Oyster Futures

Stakeholder Workgroup

ORGANIZATIONAL MEETING SUMMARY REPORT

February 26-27, 2016
Horn Point Laboratory, University of Maryland
Cambridge Maryland

Summarized by:

CONSENSUS CENTER

"Facilitating Consensus Solutions, Supporting Collaborative Action."

THE FLORIDA STATE UNIVERSITY

OysterFutures Stakeholder Workgroup
Organizational Meeting Summary Report

Table of Contents

Table of Contents

OYSTERFUTURES WORKGROUP
ORGANIZATIONAL MEETING EXECUTIVE SUMMARY
FEBRUARY 26-27, 2016

On behalf of the Oyster Futures Research Team, Elizabeth North welcomed the Members to the Organizational meeting of the OysterFutures Workgroup and introduced the facilitation team of Jeff Blair and Bob Jones with the FCRC Consensus Center at Florida State University who asked Workgroup member to introduce themselves and answer the question: "What do you need to do to make sure you get what you want out of today?" Their responses covered the following topics:

- Work together for a clean bay and a revitalized oyster industry.
- Better communication.
- Seek a shared understanding of issues, science and goals for healthy oyster fishery.
- More oysters, a healthy fishery and a long term plan.
- Build trust for a Sustainable Fishery.

The facilitator reviewed a summary of the Workgroup comments in response to what a successful outcome of this process could ideally produce. The facilitator then reviewed with the Workgroup proposed consensus and meeting guidelines and the Workgroup agreed to accept the guidelines.

The facilitator introduced some proposed Workgroup Guiding Principles that reflected the broad values and philosophy that will guide the operation of the Workgroup and the behavior of its members throughout its process regardless of changes in its goals, strategies or membership. The Workgroup rated each of the four principles on a 4-point acceptability scale *(4 being acceptable, 1 being unacceptable)* and then agreed to adopt the principles as guidance for the Workgroup and the process. Below are the Workgroup ratings on the principles:

a. Workgroup members will strive to work together collaboratively, and seek to understand and respect differing perspectives. *(Acceptability Ranking: 4.0 of 4)*
b. The Workgroup will strive to achieve consensus on the evaluation and development of recommendations submitted to the research team and relevant management and/or regulatory agencies. *(Acceptability Ranking: 3.9 of 4)*

c. The Workgroup will operate under policies and procedures that are clear, concise and consistently and equitably applied. *(Acceptability Ranking: 4.0 of 4)*

d. Workgroup members will serve as accessible liaisons between the stakeholder groups they have been appointed to represent and the OysterFutures Workgroup, and should strive to both inform and seek input on issues the Workgroup is addressing from those they represent. *(Acceptability Ranking: 4.0 of 4)*

The facilitator introduced a draft goal statement that was included in the Pre-Meeting Questionnaire and rated for its acceptability. The goal statement received an average rating of 3.9 of 4.

> "The goal of the OysterFutures Workgroup is to develop a package of consensus recommendations informed by a model collaboratively developed by the Workgroup and the OysterFutures project research team. The model will be designed so that it can be used to evaluate oyster fishery practice and management options and restoration policies in the Choptank and Little Choptank Rivers. The Workgroup's recommendations will be directed to Secretary Mark Belton of the Maryland Department of Natural Resources.
>
> The project's ultimate goal is to ensure that the regulation and management of the oyster fishery and oyster restoration polices are informed by the best available science and shared stakeholder stewardship values, resulting in an economically viable, healthy and sustainable Choptank and Little Choptank Rivers oyster fishery resources and ecosystem."

The Workgroup participated in an exercise to develop a shared history of the Choptank oyster fishery. Using post-its, the members provided notes on significant events, people and milestones in terms of the management of the Choptank and Lower Choptank Rivers oyster fishery covering the period from 3000 BC to the present. Workgroup members commented on the exercise noting that even though many knew and lived some of this history, there was more to learn of this rich history by listening to members about the events and people that they identified and the role and importance of each.

To set the context for consideration and development of the vision of success themes and key issues, the facilitator reviewed the following summary of the challenges, opportunities and trends identified by the Workgroup members in the pre-meeting questionnaire that are featured below:

KEY CHALLENGES—A SUMMARY OF QUESTIONNAIRE COMMENTS
1.) Disagreement, conflict and lack of trust between stakeholders.
2.) Lack of effective collaboration between regulators and stakeholders in fishery management.
3.) Resistance to change in the management and enforcement of the fishery.
4.) Disagreement regarding what constitutes accurate science, data, and economic value.
5.) Resistance to adopting evolving best fishing practices for enhancing fishery and ecosystem sustainability and health.
6.) External environmental impacts to the ecosystem and fishery resource.

KEY OPPORTUNITIES—A SUMMARY OF QUESTIONNAIRE COMMENTS
1.) Growing interest and support for emerging technologies, data and innovative fishing practices.
2.) Growing interest in a sustainable and economically viable fishery, including wild harvest and aquaculture.
3.) Growing interest in the health of the Chesapeake Bay and the role oysters play in the ecosystem's health and sustainability.
4.) Increased understanding regarding the economic value and cultural role of the fishery.
5.) Stakeholder education, involvement and commitment to the importance of a viable, healthy and sustainable fishery.

KEY TRENDS—A SUMMARY OF QUESTIONNAIRE COMMENTS
1.) Increased acceptance of aquaculture, use of spat, and habitat restoration for contributing to a healthy and viable fishery and ecosystem.
2.) Better understanding regarding the role of oysters in the health of the ecosystem.
3.) Increased public support for better stewardship of the fishery and ecosystem.
4.) Increased understanding of the cultural and economic importance of the fishery.

Elizabeth North provided an overview of oyster fishery regulatory and management frameworks in the Choptank and Little Choptank Rivers. She noted the unit of management and commerce is the bushel basket and reviewed the three licenses for the public commercial fishery including: Unlimited Tidal Fish; Oyster Harvester; and Oyster Dredge Boat, and the gears in use include the shaft tong (hand tool), patent tong, dive, sail dredge and power dredge. She presented maps that depict the NOAA Code/Harvest areas for reporting and noted that there are 31 buyers in the Choptank region as well as a series of overlay draft maps show the regulatory areas including: sanctuaries and SAV Protection Zones; Hand tong only zone; power dredging allowed; patent tong allowed; Dredge boat (under sail) allowed; and Yawl ('push') boat allowed. Other maps depicted the Environmental Shellfish Harvesting and Closure Areas and the Public Shellfish Areas (leasing not allowed). She then reviewed recreational oyster harvesting and shellfish aquaculture. Finally she summarized the many committees and task forces addressing oyster restoration at the state, federal, citizen and watermen and industry levels.

Dr. Mike Wilberg presented an overview of the modeling development process by providing an overview of the FishSmart modeling initiative that utilized a similar stakeholder approach to developing a model for the Atlantic King Mackerel fishery. He then reviewed the OysterFutures Workgroup goal that was developed and adopted on Friday which is to develop a package of consensus recommendations informed by a model collaboratively developed by the Workgroup and the OysterFutures project research team. He noted the model will be designed so that it can be used to evaluate oyster fishery practice and management options and restoration policies in the Choptank and Little Choptank Rivers.

As part of the OysterFutures project, the modeling team will work collaboratively with the workgroup to develop a model that will project the potential outcomes of a variety of options for oyster management and restoration in the Choptank River Complex. The primary use of the model will be to better understand how a potential option for oyster restoration or management will affect outcomes that the stakeholder work group cares

about. The model will include the fishery, how the oyster population responds to the fishery, and how oysters affect the ecosystem.

On Saturday morning, in advance of discussing the draft options, the Workgroup and Research Team briefly reviewed the relationship between model performance measures and the options that Workgroup members could use to address issues related to the oyster resource. Topics of discussion included: Economic modeling; Shape of reefs; Cost calculations; Consistency and costs of regulation; Management approach to harvesting bigger oysters; and Modeling and options.

On Saturday afternoon following the discussion of the range of issues and options, the Research Team led an initial Workgroup discussion of potential performance measures, i.e. what should be monitored to determine if an option, strategy or policy is working. Dr. Wilberg offered some examples of performance measures that a model could consider such as: how many bushels are harvested; what is the distribution of the harvest; how many people can/are working in the fishery; what is the timing of harvest; what are the number of oysters in population; what are the effects on water quality; what are the effects on other species. The model can move outside current processes and address systems that don't yet exist ("what if x"). The modelers will try to be as flexible as possible to look at different options that the workgroup identifies.

At the next meeting the Workgroup will review what kind of management flexibility the model can help to support. The topics covered included: Feedback loop needed; Number of surcharges; Need a stock assessment; Impact of diseases (Dermo/MSX) on the fishery; Gear type used; Maintaining appropriate spawning stock biomass; What is the level of success; Acceptable rate of replenishment; Show which management areas need enhancement; Ways to calculate harvest; Maintaining the appropriate shell "budget"; Amount of people in certain area- what amount of shells put back to replenish the shells; Industry system for "investment for replenishment back into the bar/beds"; Water quality benefits; Fish habitat; Restructure of the beds; Average age of the oyster; Size distribution among the bars; Winter/Weather, freeze ups; Other weather events- e.g. Hurricane Agnes, big rain events; Bushel limits on certain gears; Cost/value per bushel; Demand for oysters at certain time of year; Size of oysters and pricing; Harvest throughout entire season or more about the demand; Length of season; Costs of gear types; Closed oyster fishery an indicator of failure; Water Quality; Poaching; Ease of enforceability; Limited entry; Surcharges and Licenses; Harvest numbers; and modeling and expectation for harvest. The modeling team thanked the Workgroup for their ideas and guidance and pledged to advance the discussion at the second meeting.

