola Bay Region is thriving economically as a result of a restored Apalachicola Bay System that reflects a unique coastal cultural heritage, based on a vibrant

oyster fishery, while simultaneously providing new opportunities for sustainable and responsible development, business, recreation and tourism.

Objectives:

C1) Economic indicators of the commercial oyster fishery and associated industries in the ABS demonstrate increasing viability and growth over the course of the ABSI project by *year X*.

C2) Industries, and businesses within the ABS are supportive and compatible with a healthy and well-managed ABS ecosystem.

C3) Growth management policies, plans and regulations affecting the ABS are compatible with a healthy and well-managed ABS ecosystem while maintaining a thriving economy and supporting cultural heritage.

C4) The oyster aquaculture industry provides economic opportunities and is complementary to the wild harvest fishery.

D.) An Engaged Stakeholder Community and Informed Public

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

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

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

Objectives:

D1) A coordinated outreach and education plan is established and implemented to increase public awareness and support for a healthy and well-managed ABS ecosystem.

D2) Businesses, industries, non-profits, and local governments are supportive and included in outreach and education efforts to generate and increase public awareness and support for a healthy and well-managed ABS ecosystem.

D3) During the Project and following funding resources are identified and utilized to generate awareness, education, and support for a healthy oyster and ABS ecosystem.

D4) Public understanding of the issues important to health and restoration of the Bay are improved and increasing as measured by public and stakeholder surveys, and socio-economic

E.) An Ecosystem-Based Management and Restoration Plan that is Science-Based, Fully Funded and Supported by Apalachicola Bay System Stakeholders

Vision Theme: The Apalachicola Bay System Ecosystem-Based Management and Restoration Plan is science-based and developed with engagement and support from the Apalachicola Bay System stakeholders, including the State of Florida, and fully funded and informed by the best available science and other relevant socio-economic information.

Goal: The Apalachicola Bay System Ecosystem-Based Management and Restoration Plan is informed by the best available science, supported by the Apalachicola Bay System stakeholders, and implementation is fully funded.

Outcome: By 2030, the Apalachicola Bay System is a productive and sustainably managed ecosystem. A fully funded and well-executed science-based Ecosystem-Based Management and Restoration Plan

that incorporates the monitoring necessary for evaluation and adaptation is ~~unanimously~~ broadly supported by Apalachicola Bay System stakeholders with guidance ~~oversight~~ from a permanent stakeholder advisory board.

Objectives:

E1) The ABSI Community Advisory Board approves a stakeholder driven and science-informed Ecosystem-Based Management and Restoration Plan for the Apalachicola Bay System with broad community support by 2022 that is implemented.

E2) The ABS Management and Restoration Plan has clearly defined performance measures used to monitor the health of the oyster resource and ABS ecosystem, including indicators of social and economic welfare of the area's coastal and surrounding communities.

E3) State of Florida accepts, approves and adopts and implements the ABS Management and Restoration Plan.

E4) Agencies and other entities responsible for implementing the ABS Management and Restoration Plan work in close coordination.

E5) Funding sources and mechanisms are identified and utilized for full implementation of the ABS Management and Restoration Plan.

E6) A fully funded permanent, representative stakeholder process is established to monitor the long-term implementation of the ABS Management and Restoration Plan.

The facilitator introduced a set of draft performance measures utilized in the Oyster Futures Project in the Chesapeake and were refined by the ABSI team as a draft set of performance measures that could be used to evaluate management and restoration options the CAB will identify and consider. He indicated the intent was to introduce the draft measures at this meeting and at the next several ABSI meetings the CAB would refine, add, subtract, and prioritize them. The performance measure areas included: Harvest; Economics; Oyster Population; Habitat; and Ecosystem Services.

No members of the public wished to provide comments to the Community Advisory Board.

The facilitators then reviewed the agenda for the 4th meeting scheduled for Wednesday, March, 2020 at Apalachicola National Estuarine Research Reserve in Eastpoint, Florida.

They suggested the CAB would be beginning the process in March of creating recommendations for restoration of the bay? In particular the CAB would be identifying strategies and options for the five sets of vision theme objectives. The CAB discussed hearing presentations on: the status quo conditions; an overview of the history of the restoration and shelling efforts with a focus on the more recent initiatives; aquaculture current and proposed sites and the impact on navigation and fishing and on genetics of the oysters used in aquaculture; and the process used for the Choptank Oyster Futures initiative.

The members completed meeting evaluation forms and adjourned at 2:50 pm.

APALACHICOLA BAY SYSTEM INITIATIVE (ABSI)
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MEETING III SUMMARY

January 8, 2020

What follows is a more detailed summary with additional data from the presentations

I. INTRODUCTIONS AND ABSI PROJECT CONTEXT AND PROCEDURES

A. INTRODUCTION

Jeff Blair, FSU FCRC Consensus Center and part of the FSU Facilitation Team, welcomed the members and the public to the 3rd meeting of the Apalachicola Bay System Initiative’s Community Advisory Board. He introduced his partner member of the ABSI Facilitation Team, Bob Jones, together with whom he is responsible for the design and facilitation of the Community Advisory Board meetings and the consensus process, and the FSU Team member present, Felicia Coleman. Members of the Community Advisory Board introduced themselves and the facilitators reviewed and approved the Agenda, and approved without changes the Facilitator Summary for the 12-18-2019 Meeting II. Blair reviewed the agreed upon participation principles and consensus procedures.

B. DEFINITIONS

The Community Advisory Board reviewed and approved adding the following definitions as requested at the December CAB meetings to their definitions (*See Appendix # 5*). A member raised the question of the boundary between the river and the Bay system and the ABSI Team agreed to provide a map depicting the project boundaries for review at the March 2020 meeting.

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

APALACHICOLA BAY SYSTEM: Consists of six bays: Apalachicola Bay, East Bay, St Vincent Sound, East and West St George Sound, and Alligator Harbor comprising a total of 155,374 acres (62,879 Ha).

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

II. ABSI PROJECT BRIEFINGS

A. THE OYSTER : CONTRIBUTIONS TO HABITAT, BIODIVERSITY, & ECOLOGICAL RESILIENCY

Felicia Coleman presented on oyster ecology reflecting their contributions to habitat, biodiversity and ecological resiliency. She noted that oysters are the dominant reef building species in estuaries of Northern Gulf of Mexico, forming large reefs in fine soft sediments in the intertidal and coarser sediments in subtidal areas and lending significant architectural complexity to areas that otherwise show little 3-D relief. She reviewed factors affecting oyster distribution and abundance such as salinity, temperature, seasonal river flow, competition for space and food at different life stages, species interactions, and predation and disease.