The facilitator introduced six vision themes drawn from the issues and topics identified by the Workgroup in the pre-meeting questionnaire.

- Vision Theme A—Management and Regulations
- Vision Theme B—Harvesting/Fishing Practices
- Vision Theme C—Sustainable & Economically Viable Oyster Fishery
- Vision Theme D—Healthy and Productive Ecosystem
- Vision Theme E—Thriving Community/Region
- Vision Theme F—Education Initiatives

The themes above are not listed in priority order and taken as a whole characterize a compelling vision of success for the oyster fishery and resource. They provide a framework for identifying and reviewing topical issues and possible options that are consistent with the vision. The Workgroup, with help from the Research Team, will review, debate, refine and seek consensus on recommended strategies informed by the modeling.

Stakeholders reviewed and discussed each theme, agreed upon changes to the wording (when needed), identified issues associated with each theme, and suggested options to address these issues. These deliberations are summarized here:

A. MANAGEMENT AND REGULATIONS

1. **VISION THEME A—MANAGEMENT AND REGULATIONS—**The management of the oyster resource ~~fishery~~ is conducted by working collaboratively with ~~fishery~~ stakeholders to ensure that protection of the fishery and habitat is implemented in a manner that provides fair and equitable access to the oyster resource.

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day, the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments were grouped in several categories including: Oyster Fishery Enforcement; Rotational harvesting**;** Address and Correct Mapping issues; Long-term commitment to a shared vision; Regulations and management goals are clear and enforceable; Accurate and timely reporting; Sustainability is the new industry economics; Regulatory predictability; Sanctuaries & Reserves; Conduct an assessment of the oyster fishery; Improve DNR's website; DNR Budget constraints; Dredging; Restoration vs. monitoring.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were:

    A. Rotational Harvesting Option: Consider developing a rotational harvesting strategy that features monitoring and builds upon lessons from other fisheries. (3.6 of 4)
    B. Address and provide funding for enforcement presence on the water (both in increasing numbers and quality through training) to address poaching and support strategies such as focusing on the buyer level, rotational and sustainable harvesting. (4.0 of 4)
    C. Increasing Productivity of Existing Bottoms Option by improving habitat and structure. (3.9 of 4)
    D. Review and revise DNR regulations and management goals in consultation with oyster resource stakeholders to ensure they are clear and enforceable and include a working feedback loop with the regulated public to refine the program and enhance compliance (4.0 of 4)

E. Establish and support a long-term shared vision of success for oyster resources among stakeholders that can be sustained, implemented and strengthened over into the future. (4.0 of 4)
F. Conduct a stock assessment of the oyster resource/fishery with involvement of the stakeholders. (4.0 of 4)
G. Conduct a comprehensive assessment of the oyster resource with involvement of the stakeholders. (4.0 of 4)
H. Modify the shapes of sanctuaries so that whole tributaries are not closed. (3.6 of 4)
I. Address, correct and update DNR oyster resource mapping issues to inform watermen on the water such as bottom mapping to better define oyster bars. (4.0 of 4)
J. Improve DNR's website making it more user friendly. (4.0 of 4)
K. Prioritize Workgroup Recommendations to invest more funding in the management of oyster resources. (4.0 of 4)
L. Consider moving from a daily limit to a seasonal limit. Clarify how many are in the fishery for this to work. (2.8 of 4)
M. Consider adjusting the season open and close dates. (3.9 of 4)
N. Consider single season for all gear types. Start all at the opening of the season. (2.9 of 4)
O. Incorporate ecosystem services into management regimes. (3.6 of 4)
P. Consider modifying regulations so a single bar is not divided between gear types or open and closed. (3.9 of 4)
Q. Create a limited entry oyster fishery. (3.7 of 4)
Q1. Consider limiting entry to oyster fishery to watermen making majority of their living on commercial fishing (3.9 of 4)
R. Evaluate and consider changes/increases of oyster fishery related fees and taxes, (3.9 of 4)

B. HARVESTING AND FISHING PRACTICES

1. **VISION THEME B—HARVESTING/FISHING PRACTICES—**Participants of the Oyster Fishery are using the most innovative and productive techniques available to maximize efficiency and the protection of the oyster resource, supported by science, data and field experience and observation.

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories including: Parallels to land use management; Better Research Needed; Spreading out the harvesting; and Bag-less dredging.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were:

   A. Conduct more and better research to inform regulations and better understand the efficiency of gear types and their impacts on the fishery. (3.9 of 4)

B. Conduct research and clarify the effectiveness and impacts of bag-less and power dredging. (4.0 of 4)

C. SUSTAINABLE AND ECONOMICALLY VIABLE FISHERY

1. **VISION THEME C—SUSTAINABLE & ECONOMICALLY VIABLE OYSTER FISHERY —**The Choptank River Oyster Fishery is managed and conducted in a manner that ensures the fishery is sustainable and economically viable for fishery stakeholders.

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories including: Measure economic viability; Managing natural shells; Need for natural shells is a key part of sustainability; Marketing specific oyster harvest locations; Invest in restoration first; Bring back shucking houses in the Choptank; and Better management approach regarding closures.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were:

   A. Establish a sustainable fishery to provide greater certainty and predictability for increasing the market for oysters. (4.0 of 4)
   B. Focus on strategies for increasing the funding, use and reclamation of local shells from the Chesapeake Bay and from local watermen to supplement bars and increase the viability of the oyster resource. (4.0 of 4)
   C. Focus on strategies for increasing the funding for the use of Spat on shells everywhere not just in a few places. (3.9 of 4)
   D. Develop better business plans for the industry that reflects trends for consumer interest in local products. (4.0 of 4)
   E. Review best practices and outcomes and adapt successful techniques from other places/regions. (4.0 of 4)
   F. Develop clear measures of economic viability and sustainability. (4.0 of 4)
   G. Test strategies for marketing oysters by location and a shucked product. (3.8 of 4)

D. HEALTHY AND PRODUCTIVE ECOSYSTEM

1. **VISION THEME D—HEALTHY AND PRODUCTIVE ECOSYSTEM**—The ecosystem is managed in a manner that supports ecosystem services by protecting and enhancing the habitat and resource in a sustainable and productive manner**.**

2. **WORKGROUP ISSUES IDENTIFICATION--** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories including: Impact of disease; Water quality; Three dimensionality of the bottom;

Restoring tributaries; Conservation; Protecting Oyster bars in sanctuaries; and Shells.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were:

   A. Continue to address and find solutions for oyster diseases. (4.0 of 4)
   B. Develop a strategy working with watermen and other stakeholders to help protect a brood stock to enhance disease resistant oysters. (4.0 of 4)
   C. Develop a set of water quality strategies as common ground that can address pollution impacts on the oyster resource. (3.9 of 4)
   D. Develop a strategy that tests the effectiveness of strategically placed 3-dimensional bottoms with artificial reefs and alternative substrates. (3.9 of 4)
   E. In restoring tributaries provide limited access to the fishery that can allow fishermen the opportunity to work on that river while the restoration plan is developed. (3.6 of 4)
   F. Continue the Sanctuary program with some modification that may include providing for maintenance including the potential for limited harvest in tributaries and assessing the state of oyster bars within sanctuaries. (3.4 of 4)
   G. Understand the full suite of what we are and are not getting for sanctuaries to further refine the management of the Sanctuary Program. (4.0 of 4)
   H. Consider nutrient credit trading impacts on oyster fishery/resource. (3.7 of 4)
   I. Consider the impacts of ocean acidification and climate change/sea level rise on the oyster resource. (4.0 of 4)

E. THRIVING COMMUNITY/REGION

1. **VISION THEME E—THRIVING COMMUNITY/REGION**—The Choptank River oyster fishery and ecosystem serve as key components of the Region's cultural heritage and economic viability, and serve to sustain an economically viable and thriving fishery, recreation and tourism industry.

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories including: Viable oyster resource; Work together to bring the industry back.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were::

   A. Restoration efforts should bring funds back into the regions communities. (4.0 of 4)
   B. Providing incentives for businesses for shucking houses/capacity to address shell replenishment. (4.0 of 4)

C. More public funds into marketing strategies, celebrating heritage. These bring tax dollars into the state and they should be returning funds to support local oyster. E.g. Organize a tour on both sides of the bay. VA Oyster trail. Not just oysters but the fishery industry more generally. (4.0 of 4)
D. Consider the Working Waterfronts Program as good resource to reach out to.
E. Look for ways to use a strategy like True Blue, the one used for blue crabs, in the oyster fishery. (4.0 of 4)

F. EDUCATION INITIATIVES

1. **VISION THEME F—EDUCATION INITIATIVES** —Stakeholders of the Choptank River Region are committed to working together collaboratively to provide education and communication on the importance of maintaining the health and productivity of the oyster fishery resource and the role it plays in ensuring the Community thrives.