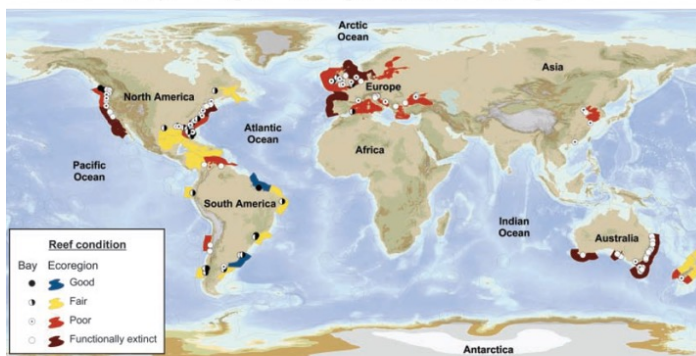
She noted that oysters are ecosystem engineers representing a keystone species that, as a result of their physical structure and their activities, enhance biological diversity, habitat and availability of resources to other organisms. She noted that biological diversity is not just a count of the number of species in a system. It includes:

- Taxonomic diversity (i.e. who is there) e.g., what species occur
- Functional Diversity (i.e. what is their role) e.g., are they predator, prey, parasite, host, commensal? The greater the functional diversity in the system, the greater its resilience, ecosystem health, and resistance to change
- Genetic diversity (i.e. how do they adapt to change) e.g. oysters have genetic ability to cope with temperature variation & changes in salinity, air exposure & heavy metals.

As ecosystem engineers, oysters enhance water quality by removing suspended solids from surrounding waters which can contribute to recovery of seagrass habitat, reduce harmful algal blooms, and remove excess nutrients from the water column. They also build oyster reefs that help stabilize sediments, which reduces erosion, flooding and storm damage to coastal property. These engineering feats enhance local economies by increasing the productivity of commercially important fish & invertebrate species that use the oyster reef habitat for feeding and nursery grounds and so support commercial and recreational fisheries and enhance tourism and nature-based recreation industries, and by improving water quality, they increase property values (based on an EPA study).

Global Condition of Oyster Reefs – 85% loss

Poor management, poor water quality, coastal development



From Beck et al. 2011 Oyster Reefs at Risk & Recommendations for Conservation, Restoration, & Management. Bioscience 61(2):107-116

She ended by noting that oyster reefs are threatened worldwide with the highest percentage loss (90%) of any species in estuaries & coastal seas compared to the pristine state due to poor management, poor water quality, and coastal development.

CAB Q & A and Comments 1-8-20

- Oyster drills- they kill the oyster with their ability to drill holes in hard-shelled organisms it preys upon
- High salinity leads to an increase in the number of oyster drills.

- Conch feed in a different way than oyster drills. They inject a paralyzing substance into the oyster and eat them much quicker than drills do.
- Variability of aquaculture- depth and diversity of where they come from. *A: The variability is related to husbandry practices.*
- Decline of oysters in bay related to water quality? *A: some work done but no scientific consensus yet.*
- What are the ocean acidification impacts on oysters in Gulf of Mexico? Is it being studied in the Gulf in terms of its potential impact on oyster shells and formation on shells? *A: Does not appear to be a problem here in Gulf. Calcium carbonate is rich in region. Shells will be thinner and more fragile in higher salinity. 2007-08 drought. East side of Bay was gone for oysters, but the West side of the Bay had enough to keep the harvest.*

B. INTRODUCTION TO DECISION-SUPPORT TOOLS

1. Hydrologic Modeling

Steve Leitman, Florida State University, presented an introduction to hydrologic model development by ABSI that will include (1) a hydrologic model of water flow and nutrients entering the Apalachicola Bay from the river, focusing on climate, water use, and water management (Leitman); (2) a hydrodynamic model focusing on water entering the bay from the Gulf and its effects on water quality throughout bay (Steve Morey, FAMU), and (3) an Oyster model focusing on water, management and restoration in terms of oyster populations and fisheries (Ed Camp, University of Florida, Fisheries and Aquatic Sciences, as part of the FWC award from NFWF; see next section).



For the riverine influence, Leitman noted that the model will be used to define potential freshwater inflow to the estuary consistent with the storage capacity of the reservoir system, consumptive demand management in the watershed and alternative climate scenarios. He will do this using an existing watershed model, STELLA, representing the current management approach for the Apalachicola – Chattahoochee –Flint (ACF) watershed. Leitman has been working with the U.S. Army Corps of Engineers, Mobile District – the managing entity for the reservoirs in the ACF watershed based on guidelines defined by the 2016 Water Control Manual -- to align the STELLA model with the HEC ResSim model used by the Corp. The STELLA model is a more flexible modeling tool than the HEC RecSim model because it allows consideration of a greater array of management alternatives and has considerably shorter run time (e.g., for the 1973 record STELLA runtime is less than 15 seconds compared to over 2-hours for the HEC ResSim model). He



concluded by asking the CAB what role they would like to play in the hydrologic modeling effort and how this could be helpful as they consider and ultimately recommend management options.

CAB Q & A and Comments 1-8-20

- In terms of climate impact in the model, are there ways to put a % on the possibility of what we will see, e.g. 40 vs. 5%? Do we know what has a better chance of happening? *A: Equal probability of happening-hard to do a calculation. 1/40th of Colorado basin and more flow. Daily basis not averaged out.*

- High salinity is our enemy. Can we assume more drastic version of the climate model and see what could be done then. How much augmentation we can make? *A: We will be able to do a number of options. Good tools to answer the question. Augmentation- flood plain important source of nutrients. Manage so you release more than*

and – flood the flood plain more frequently to get nutrients needed.

- In terms of climate change and frequency and intensity of drought, what are the worst case/best case scenarios? *A: We could use the down scaled climate models to model different drought intensities. Have capacity with model. If you manage the flood plains in drought years,*
- High rain situation and high water to system. High salinity. *A: reservoirs, flood control capacity on river extremely limited.*
- Lake Seminole- flow here in the Bay. 2 feet to play with. Little storage effect on storage.
- Climate= rainfall and evaporation and temperature
- Georgia Tech scientist- Augmentation of flow into the Bay from the Gulf. Indian pass or west pass. Stella model the ability to look at management scenarios for inflow from the Gulf. *A: Estuarine modeling- Steve Maury- Small reservoirs and a big river.*
- Capacity for fresh water inflow into the Bay- capacity- have to get the ACOE change the rule? *A: Yes, have to get ACOE to change. Gulf Intercoastal- they are not looking at the Bay enough.*
- Give more water to the Bay they are not going to out of Lake Lanier. A lot more water

2. Overview of Oyster Modeling

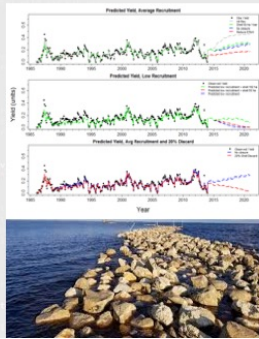
Ed Camp will guide the development of an oyster model (i.e. a quantitative representation of oyster populations and fisheries) informed by rigorous science and understood and approved by the CAB. His expertise is in quantitative and statistical models and points out that while he understands the general dynamics of how oysters and fisheries work, he is not well-versed in the local dynamics of this system and looks forward to drawing on the expertise of the CAB to get input on their work.