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES**. On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup. The options and ratings were:

   A. Support education in fisheries science and management. (4.0 of 4)
   B. The workgroup itself represents an educational initiative and a forum for communication among stakeholders. (4.0 of 4)
   C. Identify education programs that would be beneficial to the industry, especially young entrants. (4.0 of 4)
   D. Look at lessons learned from other areas and fisheries in terms of how they addressed and solve issues around oyster resource management and education, such as Puget Sound, Virginia, Delaware, scallops etc. (4.0 of 4)
   E. Support the role of oyster resources and ecology for aquaculture and commercial fishing, education programs for primary & secondary school students along with help from community college.

The Workgroup discussed the meeting schedule and agreed dates for future meetings. They discussed workgroup communication, whether the meetings should be by invitation only and what kinds of outreach and communication made sense. Finally they discussed what information they needed before the April Workgroup meeting. At the conclusion of the meeting the Workgroup members went around the table to offer positive comments on the meeting and completed meeting evaluations. The meeting adjourned at 4:00 p.m.

OYSTERFUTURES WORKGROUP
ORGANIZATIONAL MEETING SUMMARY
FEBRUARY 26-27, 2016

I. OVERVIEW OF THE OYSTERFUTURES CONTEXT

A. WORKGROUP MEETING AND PROCESS EXPECTATIONS

On behalf of the Oyster Futures Research Team, Elizabeth North welcomed the Members to the Organizational meeting of the OysterFutures Workgroup and introduced the facilitation team of Jeff Blair and Bob Jones with the FCRC Consensus Center at Florida State University who asked Workgroup member to introduce themselves and answer the question: "What do you need to do to make sure you get what you want out of today?" Their responses are summarized below:

- **Work together for a clean bay and a revitalized oyster industry.** We are looking for the same thing- a clean Chesapeake and we need more cooperation.
- Let's get along with a clean bay. Achieve more with oyster restoration.
- Let's work together to bring back this industry. Get something that all can work together on.
- Forward direction for the industry- uncertainty and conflicts- hard to get people investing in the future. Clarify this and help the path forward.
- Maybe get along a little better.
- Lets get along and see how to achieve this.
- **Better communication.** More communications opened up between watermen and others.
- All based on clear communication- we don't have enough. Hope this process can improve on that.
- Improve dialogue and communication among the user groups.
- Get some good communication going and some new ideas.
- Hope to get insight on everyone's view on how this effort will work
- **Seek a shared understanding of issues, science and goals for healthy oyster fishery.** Better understanding of the scientific views and get along better with DNR and get a win-win working together.
- Come out with a shared understanding of our shared goals for oysters and the bay.
- Develop a good understanding of issues and concerns.

- Hopefully restore the bay to productivity and use the modeling tools to help with this.
- **More oysters, a healthy fishery and a long term plan**.
- Figure out a way to make the oysters successful and use this as a path for success for other fisheries.
- We want healthy fisheries- we share the same long-term goal. This effort will be valuable for increasing understanding among the different group.
- End of this process- a plan to move forward with oyster fisheries, sanctuary etc. Big bay with opportunity to improve- 5-10 year business plan to move forward.
- **Build trust for a Sustainable Fishery.** Develop a good level of trust and ultimately a sustainable viable fishery.

The facilitator reviewed a summary of the Workgroup comments in response to what a successful outcome of this process could ideally produce which included:

SUMMARY OF SUCCESSFUL WORKGROUP PROCESS OUTCOMES
1.) Build understanding and agreement between stakeholders while incorporating key management, science, ecosystem services, and harvest goals.
2.) Enhanced communication, understanding and working relationships between stakeholders.
3.) A plan for a viable and sustainable oyster fishery that combines restoration, recreational and commercial interests.
4.) A set of recommendations describing a clear path forward for restoration, aquaculture and the wild fishery, based on sound science and solid natural resources management principles.
5.) Improved understanding of and respect for all viewpoints and a willingness to continue communicating to collaboratively achieve a healthy and stable oyster resource that will support public and private fisheries and provide ecological benefits, all of which are interdependent.

B. REVIEW OF WORKGROUP CONSENSUS GUIDELINES AND DRAFT GUIDELINES AND PRINCIPLES

1. Workgroup Consensus Guidelines

The facilitator reviewed with the Workgroup the proposed consensus and meeting guidelines (See Appendix #6). Following this review the Workgroup agreed to accept the guidelines.

2. Workgroup Guiding Principles

The facilitator introduced some proposed Workgroup Guiding Principles that reflected the broad values and philosophy that will guide the operation of the Workgroup and the behavior of its members throughout its process regardless of changes in its goals, strategies or membership. The Workgroup rated each of the four principles on a 4-point acceptability scale *(4 being acceptable, 1 being unacceptable).* Below are the Workgroup ratings and comments.

a. **Workgroup members will strive to work together collaboratively, and seek to understand and respect differing perspectives.** *(Acceptability Ranking: 4.0 of 4)*
Workgroup Comments:
- We need an agreement to work collaboratively with each other and respect each other without slander.

b. **The Workgroup will strive to achieve consensus on the evaluation and development of recommendations submitted to the research team and relevant management and/or regulatory agencies.** *(Acceptability Ranking: 3.9 of 4)*
Workgroup Comments:
- Minor reservation- we need to be careful to make sure we are doing things right and not causing more problems down the road.

c. **The Workgroup will operate under policies and procedures that are clear, concise and consistently and equitably applied**. *(Acceptability Ranking: 4.0 of 4)*
Workgroup Comments:
- None

d. **Workgroup members will serve as accessible liaisons between the stakeholder groups they have been appointed to represent and the OysterFutures Workgroup, and should strive to both inform and seek input on issues the Workgroup is addressing from those they represent.** *(Acceptability Ranking: 4.0 of 4)*
Workgroup Comments:
- In reporting back to groups. Will we get meeting summaries after the meeting that we can share with constituents? A: *About 4 weeks following each meeting a draft summary will be distributed and it will be finalized/adopted at the subsequent Workgroup meeting.*
- Connect this with the communications strategy to be discussed on Saturday afternoon.

C. REVIEW, DISCUSSION AND ADOPTION OF WORKGROUP GOAL STATEMENT

The facilitator introduced a draft goal statement that was included in the Pre-Meeting Questionnaire and rated for its acceptability.

> "The goal of the OysterFutures Workgroup is to develop a package of consensus recommendations informed by a model collaboratively developed by the Workgroup and the OysterFutures project research team. The model will be designed so that it can be used to evaluate oyster fishery practice and management options and restoration policies in the Choptank and Little Choptank Rivers. The Workgroup's recommendations will be directed to Secretary Mark Belton of the Maryland Department of Natural Resources.
>
> The project's ultimate goal is to ensure that the regulation and management of the oyster fishery and oyster restoration polices are informed by the best available science and

shared stakeholder stewardship values, resulting in an economically viable, healthy and sustainable Choptank and Little Choptank Rivers oyster fishery resources and ecosystem."

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Rating from Questionnaire	**3.6**	**6**	**3**	**1**	**0**
Rating at Mtg.	**3.9**	**15**	**1**	**0**	**0**

Workgroup Comment:

- Minor reservation. While this is in the right direction we should clarify the difference between oyster resources and the oyster fishery. Oyster resources is the broader term.

The facilitator noted a higher degree of acceptability rating at the meeting and reviewed a summary of the questionnaire comments regarding the draft goal statement.

SUMMARY OF QUESTIONNAIRE COMMENTS REGARDING GOAL STATEMENT
1.) Uncertainty regarding the development of the model using non-modelers, and without knowing what constitutes the best available science that will be used for the model's inputs.
2.) Importance of managing the resource using the best science available to allow access and opportunity for all user groups in a fair and equitable manner.
3.) Lack of clarity regarding the difference between "goal" and "ultimate goal".
4.) Concern about assuming an outcome regarding whether there should be a continued fishery and/or continued restoration efforts.

D. OYSTER FISHERY SHARED HISTORY

"What's past is prologue."- Shakespeare, The Tempest
"Don't let yesterday use up too much of today. -- Cherokee Indian Proverb

The Workgroup participated in an exercise to develop a shared history of the Choptank oyster fishery. Using post-its, the members provided notes on significant events, people and milestones and in terms of the management of the Choptank and Lower Choptank Rivers oyster fishery.