First, the model consists of assumptions—representations—of oysters and their fisheries. These are things like how oysters grow, die, and reproduce, and especially how natural mortality may be affected by salinity, how oyster recruitment depends on habitat and how habitat for recruitment depends on shell. These assumptions are then translated to mathematical and statistical equations and displayed in graphs and then fit to data to make sure they are scientifically robust. This process

will get repeated a few times with input from the CAB and once we're reasonably happy with the model, we'll use it for making predictions about how things like environment, management, or restoration actions are likely to affect oysters and their fisheries.

Model in a Nutshell

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



The model objectives are to increase our understanding of oyster population dynamics and interaction with fisheries. It will also make it easier to talk about proposed management actions by giving us a common tool and useful language to recognize and acknowledge uncertainty and disagreements. The model structure will cover oyster populations and fisheries in the Apalachicola Bay spatially explicit at the large reef level. It will produce future simulations based on the past fisheries dependent and independent data covering: oyster larvae; oyster recruits; oyster

populations in monthly ages; oyster harvest and oyster shell. The model outputs will include oyster population metrics (e.g., recruits, adults, shell, fishery metrics, fisher behavior, harvest yield, price/revenue). It will offer “what if” analyses for harvest; restoration; and water use and management. Outcomes will include the expected and unexpected and the probable ranges.

CAB Q & A and Comments 1-8-20

- Data available historical- oyster foot print in bay prior to 1800s before major changes. Targets for resiliency? Healthy reef look like? A: Reasonable idea of foot print but not height? Fresh water salinity – not in historical records. Need a time series and won't have.
- Disease effect on natural mortality. Different frequencies. A: natural mortality is knob- physical limitations re dewatering. Not easy to get good data for how to split these things up. Have to make assumptions. Environmental conditions, parasite load, disease. Do it in couple ways. Assume baseline- informed from data. Let the model sort it out using an estimation. These things will interact. Effect of a blue crab. We will have ability have assumption estimating anomalies and mortality.
- First survey- 1897 survey over St. Vincent Bar. Numerous. Determine shell, but live or dead not known.
- Topography of bay- it is filling in faster than other estuaries. Following the 85' hurricanes the Bay deepened. Surveys done with chains and poles. Then surveys of USGS.
- Overall # of bottom acreage of oysters didn't change much over a 100 years.
- Jenna: spatial extent? Acreage? Large reef. Hundreds of acres? How low can we go? A: data informed predictions limited to data we have. Simulate forward- can at fine scale= takes time to run. Have to rely on assumptions. Make pessimist and optimistic assumptions.

III. COMMUNITY ADVISORY BOARD DRAFT GOAL STATEMENT

The members reviewed the goal statement discussed at the first two CAB meeting and adopted the revised goal statement based on the discussion.

The ABSI Community Advisory Board will develop a package of consensus recommendations informed by the best available science, data, and stakeholders' experiences for the management and restoration of the Apalachicola Bay System, and to ensure there is a reliable mechanism and process for the monitoring, funding, and implementation of the Apalachicola Bay System Ecosystem-Based Management and Restoration Plan.

~~The goal of the Initiative is to ensure that the regulation and management of the oyster resource, and oyster reef ecosystem restoration policies are informed by the best available science and shared stakeholder stewardship values, resulting in an economically viable, healthy and sustainable Apalachicola Bay System including oyster reef ecosystems and the wild oyster fishery.~~

A primary focus is on oyster reef restoration with full consideration of factors affecting the biology, ecology and sustainable management of the resource. Restoration related actions, as indicated above, should be informed by the best available science and shared stakeholder values, which in turn, result in an economically viable, healthy, and sustainable Apalachicola Bay System.

The process will be designed so that members can explore and evaluate oyster fishery practices and management options, and restoration policies in the Apalachicola Bay System. The Community Advisory Board's consensus recommendations, in the form of an Apalachicola Bay System Ecosystem-Based Management and Restoration Plan, will be directed to the Apalachicola Bay System Initiative project team, natural resource managers and environmental regulators, and other agencies/entities as appropriate.

CAB Member Comments on Draft Goal 1-8-20

- All agreed to adopt the goal statement with the revisions above.

IV. VISION THEMES, GOALS, OUTOMCES AND OBJECTIVES FOR THE APALACHICOLA BAY SYSTEM

The following draft "Vision of Success" themes were drawn from the CAB Questionnaire responses and reviewed and rated by the Community Advisory Board at the October 30 and December 18 meetings. The language for vision themes, goals and outcomes were drafted by the facilitators based on the December 18, 2019 CAB Meeting Summary. The alternative wording shaded in gray were drafted by CAB member Tom Frazer who agreed at the December 18 CAB meeting to provide suggested edits to the Vision Themes, Goals and Outcomes based on the CAB Discussion.

The vision themes represent key topical issue areas that characterize the desirable future for the oyster reef ecosystem and the Apalachicola Bay. The Vision Themes will be helpful in establishing a framework for the plan goals and objectives and are not ordered by priority. The five theme headlines were adopted by the CAB at the January 8, 2020 meeting.

- A. A Healthy and Productive Bay Ecosystem
- B. Sustainable Management of Oyster Resources

- C. A Thriving Economy Connected to a Restored Apalachicola Bay System
- D. An Engaged Stakeholder Community and Informed Public
- E. An Ecosystem-Based Management and Restoration Plan that is Science-Based, Fully Funded and Supported by Apalachicola Bay System Stakeholders

A. A Healthy and Productive Bay Ecosystem

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

~~**Vision Theme A:** The Apalachicola Bay System and the oyster reef ecosystem is managed in a manner that supports ecosystem services by protecting and enhancing the habitat and resource in a sustainable and productive manner.~~

1/8/20 CAB Comments

- Intent by “realized”? *A: Attain a benefit from restoration of the Bay*
- “Maintained”- based on what exists now? High productive level? *A: focus is on the Bay itself and the constituents parts.*

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

~~**Goal:** The Apalachicola Bay System is a healthy and productive oyster reef ecosystem.~~

1/8/20 CAB Comments

- Likes the writing style.

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 a broad suite of ecosystem services that, in turn, afford additional opportunities for sustainable economic development.

~~**Outcome:** By 2030, the Apalachicola Bay System is a healthy and productive oyster reef ecosystem managed in a sustainable manner and providing significant ecosystem services.~~

1/8/20 CAB Comments

- OK

Key Topical Issues To Inform Objectives: *The CAB identified at the 12-18 meeting the following issues:*

- Measuring ecosystem services
- Criteria for opening and closing Apalachicola Bay
- Spatial extent of oyster reefs
- Oyster population demographics
- Monitoring fishery output
- Water quality
- Future projected conditions and water flows
- Socioeconomic objectives linked to ecosystem services
- Oyster habitat use by fish
- Drying of the Apalachicola Bay flood plain
- Septic systems impact on the Bay

- Nutrients and chlorophyll
- Define/measure “healthy” in the ABSI goal, and
- Address climate change.

Draft Objectives:

A1) Restoration and management plans for the ABS consider changes in management and future environmental conditions, such as freshwater flow (quantity, timing, hydrodynamics), water quality including salinity and temperature, and sea level, and habitat change.

1/8/20 CAB Comments

- Agree but add, “Habitat change”
- Different management strategies on the rivers vs. the bays? As future environmental conditions change, management of the river system would change.
- Is water quality addressed in this objective? Add water quality. Concerned about runoff upstream
- Sea level vs. climate change?

A2) Ecosystem services and ecological health indicators derived from Apalachicola Bay System recovery are defined and measurable, with identified target and threshold levels.

1/8/20 CAB Comments

- Agree with it but question whether we will be far enough along with science that will have measurable indicators? Where will this info be coming from? Who will be doing that? Covers a lot of areas. Does this need to be set forth in the objective?
- ABSI will be hiring researchers who might help with this objective.
- Look to parts of the bay where we currently have indicators? Seek to quantify these indicators and consider adjust the objective as we go down the road. Help describe what the health of the Bay.

A3) Measurements of oyster reef and population conditions are defined and quantifiable, with target and threshold levels identified.

1/8/20 CAB Comments

- OK on balance.

~~A4) Oyster research and restoration experiments conducted through the ABSI will identify optimum strategies for oyster restoration by year x.~~

A4) Impacts and activities from activities and future climate scenarios affecting the health and restoration of the ABS ecosystem are considered and addressed to minimize negative effects to the ABS ecosystem. (Moved-Previously Objective E5)

BA5) Policies and programs are established and implemented that provide the means to return a significant portion of the harvested oyster shell back to the ABS for substrate needed for larval recruitment to enhance population productivity.(moved to A6)

A6) Observations, experiments and modeling efforts conducted through ABSI and related efforts will identify viable strategies for restoration.

1/8/20 CAB Comments

- More than oyster restoration experiments will inform restoration. Is this a tiny piece of a bigger picture.
- Add oyster research and
- Consider cost effective strategy of collecting/reclaiming of shells where oyster reefs have been and rake where shells are buried. Do an experiment to restore reefs.
- Concerns about plowing of the bay?
- Shell recycling as a strategy in B.
- Strategy specific to oyster restoration vs. fishery.

Other Objectives?

- Do we need a healthy ecosystem objective? *A: A4 looks broadly at other restoration efforts*
- Management of other fisheries are included in overall management of the system? *A: Will check back in with this following the review of A-E*
- No actions in the objectives. *A: Will develop action strategies.*

B. SUSTAINABLE MANAGEMENT OF OYSTER RESOURCES

Vision Theme B: A restored Apalachicola Bay System has resulted in a sustainably managed wild harvested oyster fishery while also providing opportunity ~~also~~ for other economically viable and complementary industries, including aquaculture. This is accomplished by working collaboratively with stakeholders to create, monitor and fund a plan that ensures that protection of the fishery and habitat, is implemented in a manner that is supported by science, data, and field and industry experience and observation, and provides fair and equitable access to the resource.

~~**Vision Theme B:** The management and regulation and restoration, of the oyster fishery and aquaculture industry are conducted by working collaboratively with stakeholders to create, monitor and fund a plan that ensures that protection of the fishery and habitat, is implemented in a manner that is supported by science, data, and field and industry experience and observation, and provides fair and equitable access to the resource.~~

1/8/20 CAB Comments

- ~~“Also”~~ add while also

Goal: A 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.

1/8/20 CAB Comments

- Insert- “a fully funded”
- “Adequately funded”?

Key Topical Issues To Inform Objectives: *The CAB identified at the 12-18 meeting the following issues:*

- Historical context
- Improve the current ABS regulatory management system
- Limited entry to the ABS
- Recreational fishing component
- Compliance, enforcement and penalties

- Aquaculture; Research and monitoring long term on regulation
- Funding mechanisms
- Water quality monitoring
- Stewardship Outreach and Education
- Managing the shell stock, and
- Legislative action.

Draft Objectives:

B1) A comprehensive monitoring plan for oyster resources is established, implemented, and evaluated for the ABS with strong coordination among the various entities conducting work in the Bay.

1/8/20 CAB Comments

- How do we make this continuous? *A: This is covered in E?*
- “Evaluate”- is the plan evaluated. *A: See if it is working?*
- Adaptive management? *A: Plan already will be adaptive management. E*
- Definition for “oyster resources”? *A: ABSI team will provide in March.*

B2) By year four (2022), a science-based oyster management plan is developed with broad stakeholder and community support and implemented by the State of Florida (e.g., FWC, FDACS, State Legislature, etc.) for the ABS that considers, at a minimum: rotational harvest, open and closed areas (both permanent and seasonal), harvesting methods, limited entry, surcharge fees, the recreational fishery component, shell recycling, and a shell budget.

1/8/20 CAB Comments

- Consideration of legislative actions? where actions need statutory changes
- Need an impetus to push this forward and continuously manage plan. Problem is lack of coordination among managers and plans. Need this shepherded forward
- Address as a strategy- Task Force. E.g. Wakulla Springs Stakeholders Task Force.

B3) Regulations for oyster management are well-enforced with sufficient penalties that deter violations and harm to the resource.

1/8/20 CAB Comments

- Enforcement rules are there currently. But will this change things? It is not working today. Hand full of boats now, but if more boats on the water and no regulation is will not be an improvement. Need \$\$ and law enforcement? This could be strategy?
- “With follow through by local jurisdictions and judges.”
- Aquaculture- stealing- FWC and Sheriff were very helpful in tracking down the thieves.
- There needs to be marine patrol in the Bay every night. Needs enforcement every night.

~~B4) Policies and programs are established and implemented that provide the means to return a significant portion of the harvested oyster shell back to the ABS for substrate needed for larval recruitment to enhance population productivity. (moved to A5)~~

1/8/20 CAB Comments

- Think about before implementing programs- quantify the impact and effect. 2012 largest harvest year, if all put back in bay, could have shelved 50 acres of hard bottom. Would not prioritize high
- Objectives under A- experiments will inform these strategies

- These will be strategies as opposed to an objective
- Not a bad thing to do. Help people/ engaged and link to the Bay and this could be a benefit.
- Under “A” or other objective.
- Shell going out for the half shell trade.
- Habitat/substrate return to the Bay. More general objective for the management section.
- Habitat management part of the oyster plan? Covered A.
- Shell recycling as a strategy for part of the plan?
- Delete B4. It is covered in A. Science informed. Don’t jump ahead of the science

B4) The oyster aquaculture industry is regulated using best management practices that enable economic opportunities while preventing negative effects to the ABS ecosystem and its users.