Below are the results of the shared history exercise:

3000 B.C.	Oyster first colonized Chesapeake Bay
Pre-colonial	Chesapeake Indians harvested oysters in the Bay going back 4500 years.
1600s-1800	European Settlers harvest oysters for plantations and colonial sites in St. Mary's City
1700	Tongs came into use to harvest oysters in deeper waters
1780-90	New England fishermen introduce dredge device to scoop hundreds of oysters from beds and rapidly deplete the oyster fishery.
Early 1800's	The oyster fishery establishes itself as a major economic engine and more than a local food source. New England "yankee" fisherman bring a dredge device to Maryland & Virginia rapidly depleting the Bay's oyster fishery.
1811	Virginia bans dredge equipment
1820	Maryland bans dredge equipment
1825	Within 25 years 50% of historic levels are wiped out.
1839	Earliest estimate of oyster harvest in Maryland- 700,000 bushels due to legalization of dredges.
1850's	Skip Jack came from New England creating a more efficient way to harvest oysters in the Choptank
1865	Oyster harvest in Maryland 5,000,000 bushels; 2,000,000 in Virginia due to legalized dredging.
1880-90	15,000,000 bushels of oysters caught for peak harvest. 50,000 oystermen working the fishery. Academia starting to sound alarm over the dangers of overharvesting oysters but falls on deaf ears.
1880-1900	Small communities booming with the export of large quantities of shucked oysters throughout the country
1900	6,000 dredge boats and 10,000 tong boats on the water in the oyster fishery. Oyster shells are removed Due to excessive harvest 3 dimensional reefs are degraded.
1908-10	Yates survey of Natural Oyster Bars boundaries (NOBs).
1900-2010	Each time leasing is pushed the idea is squelched due to fear of large companies buying up all lease bottom and putting individuals out of business.
1930-80's	Shell program
1950's	PRFC
1953	Oystermen killed on the Potomac River
1955	First MSX disease detected.
1960	Oyster replenishment program begins in Maryland using fossil shells dug from the upper Chesapeake Bay
1970s	Public awareness of water pollution and quality.
1972	Clean Water Act passed. Hurricane Agnes hits and impacts oyster fishery
1983	1st Chesapeake Bay agreement
1986	Dermo kills 90% of the oysters. 2000 licensed watermen still caught 2,000,000 bushels.
1988	Estimate that Bay oysters at less than 1% historic levels.

1994	Oyster Roundtable with the outcome to increase oyster abundance to support ecosystem and economy. ORP formed.
2000	Introduction of power dredging to the oyster fishery
2000-02	3-year drought results in dramatic oyster die-off.
2004	New Horn Point Lab hatchery built
2009	Oyster EIS completed.
2010	Vision for Oysters drafted Maryland State Regulations change and large scale sanctuary program and restoration undertaken Dr. Stan Allen makes presentation at Maryland Watermans Association on the facts of disease resistant triploid oysters.
2010-12	Good spat fall
2012	Horn Point Lab Hatchery produces 1 billion spat-on-shell.
2012-13	The oyster makes a strong comeback from what it was.
2016	Oyster Futures project launched (February 2016) Sanctuary Study to be released (July 2016)

"People" who made a difference *(for better or worse)*:

- Sen Fred "Mac" Mathias (1970s) was key to creating a thriving industry in the Big Choptank.
- Dr. Cronin
- Governor O'Malley
- Governor Hogan

Workgroup members commented on the exercise noting that even though many knew and lived some of this history, there was more to learn of this rich history by listening to members describe the events and people that they identified as being important.

E. Overview of Oyster Fishery Challenges, Opportunities and Trends

To set the context for consideration and development of the vision of success themes and key issues, the facilitator reviewed the following summary of the challenges, opportunities and trends identified by the Workgroup members in the pre-meeting questionnaire that are featured below:

Key Challenges—A Summary of Questionnaire Comments
1.) Disagreement, conflict and lack of trust between stakeholders.
2.) Lack of effective collaboration between regulators and stakeholders in fishery management.
3.) Resistance to change in the management and enforcement of the fishery.
4.) Disagreement regarding what constitutes accurate science, data, and economic value.
5.) Resistance to adopting evolving best fishing practices for enhancing fishery and ecosystem sustainability and health.
6.) External environmental impacts to the ecosystem and fishery resource.

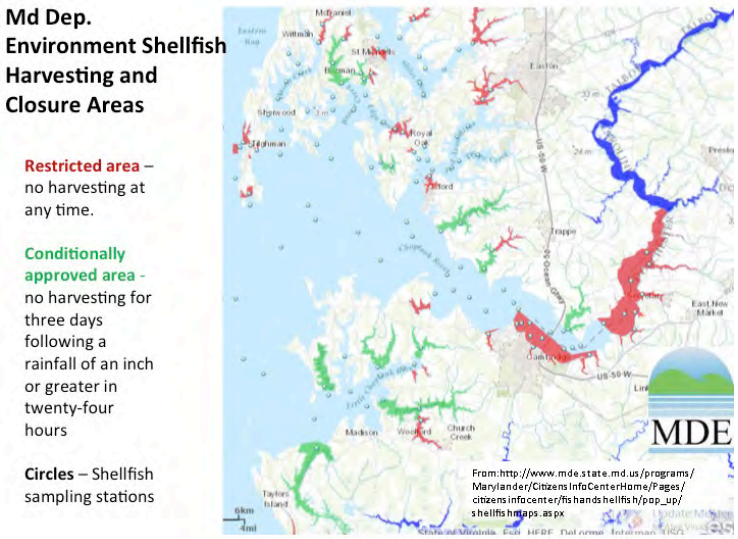
KEY OPPORTUNITIES—A SUMMARY OF QUESTIONNAIRE COMMENTS
1.) Growing interest and support for emerging technologies, data and innovative fishing practices.
2.) Growing interest in a sustainable and economically viable fishery, including wild harvest and aquaculture.
3.) Growing interest in the health of the Chesapeake Bay and the role oysters play in the ecosystem's health and sustainability.
4.) Increased understanding regarding the economic value and cultural role of the fishery.
5.) Stakeholder education, involvement and commitment to the importance of a viable, healthy and sustainable fishery.

KEY TRENDS—A SUMMARY OF QUESTIONNAIRE COMMENTS
1.) Increased acceptance of aquaculture, use of spat, and habitat restoration for contributing to a healthy and viable fishery and ecosystem.
2.) Better understanding regarding the role of oysters in the health of the ecosystem.
3.) Increased public support for better stewardship of the fishery and ecosystem.
4.) Increased understanding of the cultural and economic importance of the fishery.

F. OVERVIEW OF OYSTER FISHERY REGULATORY AND MANAGEMENT FRAMEWORK

Elizabeth North provided an overview of oyster fishery regulatory and management frameworks in the Choptank and Little Choptank Rivers and acknowledged the assistance of Dan Sweeney in putting the presentation together. She noted the unit of management and commerce is the bushel basket and reviewed the three licenses for the public commercial fishery including: Unlimited Tidal Fish; Oyster Harvester; and Oyster Dredge Boat. The gears in use include the shaft tong (hand tool), patent tong, dive, sail dredge and power dredge. She presented maps that depict the NOAA Code/Harvest areas for reporting and noted that there are 31 buyers in the Choptank region.

A series of overlay draft maps show the regulatory areas including: sanctuaries and SAV Protection Zones; Hand tong only zone; power dredging allowed; patent tong allowed; Dredge boat (under sail) allowed; and Yawl ('push') boat allowed. Other maps depicted the Environmental Shellfish Harvesting and Closure Areas and the Public Shellfish Areas (leasing not allowed). She reviewed a series of charts that outlined recreational oyster harvesting and shellfish aquaculture.



The complex set of Restoration efforts by the state, federal, citizen groups and watermen involved were described. This included the Maryland Interagency Oyster Restoration Group working on Harris Creek, Little Choptank and Tred Avon restoration initiatives and NOAA's Habitat Focus Areas. Oyster Committees included: County Oyster Committees (Shell Committees); Tidal Fisheries Advisory Commission; Oyster Advisory Commission; and Sustainable Fisheries Goal Implementation Team with Maryland and Virginia Oyster Restoration Workgroups.

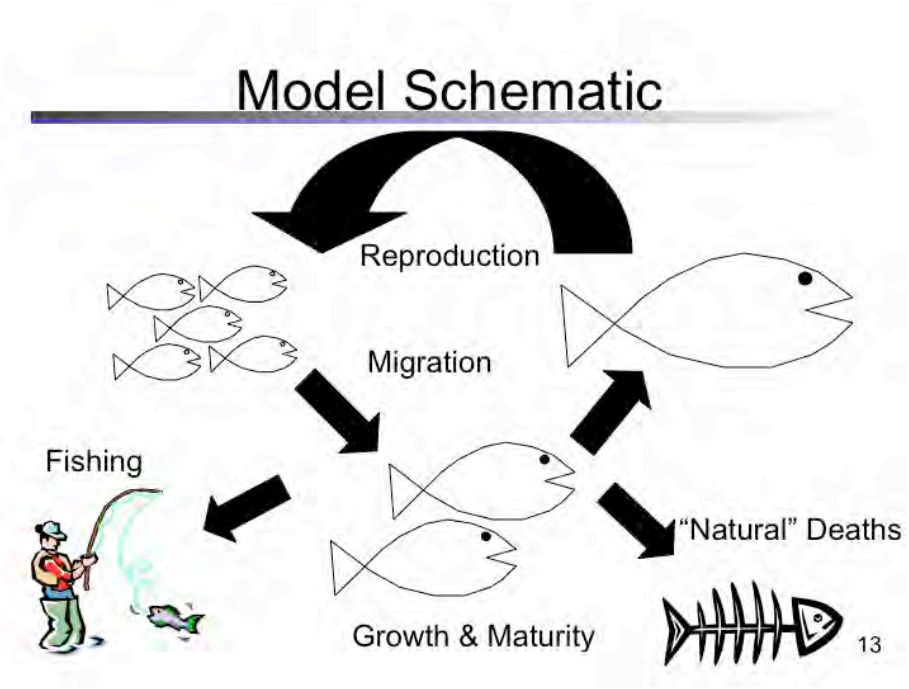
Industry groups included: Maryland Watermen's Association; Talbot County Watermen's Association; Dorchester County Seafood Harvesters; and the Seafood Buyers Association.