1/8/20 CAB Comments

- None

C. A Thriving Economy Connected to a Restored Apalachicola Bay System

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

~~**Vision Theme C:** A healthy Apalachicola Bay System oyster fishery, aquaculture, and oyster reef ecosystem, and resilient human community serve as key components of the region’s economic viability and cultural heritage, and serve to sustain economically viable and thriving fisheries, recreation and tourism industries.~~

1/8/20 CAB Comments

- OK

Goal: The broader Apalachicola Bay Region is thriving economically as a result of a fully restored Apalachicola Bay System.

~~**Goal:** The Apalachicola Bay Region is thriving economically as a result of a healthy Apalachicola Bay System.~~

1/8/20 CAB Comments

- “Broader?” What does it encompass?
- E.g. Tupelo honey industry.
- Bay and river?
- Is there are a formal economic region that Apalachicola Bay is a part of?

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

~~**Draft Outcome:** By 2030, the Apalachicola Bay Region has improved economically as a result of achieving and sustaining a healthy Apalachicola Bay System that supports a local cultural heritage, which includes a well-managed wild oyster fishery, and provides opportunities for sustainable and responsible industry, development, business, recreation and tourism.~~

1/8/20 CAB Comments

- Related to cultural heritage and economy-

- OK

Key Topical Issues To Inform Objectives: *The CAB identified at the 12-18 meeting the following issues:*

- Compatible development
- Socio-economic conditions and a seafood community
- Tourism impacts on the ABS, and
- Education on the ABS.

Draft Objectives:

C1) Economic indicators of the commercial oyster fishery and associated industries in the ABS demonstrate increasing viability and growth over the course of the ABSI project by year X.

1/8/20 CAB Comments

- OK

C2) Industries, and businesses within the ABS are supportive and compatible with a healthy and well-managed ABS ecosystem.

1/8/20 CAB Comments

- OK

C3) Growth management policies, plans and regulations affecting the ABS are compatible with a healthy and well-managed ABS ecosystem while maintaining a thriving economy and supporting cultural heritage.

1/8/20 CAB Comments

- OK

C4) The oyster aquaculture industry provides economic opportunities and is complementary to the wild harvest fishery.

1/8/20 CAB Comments

- OK

D.) An Engaged Stakeholder Community and Informed Public

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

~~Vision Theme D: Stakeholders of the Apalachicola Bay System are committed to working together beyond the Apalachicola Bay System Initiative to collaboratively to serve as a hub for research and best practices, and provide education and communication on the importance of maintaining the health and productivity of the ABS, including healthy oyster reefs, wild oyster fishery, and aquaculture, and the role they play in ensuring the community thrives.~~

1/8/20 CAB Comments

- A long term committee needed.

- More active. Seeing research done and funded. Actively engaged stakeholders for the longer term
- Anita Grove may review language for D following the meeting.

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

~~**Goal: A healthy Apalachicola Bay System is supported by an ongoing and continuously engaged and informed public.**~~

1/8/20 CAB Comments

- OK

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

1/8/20 CAB Comments

- No changes. OK

Key Topical Issues To Inform Objectives: *The CAB identified at the 12-18 meeting the following issues:*

- Public support for ABS funding sources
- Coordinated messaging to tourists and residents, and
- Role of TDC and Chamber of Commerce; and Local schools.

Draft Objectives:

~~**D3-D1) A coordinated outreach and education plan is established and implemented to increase public awareness and support for a healthy and well-managed ABS ecosystem.**~~

1/8/20 CAB Comments

- D3 should be D1?

~~**D2) Businesses, industries, non-profits, and local governments are supportive and included in outreach and education efforts to generate and increase public awareness and support for a healthy and well-managed ABS ecosystem.**~~

1/8/20 CAB Comments

- OK

~~**D3) During the Project and following funding resources are identified and utilized to generate awareness, education, and support for a healthy oyster and ABS ecosystem.**~~

1/8/20 CAB Comments

- Part of ABSI is identifying ways to generate awareness education. CAB helps develop this strategy.

~~D1-D4) Public understanding of the issues important to health and restoration of the Bay are improved and increasing as measured by public and stakeholder outreach and education surveys, and socio-economic indicators.~~

1/8/20 CAB Comments

- How will this info be secured? Measuring outreach and education?
- Public understanding of the issues important to health and restoration of the Bay are improved and increasing as measured....

E.) An Ecosystem-Based Management and Restoration Plan that is Science-Based, Fully Funded and Supported by Apalachicola Bay System Stakeholders

Vision Theme E: The Apalachicola Bay System Ecosystem-Based Management and Restoration Plan is science-based and developed with engagement and support from the Apalachicola Bay System stakeholders, including the State of Florida, and fully funded and informed by the best available science and other relevant socio-economic information.

~~**Vision Theme E:** The Apalachicola Bay System Ecosystem Based Management and Restoration Plan is developed with engagement and support from the Apalachicola Bay System Stakeholders, and its implementation is adaptively managed and funded from dedicated sources.~~

1/8/20 CAB Comments

- Informed by or based on?
- OK

Goal: The Apalachicola Bay System Ecosystem-Based Management and Restoration Plan is informed by the best available science, supported by the Apalachicola Bay System stakeholders, and implementation is fully funded.

~~**Goal:** The Apalachicola Bay System Ecosystem-Based Management and Restoration Plan is science-based, has the Apalachicola Bay System stakeholders support, and is fully funded.~~

1/8/20 CAB Comments

- What is “fully funded”? The plan? The implementation of the plan? The restoration?
- Body engaged in funding and research.
- Totally? Adequately? Fully?

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

~~**Outcome:** By 2030, the Apalachicola Bay System is a healthy and productive oyster reef ecosystem with a fully funded and monitored adaptive science-based Ecosystem-Based Management and Restoration Plan that is fully supported by the Apalachicola Bay System stakeholders with oversight from a permanent stakeholder advisory board.~~

1/8/20 CAB Comments

- Unanimously supported? Insert “Broadly” supported
- What is the expectation of “oversight”? *A: We can clarify how this would look as a strategy.*

Key Topical Issues To Inform Objectives: The CAB identified at the 12-18 meeting the following issues:

- Social and economic impacts on welfare of the community
- Performance measures
- Plan implementation and lead
- Connect with the broader river system
- Define fully funded
- Define fully supported by stakeholders, and
- Sharing science and the plan.

Draft Objectives:

E1) The ABSI Community Advisory Board approves a stakeholder driven and science-informed Ecosystem-Based Management and Restoration Plan for the Apalachicola Bay System with widespread broad community support by 2022 that is implemented.

1/8/20 CAB Comments

- CAB won't "implement"

E2) The ABS Management and Restoration Plan has clearly defined performance measures used to monitor the health of the oyster resource and ABS ecosystem, including indicators of social and economic welfare of the area's coastal and surrounding communities.

1/8/20 CAB Comments

- OK

E3) State of Florida accepts, approves and adopts and implements the ABS Management and Restoration Plan.

1/8/20 CAB Comments

- OK

E4) Agencies and other entities responsible for implementing the ABS Management and Restoration Plan are identified and work in close coordination.

1/8/20 CAB Comments

E5) Funding sources and mechanisms are identified and utilized for full implementation of the ABS Management and Restoration Plan.

1/8/20 CAB Comments

- OK

E6) A fully funded permanent stakeholder process ~~community advisory board~~ is established to monitor the long-term implementation of the ABS Management and Restoration Plan.

1/8/20 CAB Comments

- Funding for the Board, funding for the plan implementation.
- Someone driving this to keep it going.

~~E7) Impacts and activities from ACF upstream activities and future climate scenarios affecting the health and restoration of the ABS ecosystem are considered and addressed to minimize negative effects to the ABS ecosystem. Objective E7 Move to near A4~~

1/8/20 CAB Comments

- State of Florida Legislature needs to be engaged and invested in this initiative. What is the State's goal for the Bay? State has not directed anyone to do anything. Can the CAB request an official position in support of the Bay's restoration. A governor's position statement.
- Is this a vision? State would accept this plan
- Strategy to secure a legislative mandate on managing and restoring Apalachicola Bay?
- State's position is protect, preserve and manage all the state's natural resources.
- "Top priority" for the State?
- E.g. get State to close the Bay for oyster harvest.
- Historical impact of the water wars? The more we restore AB the more Georgia says AB hasn't been correctly managed.
- Legislatively funding for the Water Wars didn't go to science, went to lawyers.
- Change wording in E3. "Agencies responsible adopt the management plan
- How does that work. Adopting the plan. Interagency agreement?
- Agency reps engaged in the process- mechanism in place-
- Talk with elected officials. Not a single strategy.
- People reps agency on this committee don't have the power to "adopt". Legislature asked by the agencies for their budgets.
- Can come from the Governor's budget, legislative budget.
- Future climate scenarios?
- Is this fit in A? *Move to A4.*

V. DRAFT PERFORMANCE MEASURES

The facilitator introduced a set of draft performance measures that were utilized in the Oyster Futures Project in the Chesapeake and that were refined by the ABSI team a draft performance measures that could be used to evaluate management and restoration options the CAB will identify and consider. He indicated the intent was only to introduce the draft measures at this meeting and at the next several ABSI meetings the CAB would refine, add, subtract, and prioritize them.

A. HARVEST

- Total harvest in bags the oyster population can support
- Number of full-time harvesters that the fishery can support
- Harvest by size category
- Harvest by location
- Harvest by gear type
- Timing of harvest during the fishing season
- Catch per unit effort (catch per trip)
- Amount of illegal harvest
- Amount of harvest from rotation areas

- Fraction of oysters that are being harvested

CAB 1-18-20 Comments

- Delete “Harvest per licensed harvester” Harvest per licensed harvester- this is confidential. But this would be a catch per trip
- Caution with using only Catch per unit as a measure.
- Delete “Effort expended harvesting”
- Need a measure for “Recreational oyster harvest” Do we have data? *A: Not currently*
- Illegal harvest- metric of only those individuals who are caught and not the total # of illegal harvest. This may be a difficult one that would have to be compiled using best available information.
- The purpose of these measures is not to create stock assessment which would require very precise measures and data, but for the CAB to use to help with management recommendations.
- In terms of these measures, trends are important.

B. ECONOMICS

- Frequency of harvest that meets an economic minimum for sustainability
- Cost/value per bushel
- Number of fishermen participating in the fishery
- Revenue per harvester (and perhaps its distribution)
- Travel time costs, and distance travelled
- Cost of management measures (e.g., restoration efforts)
- Revenue raised in fees/bushel taxes
- Social benefits (value of ecosystem services)
- Harvest rate (bags per day)
- Performance metric for economic sustainability of the community
- Total economic investment versus economic benefit
- How close to a complete fishery (fraction harvested of allowable catch)

CAB 1-18-20 Comments

- Average catch per license?

C. OYSTER POPULATION

- Abundance of oysters in the population
- Density of oysters (number per m²)
- Size/age of oysters by location/region (e.g., reef, non-harvest areas ~~NOAA code, gear type/sanctuary~~)
- Number of large oysters (>5”) by location/region (e.g., reef, ~~NOAA code, gear type/sanctuary~~)
- Biomass of the population
- Amount of brood stock (spawning stock biomass) in the population
- Spat production (Recruitment)
- Small/market ratio

CAB 1-18-20 Comments

- Delete ~~NOAA code, gear type/sanctuary~~ , add non-harvest areas)

D. HABITAT

- Amount of exposed shell on each reef
- Reef structure – suitability for settlement, fish production, shoreline protection
- Habitat quality – area suitable for settlement and changes over time
- Change in oyster habitat/year (area, volume, height)

E. ECOSYSTEM SERVICES

- Diversity and biomass of reef-enhanced species supported
- Change in abundance of enhanced fishery species (e.g., blue crabs, stone crabs, finfish)
- Volume of water filtered
- Days to filter estuary volume
- Changes in water clarity (visibility) over time
- Resultant area of the bottom (< 6ft deep) receiving sufficient light to support seagrass
- Changes in nitrogen loads over time
- Relative proportion of nitrogen removed compared to nitrogen input

Additional Performance Measures

CAB 1-18-20 Comments

- Metric- shell budget model. How many oyster removed through harvest activities without a net loss of oysters
- Socio-economic benefits- improved/enhanced recreational fishing opportunities on oyster reefs.
- Habitat- spatial extent or footprint of oyster reefs overall?
- Change in reef height.

VI. PUBLIC COMMENT

No members of the public wished to provide comments to the ABSI Community Advisory Board

VII. NEXT STEPS

The facilitators then reviewed the agenda for the 4th meeting scheduled for Wednesday, March 11, 2020 at Apalachicola National Estuarine Research Reserve in Eastpoint, Florida. They suggested the CAB would be beginning the process in March of creating recommendations for management and restoration of Apalachicola Bay. In particular, the CAB would be identifying strategies and options for the five goal areas and related objectives.

The CAB discussed hearing presentations on: the status quo conditions; an overview of the history of the restoration and shelling efforts with a focus on the more recent initiatives; aquaculture current and proposed sites and the impact on navigation and fishing and on genetics of the oysters used in aquaculture; and the process used for the Choptank Oyster Futures initiative. The members of the Community Advisory Board discussed the CAB schedule of meetings and possible dates in May and July of 2020 and the ABSI Team agreed to present a proposed schedule at the March CAB meeting.