Workgroup Comments on the Presentation

- Maps suggest 25% of water in the Bay is sanctuary but 50% of Choptank region is closed.
- Maps graphically show the difficulty in locating the lines with all the regulatory overlays.

G. Overview of Oyster Fishery Modeling Tool

Mike Wilberg presented an overview of the modeling development process by providing an overview of the FishSmart modeling initiative that utilized a similar stakeholder approach to developing a model for the Atlantic King Mackerel fishery.



Dr. Wilberg reviewed the OysterFutures Workgroup goal that was developed and adopted on Friday which is to develop a package of consensus recommendations informed by a model collaboratively developed by the Workgroup and the OysterFutures project research team. He noted the model will be designed so that it can be used to evaluate oyster fishery practice and management options and restoration policies in the Choptank and Little Choptank Rivers. As part of the OysterFutures project, the modeling team will work collaboratively with the workgroup to develop a model that will project the potential outcomes of a variety of options for oyster management and restoration in the Choptank River Complex. The primary use of the model will be to better understand how a potential option for oyster restoration or management will affect outcomes that the stakeholder work group cares about. The model will include the fishery, how the oyster population responds to the fishery, and how oysters affect the ecosystem.

Together with the work group, the Research Team will select which options are of most interest to include in the model and which results are most useful for evaluating the success of the options. The results from the model are "performance measures" in that they describe how we expect a policy option to perform. Performance measures can include things like the average annual harvest, the number of days the fishing season is open, average water clarity, or the fraction of years with very low harvest. Over the next two meetings the Team will develop the model with the Workgroup. During the model development process, the Team will start by showing what processes they plan to include in the model, and will review with the Workgroup the evidence to support (or refute) ways of representing processes in the model. The Team will be as transparent as possible in the development of the model, and will encourage questions and discussion about why we are or are not including an aspect of the oyster population, fishery, or ecosystem.

H. Discussion of Performance Measures

On Saturday morning, in advance of discussing the draft options, the Workgroup and Research Team briefly reviewed the relationship between model performance measures and the options that Workgroup members could put forward to address issues related to the oyster resource.

Comments in advance of rating related to performance measures:

- **Economic modeling.** The research team has economic modeling capacity. Can consider things that effect cost of production; travel time/distance. E.g. travel times as a performance measure.
- **Shape of reefs**- and gears? Probably not a good way to create a performance measure.
- **Cost calculations**? Would it make more sense to keep track of travel-time invested? This may be a cost/benefit ratio.
- **Consistency and costs of regulation** as a measure?
- **Management approach to land bigger oysters**- size distribution- link back to the economics of production (4" vs. 3".) Depends on your area. E.g. shucking in that area. Connecting the size to an economic question.
- **Modeling and options**-the research team will try to identify those things they can model. This relates to rules about how something will happen. E.g. a marketing plan will be harder to model.
- If the Research Team doesn't have the modeling tools to apply to an option, they may be able to provide other information for the Workgroup's consideration.

On Saturday afternoon following the discussion of the range of issues and options, the Research Team led an initial Workgroup discussion of potential performance measures, i.e. what should be monitored to determine if an option, strategy or policy is working. Mike Wilberg offered some examples of performance measures that a model could consider such as: how many bushels are harvested; what is the distribution of the harvest; how many people can/are working in the fishery; what is the timing of harvest; what are the number of oysters in population; what are the effects on water quality; what are the effects on other species. The model can move outside current processes and address systems that don't yet exist ("what if x"). The modelers will try to be as flexible as possible to look at different options that the workgroup identifies.

The Workgroup members offered following discussion points:

- **Feedback loop needed.** Need an effective feedback loop to determine whether regulations are working.
- **Surcharges**. Put some kind of limit on the number of surcharges that can be reviewed. Ability to increase. If young/new people want to get into fishery, it is difficult to get license.
- Will the number of current surcharges be the maximum?
- Is 1200 too many?
- What is the sense of the number of watermen on the water?

- **Need a stock assessment**- we have spat count but not a good handle of the numbers on the water etc.
- Can the model take into account different management and regional variations of fishery- lower, mid and upper bay?
- **Impact of diseases (Dermo/MSX) on the fishery.**
- Average rate of effort- monitor this, use as a tool to know when a bar has had enough harvesting.
- **Gear type used.** Different % of gear type used. How does each relate to % of total catch and gear effectiveness.
- **Maintaining appropriate spawning stock biomass.**
- **What is the level of success?** 50% success in Fish Smart? Number came from federal court mandate- At least achieve half the time.
- Should/could we consider looking at 25% or 75% success over time.
- **Acceptable rate of replenishment**- yearly goal/target to continue to build stock. What targets or actions do we take if we have more or less of the spat sets.
- **Show which management areas need enhancement.** Management implications- will this model help clarify for management areas that need enhancement, e.g. evaluate impacts for a shell reclamation/replenishment.
- How much does activity costs- as a metric.
- **Ways to calculate harvest.** Model will calculate harvest- each year- average, % + metric; %- metric, different ways to frame the metric.
- Sustainable harvest rates
- Establish overall population and then % rate of harvest of existing stock before each season begins.
- **Maintaining the appropriate shell "budget".**
- Monitor the shell budget for replenishment. Funding available? Performance metric: Amount of shell
- **Amount of people in certain area- what amount of shells put back to replenish the shells.** Currently goes off the surcharge for each county.
- **Industry system for "investment for replenishment back into the bar/beds"-** invest back into the bars/beds- investment per bushel? Can the model address this?
- Bars with lease bottoms: should a percentage go back to public bottom?
- How much shell goes out of state for shucking in e.g. Virginia.
- **Water quality benefits**
- **Fish habitat**
- **Restructure of the beds-** Shape/size of reef? Is there an optimum shape/size to maximize ability to catch more spat?
- **Average age of the oyster** – maintain resistance to disease.
- **Size distribution among the bars**- for harvest (some bars 3' in vs. 5-6')
- **Winter/Weather/freeze** ups- how the affect the oyster fishery.
- **Other weather events- e.g. Hurricane Agnes. Big rain events.**
- **Bushel limits on certain gears**.
- **Cost/value per bushel?** Maximizing value for selling.

- **Demand for oysters at certain time of year.** Time of the year? E.g. Thanksgiving and Christmas.
- This is complicated- don't want to control private industry. We do want to put watermen in a situation where they know what level of participation they will have in the fishery.
- **Size of oysters and pricing.** Are there parts of the harvest that you get different price? E.g. larger oysters? You get what the price is set for that region.
- Keep in mind shellfish ordinance is a federal program. Federally certified. Not a boat to table product- keep this in mind in what we measure. It may be a cost people don't want to assume because of liability issues.
- **Harvest throughout entire season or more about the demand.** As a measure it is good to be able to harvest throughout the season.
- **Length of season-** given condition of fishery- focus on highest value times in the market. Can't supply a regular market now. Lose customer to a steady market later in the season.
- Operating on model since it reflects the best value for the resource.
- Aquaculture works year round.
- Spread the public fishery- extend beyond March 31- into April and early May and enhance opportunity and ability for fishery to reproduce- closer to its spawning period with cleaner shells.
- E.g. Oct 15- and move to April 15 for the shells. Expand into April-into the spawn season.
- **Costs of gear types**- impacts on how much someone gets for their oysters.
- Model can address the size of oyster. If harvest by size- could be a metric.
- Historically we have harvested beyond the current season. Functions as a derby fishery.
- Confidence that oysters will be there in later part of season.
- We want the harvest to improve not deteriorate from the current status quo.
- **Closed oyster fishery an indicator of failure.** Indication of failure would be a closed oyster fishery- last resort.
- Long term closures of any river system or estuaries. Look at annually or periodically regarding keeping close.
- **Water Quality.** Closing tributaries because of water quality issues. Long term closures due to that.
- **Poaching**--don't have a performance measure. Don't want to see an increase but rather a decrease. Management options shouldn't push people into illegal activities.
- **Ease of enforceability.** Options could be rated in terms of ease of enforceability.
- **Limited entry**- Don't want to see DNR to release a lot of licenses- after 2012-13- allow more licenses was a problem. 1133 surcharges last year. How many oyster licenses are out there. If abundance of oysters the harvest could jump 3 fold. Some licenses released for an income stream.
- **Surcharges and Licenses.** The distinction between surcharges and licenses.
- Increasing oyster tax from $1 to $2? Harvesters should be doing their part putting $$ back into the system.