The CAB discussed the following possible presentations:

- A demonstration of the oyster model taking options identified by the CAB for consideration
- Overview of the history of the efforts of restoration and shelling, with focus on what are the different substrates that have been used.
- Aquaculture- proposed and current sites, can you fish in areas, navigation and genetics of aquaculture oysters used.
- An overview of the stakeholder process used in the Choptank Oyster Futures project
- Performance measures- current collecting, who's collecting, data over x years and which ones are critical to prioritize for the model.

The CAB will have an important role in recommending changes in management. The CAB discussed the possibility of developing a recommendation to close the Bay. In particular, they discussed how the science experiments will address securing accurate data without the Bay being closed. The state's position on Apalachicola Bay was discussed and the need for an approach to handle oyster management statewide.

The ACF Stakeholders will be meeting in Apalachicola at the ANERR on March 2-3 2020, ACF stakeholders meeting and on March 4 NOAA is convening an Integrated Drought Dashboard meeting at ANERR.

The members completed meeting evaluation forms and adjourned at 2:50 pm.

APPENDICES

APPENDIX #1 COMMUNITY ADVISORY BOARD AGENDA JANUARY 8, 2019

ABSI COMMUNITY ADVISORY BOARD (CAB) MEETING #3 WEDNESDAY, JANUARY 8, 2020 APALACHICOLA NATIONAL ESTUARINE RESEARCH RESERVE, EASTPOINT, FLORIDA

ABSI COMMUNITY ADVISORY BOARD MEETING II OBJECTIVES		
✓		To Approve Regular Procedural Topics (Meeting III Agenda and Meeting II Summary Report)
✓		To Receive Project Briefings and Community Advisory Board Requested Presentations
✓		To Review and Approve Revised Vision Themes, Goals, and Outcomes
✓		To Review and Approve Draft Objectives
✓		To Review and Discuss Draft Performance Measures
✓		To Identify Next Steps and Information Needed, and Agenda Items for Next Meeting
ABSI COMMUNITY ADVISORY BOARD MEETING III AGENDA—JANUARY 8, 2020		
<i>All Agenda Times—including Public Comment and Adjournment—are Approximate and Subject to Change</i>		
1.)	8:30 AM	WELCOME AND INTRODUCTIONS
2.)	8:40	AGENDA REVIEW AND MEETING OBJECTIVES
3.)	8:45	APPROVAL OF FACILITATORS’ SUMMARY REPORT (DECEMBER 18, 2019)
4.)	8:50	PROJECT BRIEFINGS <ul style="list-style-type: none"> • Oyster Ecology- Felicia Coleman COMMUNITY ADVISORY BOARD REQUESTED PRESENTATIONS <ul style="list-style-type: none"> • Introduction to Decision-Support Tools- Steve Leitman & Ed Camp
~10:00		BREAK
5.)	10:15	REVIEW AND REFINE OVERALL GOAL STATEMENT
6.)	10:30	A.) A HEALTHY AND PRODUCTIVE BAY ECOSYSTEM <ul style="list-style-type: none"> • Discuss and Approve Revised Vision Theme, Goal Statement, and Outcome • Review and Discuss Draft Objectives
7.)	11:15	B.) THE MANAGEMENT AND REGULATION OF THE OYSTER FISHERY AND AQUACULTURE INDUSTRY <ul style="list-style-type: none"> • Discuss and Approve Revised Vision Theme, Goal Statement, and Outcome • Review and Discuss Draft Objectives
12:00 PM		LUNCH—ON SITE
8.)	12:30	C.) A THRIVING ECONOMY CONNECTED TO THE APALACHICOLA BAY SYSTEM <ul style="list-style-type: none"> • Discuss and Approve Revised Vision Theme, Goal Statement, and Outcome • Review and Discuss Draft Objectives
9.)	1:00	D.) A CONTINUOUSLY ENGAGED COMMUNITY AND INFORMED PUBLIC <ul style="list-style-type: none"> • Discuss and Approve Revised Vision Theme, Goal Statement, and Outcome • Review and Discuss Draft Objectives
10.)	1:30	E.) A SCIENCE-BASED AND FULLY FUNDED ECOSYSTEM-BASED MANAGEMENT AND RESTORATION PLAN SUPPORTED BY THE APALACHICOLA BAY SYSTEM STAKEHOLDERS <ul style="list-style-type: none"> • Discuss and Approve Revised Vision Theme, Goal Statement, and Outcome • Review and Discuss Draft Objectives
11.)	2:00	REVIEW AND PRELIMINARY DISCUSSION OF DRAFT PERFORMANCE MEASURES
12.)	~2:30	PUBLIC COMMENT
13.)	2:45	NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING <ul style="list-style-type: none"> • Review of the CAB Schedule of Meetings and Agenda items and action items and assignments
~3:00 PM		ADJOURN

APPENDIX #2 CAB MEMBERS & FLORIDA STATE UNIVERSITY TEAM PARTICIPANT LIST

Bold= Participating CAB Member and Team Member

MEMBER	AFFILIATION
Agriculture/ACF Stakeholders/Riparian Counties	
1. Chad Taylor	Riparian Counties Stakeholder Group/ACF Stakeholders/Agriculture
Business/Real Estate/Economic Development/Tourism	
2. Chuck Marks	Acentria Insurance
3. Mike O'Connell	SGI Civic Club/SGI 2025 Vision
4. John Solomon	Apalachicola Chamber of Commerce
Environmental/Citizen	
5. Georgia Ackerman	Apalachicola Riverkeeper
6. Lee Edmiston	Retired DEP/ANERR
7. Chad Hanson	Pew Charitable Trusts
Local Government	
8. Anita Grove	Apalachicola City Commissioner
9. Smokey Parrish	Franklin County Commissioner
Recreational Fishing	
10. Chip Bailey	Peregrine Charters
11. Frank Gidus	CCA Florida
Seafood Industry	
12. Shannon Hartsfield	Franklin County Seafood Workers Association
13. Cary Williams	Apalachicola Oyster Company, Aquaculture
14. Lynn Martina	Lynn's Quality Oysters
15. Vance Millender	Millender & Sons Seafood
16. Steve Rash	Water Street Seafood
17. TJ Ward	Buddy Ward & Sons Seafood
State Government	
18. Jim Estes/Mike Norberg	FWC Division of Marine Fisheries Management
19. Jenna Harper	ANERR/DEP
20. Alex Reed	FDEP Office of Resilience & Coastal Protection
21. Portia Sapp	FDACS Division of Aquaculture
22. Paul Thurman	NFWFMD
University/Researchers	
23. Tom Frazer	UF/DEP Governor's Science Advisor
24. Erik Lovestrand	UF/IFAS/Florida Sea Grant Franklin County
FSU PROJECT TEAM AND FACILITATORS	
NAME	AFFILIATION
Sandra Brooke	Marine Biologist
Felicia Coleman	Marine Biologist
Gary Ostrander	Vice-President for Research
Madelein Mahood	Public Outreach Specialist
Jeff Blair	Community Advisory Board Facilitator, FCRC Consensus Center FSU
Robert Jones	Community Advisory Board Facilitator, FCRC Consensus Center FSU
MEMBERS OF THE PUBLIC	
Ed Camp, University of Florida	W. Ross Ellington, Florida State University
	Steve Leitman, FSU

APPENDIX #3 CAB MEETING III EVALUATION SUMMARY

<p style="text-align: center;">APALACHICOLA BAY SYSTEM INITIATIVE COMMUNITY ADVISORY BOARD JANUARY 8, 2019—EASTPOINT, FLORIDA</p>

CAB Members used a 10 point rating scale where a 0 meant "Totally Disagree" and a 10 meant "Totally Agree." The evaluation summary reflects average rating scores and comments from 14 CAB evaluation forms submitted.

1. PLEASE ASSESS THE OVERALL MEETING.

- 9.6 ___ The agenda packet was very useful.
- 9.5 ___ The objectives for the meeting were stated at the outset.
- 9.2 ___ Overall, the objectives of the meeting were fully achieved.

2. DO YOU AGREE THAT EACH OF THE FOLLOWING MEETING OBJECTIVES WAS ACHIEVED?

- 9.5 ___ Project Briefings and Community Advisory Board Requested Presentations.
- 9.3 ___ Review and Approval of Revised Vision Themes, Goals, and Outcomes.
- 9.3 ___ Review and Approval of Draft Objectives.
- 9.4 ___ Review and Discussion of Draft Performance Measures.
- 9.3 ___ Next Steps, Schedule and Assignments Discussion.

3. PLEASE TELL US HOW WELL THE FACILITATOR HELPED THE PARTICIPANTS ENGAGE IN THE MEETING.

- 9.6 ___ The members followed the direction of the Facilitator.
- 9.6 ___ The Facilitator made sure the concerns of all members were heard.
- 9.6 ___ The Facilitator helped us arrange our time well.
- 9.3 ___ Participant input was documented accurately in Facilitator's Report (last meeting's summary report).

4. PLEASE TELL US YOUR LEVEL OF SATISFACTION WITH THE MEETING?

- 8.9 ___ Overall, I am very satisfied with the meeting.
- 9.5 ___ I was very satisfied with the services provided by the Facilitator.
- 8.8 ___ I am satisfied with the outcome of the meeting.

1. PLEASE TELL US HOW WELL THE NEXT STEPS WERE COMMUNICATED?

- 9.3 ___ I know what the next steps following this meeting will be.
- 9.2 ___ I know who is responsible for the next steps.

6. WHAT DID YOU LIKE BEST ABOUT THE MEETING?

- Good discussion
- Frank discussion and cordial regarding frustrations with past efforts
- Good meeting
- Variety of input, number of active participants, good content from presentations
- Info that was provided
- Presentations

- Well organized
- Fast paced
- Back and forth communication input from everyone
- Modeling presentations
- Preview of models to be

7. HOW COULD THE MEETING HAVE BEEN IMPROVED?

- ABSI project team needs to follow up with potential CAB presenters
- Shorter 1/2 day meetings are enough
- Too much wordsmithing of document
- Spend more time on actual issues regarding management and restoration
- No complaints

8. DO YOU HAVE ANY OTHER COMMENTS?

- Sound still an issue but seems like people are aware and tried to talk louder
- Move on to management and restoration plan development
- Thank you

APPENDIX #4 PROJECT SCHEDULE & WORKPLAN

Meetings Dates are Subject to Change

ABSI CAB DRAFT MEETING SCHEDULE AND WORKPLAN		
STANDING UP AND ORGANIZATION OF THE ABSI CAB		
Meeting I.	Oct. 30, 2019	Scoping and organizational meeting, review and refinement of overall project purpose, vision and goal framework.
Meeting. II	Dec. 18, 2019 Wed.	Introduction to decision-support tools and member requested presentations. Review and refinement of vision themes and goal framework.
Meeting III.	Jan. 8, 2020	Member requested presentations. Review and refinement of vision themes and goal framework continued
SCOPING OF ABSI ISSUES, IDENTIFICATION OF PERFORMANCE MEASURES & OPTIONS		
Meeting IV.	Mar. 11, 2020	Identification of decision-support tools options, review of performance measures and identification of policy issues, review of Oyster Ecosystem-Based Fisheries Management Plan outline.
Meeting V.	May 6, 2020	Review of decision-support tools scenarios and consensus rating of options and policy Issues. Review and agreement on draft Oyster Ecosystem-Based Fisheries Management Plan. Public Workshop Draft.
Meeting VI.	July 8, 2020	Review and agreement on draft Oyster Ecosystem-Based Fisheries Management Plan. Public Workshop Draft.
Public Workshop 1	August 2020	Review of Vision, Goal Framework, Plan outline, issues & options.
BUILDING CONSENSUS ON ABS OYSTER ECOSYSTEM-BASED FISHERIES MANAGEMENT PLAN		
Meeting VII.	Sept. 9, 2020	Review of public comments on Draft Plan, review of decision-support tools scenario results and consensus rating of options, draft performance measures, and identification of policy issues.
Meeting VIII.	Nov. 4, 2020	Review of Draft Plan, recommendations on policy issues, decision-support tools scenario results, and consensus rating of options.
FINALIZING CONSENSUS ON ABS OYSTER ECOSYSTEM-BASED FISHERIES MANAGEMENT PLAN		
Meeting IX.	Jan. 13, 2021	Review and consensus testing of Draft Plan and recommendations on policy issues.
Meeting X.	TBD	Review and consensus testing of Draft Plan and implementation guidance and agreement on Workshop Draft Plan.
Public Workshop 2	TBD	Review of GPBS Oyster Ecosystem-Based Fisheries Management Draft Plan and Implementation Guidance.
Meeting XI.	TBD	Review of public comment, refinement and consensus on the GPBS Oyster Ecosystem-Based Fisheries Management Plan, and Implementation Guidance.
<i>Additional Meetings Schedule</i>	<i>TBD</i>	

Appendix #5 ABSI CAB Terms and Definitions (as of January 2020)

APALACHICOLA BAY SYSTEM: Consists of six bays: Apalachicola Bay, East Bay, St Vincent Sound, East and West St George Sound, and Alligator Harbor comprising a total of 155,374 acres (62,879 Ha).

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

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

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

HEALTHY APALACHICOLA BAY SYSTEM:

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

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

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

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

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

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

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