- **Harvest numbers-** we could have a "complete" fishery- 120 day season- but total number that could be caught- 1-1.5 million. This is misleading for how the industry is doing. Better monitoring needed. What is a sustainable level of harvest? How would you know if you get to 15 million bushels.
- **Modeling and expectation for harvest.** Modeling can help to tracking the abundance of oysters and what the expectation for harvest. Use some historic measures.
- Lots of factors- weather. Buy license to go for the first 2 weeks may be hundreds in this category. Not an honest look at how industry is really doing.
- How many in the bay? How many are eligible for harvest?
- Will Sanctuaries put the watermen out of business?
- Sustainable viable economic fishery will not reflect back to 1800s.

The modeling team thanked the Workgroup for their ideas and guidance and pledged to advance the discussion at the second meeting.

II. OYSTERFUTURES VISION THEMES, ISSUES & OPTIONS

The facilitator introduced six vision themes drawn from the issues and topics identified by the Workgroup in the pre-meeting questionnaire.

- Vision Theme A—Management and Regulations
- Vision Theme B—Harvesting/Fishing Practices
- Vision Theme C—Sustainable & Economically Viable Oyster Fishery
- Vision Theme D—Healthy and Productive Ecosystem
- Vision Theme E—Thriving Community/Region
- Vision Theme F—Education Initiatives

The themes above are not listed in priority order and taken as a whole characterize a compelling vision of success for the oyster fishery and resource. They provide a framework for identifying and reviewing topical issues and possible options that are consistent with the vision. The Workgroup, with help from the Research Team, will review, debate, refine and seek consensus on recommended strategies informed by the modeling.

A. MANAGEMENT AND REGULATIONS

1. **VISION THEME A—MANAGEMENT AND REGULATIONS—**The management of the <u>oyster resource</u> ~~fishery~~ is conducted by working collaboratively with ~~fishery~~ stakeholders to ensure that protection of the fishery and habitat is implemented in a manner that provides fair and equitable access to the <u>oyster</u> resource.

   Comments/Proposed Refinements:

- "Fair and equitable access"? Sounds good, however, does this mean anyone can get into the fishery? The experience in 2012-13 when many more were harvesting. Should this refer to oyster resource.
- Are the regulations and management goals clear and enforceable? This would be an issue and or option for this.

2. WORKGROUP ISSUES IDENTIFICATION

On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories:

Oyster Fishery Enforcement

- Enforcement of lease bottom. Some have many violations. DNR should address this- why does he still have a license. There are a handful of people poaching.
- Politics of enforcement are as bad as politics of management. Vision of achieving this. We need a better strategy. Building trust back up- with that trust, we can have a system based on science, collaboration with industry. You need the science from research, industry. E.g. Harris Creek as a test areas- sustainable harvest- put a plan together. In 10 years we should achieve sustainable harvest in areas not dealing with this now.
- More law enforcement on-water presence on the water is an area of potential agreement.
- Officers used to live in the areas they enforced.
- Enforcement is important- and the Workgroup can prioritize.
- Funding for enforcement. Yates Bar survey. May not be a lot of funding. Does oyster surcharge go to county shell committees?
- $26 million was ecological restoration investment. Government does this. E.g. Poplar Island restoration. Doesn't have a "people" economic value but the value in water quality.
- Enforcement issue. E.g. Oysters coming in a 7 a.m. and somebody buys. Unloading- DNR officers not there. Haven't seen one all season.
- Poaching and Officer Presence needed for challenge in enforcement for taking undersized oysters and crabs. Difficult in managing the fishery. We need to find ways to work together to minimize poaching. DNR hears a lot on this issue.
- In the old days- see a cop on the waters every couple days. Today- seen 2 officers all season. This might address the poaching. More doing their job as a strategy.
- Not shutting an entire river down. Sanctuary hurting marinas- not using the bars, restaurants. Hurts more than just the watermen.
- The officer presence helps with this. If you open up a small fishery- needs to be enforced.
- Poaching-- show some presence and have some laws that stick. 98% good watermen. A handful make everyone look bad. Makes you not want to make investment in aquaculture.

Rotational harvesting

- Do it in Virginia and it works. Proven method of having the resource and the industry. Heavily enforce. When it gets down, close it and open another river up in a cycle.
- Rotational harvest- how that might work. DNR has been discussing. How do you manage openings and closures and manage rotational area. Don't have funding to survey the bar every week. If there a reference point so we know if there is enough oysters to handle harvest. Catch per unit effort. Watermen would have to track and monitor that. "Devil would be in the details."
- Should be an issue that all can get on board with- well monitored with enforcement. Key component of what we might come up with in terms of recommendations. Addresses the concentration of harvest in few areas.
- How do you know when to shut it down? Watermen help with this. If you had an officer assigned 3 stations- showed up every 3 days. Officer will notice if oysters are getting smaller, catch is going down. Officer might be able to collect data. DNR use their cadet program- to help with this. More presence and better data collection might.
- Support a major public investment to make areas productive, jump start rotational harvest. Once it gets going there will be more money with the industry. Justifiable.
- Need to adopt a new way to manage up front with criteria for when you open and close to ensure a standing stock.
- Rotation of different spots, not just from one to the next.
- Rotation- hardest part- how to determine when to rotate. Wherever you open is where everyone is going to go. Virginia has some big bars- toughest management issue.
- If you have a limited opening in Little Choptank, limit to watermen in that tributary? (e.g. in Virginia crab)
- Rotational- VA bars are bigger. How can we rotate until you open things back up
- Will be part of the solution set- VA- bigger bars and regular spats were behind its success.
- Potential productivity per acre if bottoms well managed and done right. We can do smarter and increase productivity with existing bottom. Lots have remained fallow.
- Virginia industry is now pulling back from full support of the rotational harvesting.
- The public fishery will have to change and not continue as we have known it.

Address and Correct Mapping issues.

- Yates bar map hundred year old data- historic map doesn't reflect current bars. Bottom changes and other changes are not properly represented in DNRs system.
- Mapping problem is an issue- % of water vs. oyster bars and oysters, and bottoms.
- Map used by watermen- shows different blocks. Doesn't tell you on bar what you can do and how you can harvest and the lines. Should be easier for a watermen to use this. Even DNR regulators aren't clear. 2 buoy separated by a

mile. "Caught over a line"- more bouys and better maps. Looking down as a oysterman- need to be clearer.

- Sanctuary lines- didn't listen to watermen- power dredge line and sanctuary line through the middle of the oyster bar. Doesn't make sense and presents an enforcement problem.
- Need to do a better job of providing this data to the watermen. Currently is very confusing and nebulous lines on the water will compound enforcement problems.

Long-term commitment to a shared vision.

- We need a long-term commitment to a vision that will continue through future administrations. This is a good time to get this plan.
- Consensus among diverse perspectives can be more powerful than the politics.
- Industry and watermen are facing a scary cycle with these political uncertainties and investments in their business.
- Oyster Advisory Commission- initial vision was to have a balanced body. Morphed into something different with only a couple watermen on it. Didn't do what we needed. We need to do better than that going forward.
- The long-term vision is critical to implementing these ideas over time and overcoming the ups and downs of politics.
- Regulatory process can overwhelm if you don't get involved. Parallels in the land use and construction experiences in the state.

Regulations and management goals are clear and enforceable.

- Need a feedback loop from those regulated so it is an evolving program.
- Feedback loops have to work- perception vs. reality about whether watermen are listened to.
- Successful fisheries- give ownership value in the fishery to encourage self regulation. Give direct value of the industry-- after 25-year decline, work with the true watermen. This can help with compliance and aid in enforcement.

Accurate and timely reporting

- Timely reporting is key to successful management. Works elsewhere and needs to be considered for the oyster resource.
- DNR politics and the ability of watermen to meet with state and stakeholders and have a dialogue on the future of the oyster resource. Current administration has invited the dialogue.

Sustainability is the new industry economics.

- The new economics for industry is sustainability. Build public support. We cannot move forward with taking this as a major consideration.
- We need balance. Hogan administration is more considerate of industry views. Need balance. O'Malley administration applied science in ways they hadn't before. They tried to apply more science but didn't adequately consider the watermen's views. Need both science and on water knowledge.

Regulatory predictability

- Regulatory predictability should be the goal in general for small businesses and for the watermen. These should supports continued business investment. Risky business but strive to make it more predictable.

Sanctuaries & Reserves

- Placing reserves and sanctuaries next to each other presents problems. No oysters on reserve, ticketed for harvesting in the adjacent sanctuary.

Conduct an assessment of the oyster fishery

- There is technology that provides better approaches. No good current assessment about the abundance of oysters.

Improve DNR's website

- DNR website is not user friendly. Hard to find charts. 5-6 years ago you could get them.

DNR Budget constraints.

- Work group should prioritize enforcement to make sure funding is there. We are not at point of self-management yet. This has led to lack of success. Even good information is part of this investment needed.

Dredging.

- Not clear in the research and science regarding bag-less or power dredging.

Restoration vs. monitoring.

- Harris Creek $26 million with no economic return? Doesn't make sense. Could have established a monitoring program for estuaries- would have been a good investment and would have been a win-win with an economic base and protection of the resource. Let's figure out a way to do this.

3. Clarifying, Refining and Rating Options to Address Issues

On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. Rotational Harvesting Option: Consider developing a rotational harvesting strategy that features monitoring and builds upon lessons from other fisheries and addressing questions such as:

- Data collection involving watermen and the state to inform management;
- Criteria to insure a standing stock for when to open or close an area;
- Strategies to avoid concentration of harvest in few areas;
- Significant changes in management approaches;
- Providing local access for rotational harvest;
- Enforcement and compliance strategies; and
- Investments needed to jump start initiatives.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.6**	**12**	**2**	**2**	**0**

Comments in advance of rating:

- Concern related to how data collection will be part of enforcement. E.g. proposing a gill net ban because someone did something wrong.
- Use watermen to educate other stakeholders- value to promote working together.
- Promote cooperative research as a strategy for clearing up miscommunications.
- Why is VA phasing this out and pulling back?
- Dr. Jim Wesson- waterman and scientist- runs VA rotational harvest- could give insights.

Comments and/or Reservations following the rating:

- "Local access"?
- Concerned about the potential for closing areas.
- Knowing more information about potential negative effects.

B. Address and provide funding for enforcement presence on the water (both in increasing numbers and quality through training) to address poaching and support strategies such as focusing on the buyer level, rotational and sustainable harvesting.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

C. Increasing Productivity of Existing Bottoms Option <u>by improving habitat and structure</u>. Increase the potential productivity per acre of existing bottoms by smartly managing them and doing it right.

	AVERAGE RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

Comments and/or Reservations:

- Incorporates lots of potential options.
- Reservation- concerned about whether managing means closing off permanently.

D. **Review and revise DNR regulations and management goals** in consultation with oyster resource stakeholders to ensure they are clear and enforceable and include a working feedback loop with the regulated public to refine the program and enhance compliance

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

E. Establish and support a long-term shared vision of success for oyster resources among stakeholders that can be sustained, implemented and strengthened over ~~the coming years~~ into the future.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

F. Conduct a stock assessment of the oyster resource/fishery with involvement of the stakeholders.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

G. Conduct a comprehensive assessment of the oyster resource ~~fishery~~ with involvement of the stakeholders.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Will the assessment include review of diseases affecting the oyster

H. Modify the shapes of sanctuaries so that whole tributaries are not closed.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.6**	**10**	**5**	**1**	**0**

Comments and/or Reservations:

- None

I. Address, correct and update DNR oyster resource mapping issues to inform watermen on the water such as bottom mapping to better define oyster bars.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

J. Improve DNR's website making it more user friendly.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

K. Prioritize Workgroup Recommendations to invest more funding in the management of oyster resources.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

L. Consider moving from a daily limit to a seasonal limit. Clarify how many are in the fishery for this to work.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**2.8**	**5**	**3**	**8**	**0**

Comments and/or Reservations:

- "Major Reservations"-2 rating- We want to work throughout the year
- 2 Rating- Rockfish experience – don't want to go down the road.
- 2 Rating- Ones who got the quota were the ones breaking the law.
- 2 Rating- Restricting person who may be better at something and rewarding others.
- 2 Rating- Too confusing.
- 2 Rating- Real watermen will be punished with the same quota- not fair.
- 2 Rating- Economic part- jump in November- overflow in the market causing prices to drop.
- 2 Rating- Quota will make a different playing field and problems with fairness.
- 3 Rating- This might be catch shares- history is a heavy lift. Some optimism that could work. Easier if we had a huge resource. Look for places to blur lines and consider hybrid solutions.
- Work through original allocations to set quotas- takes a long time. Concept is good in certain fisheries- not sure of whether it fits in the oyster resource.

M. Consider adjusting the season open and close dates

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

Comments and/or Reservations:

- Likes in concept- not sure about the details.

N. <u>Consider</u> single season for all gear types. Start all at the opening of the season.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.7**	**12**	**3**	**1**	**0**
2nd Rating	**2.9**	**0**	**15**	**1**	**0**

Comments and/or Reservations:

- Single season for all gear types. Start all at the opening of the season.
- Consider or do it?
- Does this mean you work in different areas. No still have your lines – wouldn't affect other management decisions.
- 2 Rating- This is a marketing problem. Too many oysters on the market at one time. In November oyster prices drop because amount of oysters on market in one shot.

- 3 Rating- Tweaked- delay 2 weeks in October and dredging Nov 1.
- 3 Rating- Agree regarding supply /demand. Starting at one time. Market isn't that strong.

O. Incorporate ecosystem services into management regimes. (E.g. leaving some oysters to maximize reproduction, impact of oysters on water quality etc., look at habitat. Not just a single species approach).

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.6**	**9**	**7**	**0**	**0**

Comments and/or Reservations:

- 3 Rating- How will ecological value be determined? Not sure on how this will be done.
- Policy can affect ecological concerns. Hard to use science to guide decisions for the ecosystem. Lots of beneficiaries in this setting.

P. Consider modifying regulations so a single bar is not divided between gear types or open and closed.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**14**	**2**	**0**	**0**

Comments and/or Reservations:

- 3 Rating- Bars in Bay are a mile long. Could help or hurt industry. May take away bottoms. Could be very good or harmful.
- 3 Rating- May be cases where there isn't a way around.

Q. Create a limited entry oyster fishery. ~~in terms of licensing~~.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.75**	**13**	**2**	**1**	**0**

Comments and/or Reservations:

- Licenses are limited, surcharges are not.
- 2 Rating- Understand point/agree with idea. Concern with the difficulty of getting into it. May be hurting people not at this table. 600 and 900 pot licenses.
- 3 Rating- Long process in working with stakeholders to put limits in place (winners and losers). Surcharge provides funding to replenish the fishery- this will be limited as well.
- 1133 surcharges with another 2000 jump into fishery quickly. Large volume of oystermen in the fishery.
- Address the problem of access to the license by young oystermen.
- When will we have economic numbers- A: team will bring in as much data as we can to show. Welcome requests for info on context at the next meeting.
- Clarify "limited" entry- to % of living made on the water. Based upon actual income from commercial fishing.

Q1. Consider limiting entry to oyster fishery to watermen making majority of their living on commercial fishing,

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

R. Evaluate and consider changes/increases of <u>oyster fishery related fees and taxes.</u> ~~for surcharge fee structure~~

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

Comments and/or Reservations:

- Clarify the surcharges continue to go to support the things they do today in sustaining
- One of the potential fees- All oyster fishery fees. Including taxes.
- Evaluate transfer of licenses- leasing to others your license needs to be looked as part of this.

B. HARVESTING AND FISHING PRACTICES

1. **VISION THEME B—HARVESTING/FISHING PRACTICES—**Participants of the Oyster Fishery are using the most innovative and productive techniques available to maximize efficiency and <u>the</u> protection of the resource, supported by science, data and field experience and observation.
   Comments/Proposed Refinements:
   - "Supported by science…" Address economics which is a key input as well as science?
   - Reference this in Vision.

2. WORKGROUP ISSUES IDENTIFICATION

On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories:

- **Parallels to land use management**. Success is dependent on good accurate data and maps. Looking at the DNR maps and zoning designations, sanctuary, power dredge, sail dredge etc.
- **Better Research Needed.** Need more/better research and regulations related to efficiency of gear types and impact on the fishery.
- **Spreading out the harvesting.** If more bottoms were open to work- less people in one spot. Spread everyone out instead of killing/overharvesting one area.
- **Bag-less dredging.** What about bag less dredging? It was a success. Bringing nutrients back up.

3. CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES

On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. Conduct more and better research to inform regulations and better understand the efficiency of gear types and their impacts on the fishery.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

Comments and/or Reservations:

- Research part goes towards the money. Research follows the money. Concerned about changing the outcome of the research.
- Don't assume we need new research. Applying the science to the management.

B. Conduct research and clarify the effectiveness and impacts of bag-less and power dredging.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Bars cleaned closer to spawning season/spat set.

C. SUSTAINABLE AND ECONOMICALLY VIABLE FISHERY

A. Vision Theme C—Sustainable & Economically Viable Oyster Fishery —The Choptank River Oyster Fishery in managed and conducted in a manner that ensures the fishery is sustainable and economically viable for fishery stakeholders.
Comments/Proposed Refinements:

- None

B. WORKGROUP ISSUES IDENTIFICATION. On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories:

- **Measure economic viability.** Need to make sure we can measure "economic viability" and "sustainability" E.g. address to boom and bust cycle.
- **Managing natural shells.** Need for natural shells is a key part of sustainability. Problem harvesting in a small region. 400,000 bushels off and put back 40,000. Will accelerate the decline. We don't get the shells we need.
- Lots of shells we don't touch- silted over- but we could use. Use the shells from the Bay would be better approach than importing from Florida etc.
- Shells situation has developed over time. Lots of fixing to do before utilizing that.
- Shell reclamation project- might pay for itself. Pay local waterman to address this need.
- Funding for managing the shells are there but not available.
- Boom and bust cycle- sales to Virginia along with the shells.
- **Marketing specific oyster harvest locations.** Aqua-culturalists in VA market in a specific manner –with reference to location. Market them from specific bars? Add a fancy name to it.
- Increase economic benefit through marketing. May be able to decrease effort to make more $$.

- It is a limited market for that approach. Marketing from a specific area- may be a smoke and mirrors. Regulations may complicate this. During the oyster season may be too many on the market to target and market them.
- This is a critical issue for the health of the fishery
- **Invest in restoration first.** Cart before the horse--Initially invest in restoration to make sure it will be there and then market with that certainty. Will have a more valuable and predictable amount.
- **Bring back shucking houses in the Choptank.** Shucking house- turn product into another market. Creating value requires pursuing full restoration.
- Media coverage of lines- we need to agree not to slander each other. Has opposite effect and is a roadblock. E.g. Chesapeake Today coverage.
- Market a Maryland shucked product (not just a half shell). Help companies to reinvest the shell back locally. One part of the puzzle.
- Growing trend of consumers interested in where the oysters is harvested.
- Marketing- e.g. National aquarium partnership (Johnny S). Celebrate the catch and harvest at a restaurant.
- We have to figure out how to wisely market- pushing peers in the direction.
- Look at farmer's markets and localized craft beers- this trend might be applied to seafood fisheries.
- More areas and fewer oyster licenses.
- **Better management approach- regarding closures**.

C. Clarifying, Refining and Rating Options to Address Issues

On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. ~~Invest first in (~~sustainable management~~)~~ ~~improving oyster~~ ~~harvest~~ ~~restoration to~~. Establish a sustainable fishery to provide greater certainty and predictability for increasing the market for oysters

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Invest first then market when products are available. Sustainable system before building a sustainable market.
- "Restoration"

B. Focus on strategies for increasing the funding, use and reclamation of local ~~fossilized~~ shells from the Chesapeake Bay and from local watermen to supplement bars and increase the viability of the oyster resource.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

C. Focus on strategies for increasing the funding for the use of Spat on shells everywhere not just in a few places.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.9**	**15**	**1**	**0**	**0**

Comments Prior to rating

- System for retrieving shells from oysters shipped to VA etc.
- VA has shucking capacity. MD lost ours.
- Business development plan to help local shucking operations come back into business to support local retention of shells.
- Explore ways to produce shells and oysters. Using smaller amounts of shell. Working with smaller amounts of shell to make larger amounts of product.
- Explore other ways to use shells we have- look for ways to be more efficient. E.g. brought shells from Florida that caused big problems.
- Everything-is tough- doing business in MD is difficult- we have a long way to go. Opportunity to shift public support for keeping shells in state.
- Money invested for local watermen to find shell they know about. Better use the shell and the bar. Man o war shoal is not the only alternative for shell.

Comments and/or Reservations:

- 3 Rating- Shells are challenges, not just spat on shells.
- What about other materials? 5 year Sanctuary study will provide some additional information on alternative materials.

D. Develop better business plans for the industry that reflects trends for consumer interest in local products

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

E. Review <u>best practices and outcomes</u> ~~and adopt~~ and adapt ~~as needed~~ successful techniques from <u>other places/regions</u> ~~such as Puget Sound aquaculture, etc~~.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Delaware bay is very well done. Their program might be worth hearing from.
- Apply only to aquaculture.
- Alternative material use in the gulf.
- Look at the scallop fishery e.g.

F. Develop clear measures of economic viability and sustainability.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

G. **Test strategies for marketing oysters by location and a shucked product**.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.8**	**13**	**3**	**0**	**0**

Comments and/or Reservations:

- 3 Rating- Support this. But is it relevant at this table?
- 3 Rating- Good idea- may be an expensive proposition and may be best done by the industry.
- 3 Rating-Spreading resources around too thin.

D. HEALTHY AND PRODUCTIVE ECOSYSTEM

1. **Vision Theme D—Healthy and Productive Ecosystem**—The ecosystem is managed in a manner that supports ecosystem services by protecting and enhancing the habitat and resource in a sustainable and productive manner**.**
   Comments/Proposed Refinements:
   - None

2. **WORKGROUP ISSUES IDENTIFICATION.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories:

   - **Impact of disease.** If we didn't have the disease, we wouldn't have a current problem. Places have been closed over many generations.
   - Some % oysters 4-5 inches- left for brood stock helping to create more disease resistant. Leave behind so they can continue to increase disease resistance.
   - **Water quality** is an area for common ground – dealing with pollution.
   - **3 dimensionality of the bottom** may be an issue that all don't agree with. Trying to create more of a historical quality of the bottoms.
   - We like big oysters-and high family lines- can support demonstrating this. We could come together- 1 reef ball reef in every reef system.
   - Harris Creek example- economic benefits of 3D restored bars.
   - 3D bars- in Virginia- and shells- not a new technology. Done in MD since 60's. Permit ran out and didn't issue and didn't dig shells for 9 years.
   - **Restoring tributaries**- Bay agreement- e.g. Nanticoke River closed as a sanctuary- until restoration plan made and implemented, to keep fishermen working on that river. Would it be possible to have open season for the public river. Would be good for local community- good faith effort by environmental community and the state- allow a limited fishery until restoration takes place.
   - Look for opportunities for limited fishery in that tributary.

- **Conservation.** What is the role of conservation in oyster resource. E.g. What is the value of sanctuaries to this group.
- **Protecting Oyster bars in sanctuaries**. Not opposed to sanctuaries and their function but if sanctuaries last too long, oyster bars will sink. Dead ones on top.
- Combine sanctuary and natural oyster bar- older oysters are more susceptible to disease.
- **Shells.** Imperative to get shells - concerns about tearing up bottoms. Look to studies about impacts.
- Strategy for getting a cheap and best shells- places harvested today were planted 40 years ago.
- Man of War shoals- one dredge left on eastern seaboard.

3. **CLARIFYING, REFINING AND RATING OPTIONS TO ADDRESS ISSUES.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. Continue to address and find solutions for oyster diseases.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- None

B. Develop a strategy ~~with~~ working with watermen and other stakeholders to help protect a brood stock to enhance disease resistant oysters.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Include other stakeholders along with watermen- need partners

C. Develop a set of water quality strategies as common ground that can address pollution impacts on the oyster resource.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.8**	**14**	**2**	**0**	**0**

Comments and/or Reservations:

- Concerned about closures "in case" something happens.
- Water quality- is this the right table to have this conversation.
- Things like nitrogen pollution- dissolved oxygen killing oysters vs. human health issues.
- Planned to look at how oysters impact water quality.
- Relate to natural mortality.
- E.g. impacts of major land use changes affecting oysters- decided couldn't look at and provide useful modeling inputs.

- There are experts we can tap into if the Workgroup is interested.
- Link C with F. Sanctuary reef program

D. **Develop a strategy that tests the effectiveness of <u>strategically placed</u> 3-dimensional bottoms with <u>artificial reefs and alternative substrates.</u>** ~~a reef balls~~ ~~in every reef system~~.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.8**	**14**	**2**	**0**	**0**

Comments and/or Reservations:

- 3 Rating- Good for producing brood stocks- might interfere with some gear. "strategically placed" important.
- 3 Rating- not bad in theory- want to learn more about these before making a judgment.
- Plural- reef balls-
- Ecosystem benefit- oyster growing- habitat supporting other valuable fishery. Gives high density of oysters, greater fertilization rates when maintaining structure- spawning benefit. 3D effect on currents and help with mixing oxygen in the water. Benefits from 3D. Won't get this in areas where you have intermittent harvest. Some areas you leave in place over time to get these benefits.
- Keep brood stock- connect with that option.
- Alternative substrates

E. **In restoring tributaries provide limited access to the fishery that can allow fishermen the opportunity to work on that river while the restoration plan is developed.**

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.6**	**11**	**4**	**1**	**0**

Comments and/or Reservations:

- Allow for a limited fishery while restoration is underway.
- This might be part of a rotational harvest plan.
- 2 Rating- Misperception- ecological value in maintaining a brood stock. Even without a massive restoration.
- The limited use might still slow the process of restoration.
- 3 Rating- Getting to far out in the weeds. Don't want to be distracted from the main focus.
- 3 Rating- some areas can accumulate oysters on own and might not need as much restoration.
- It this workgroup effort primarily focused on the sanctuary.
- 3 Rating- what is the data telling us if area has been closed. Need to see the status of area before making a change.
- 3 Rating- sanctuaries- restoration plans are already started.
- 3 Rating- there is a process in place evaluating current status of sanctuaries. Let's see what they say about their performance before considering other options.

- This stakeholder opportunity is being used as template for managing other fisheries? Models-focusing on Choptank and Little Choptank.

F. Continue the Sanctuary program with some modification that may include providing for <u>maintenance including the potential for</u> limited <u>harvest in</u> ~~access for~~ tributaries and assessing the state of oyster bars within sanctuaries.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.4**	**7**	**8**	**1**	**0**

Comments before rating

- Condition of oyster bars in the sanctuaries- do they require maintenance.
- Sanctuary program- link to economic value.
- Understand the full suite of what we are and are not getting for sanctuaries to further refine the management of the sanctuary program.
- Based considering alternative reef construction strategies, more effective use of shells and alternative ways of expand, reduce or rearrange sanctuaries.
- Plan for continuing maintenance of the sanctuary. What will be do down the road?
- 24% of bottom in sanctuaries today. What % is the optimal amount to keep in closed areas overtime to get benefits.
- How well are sanctuaries being managed? Hope is they become self-sustaining. Using sonar to see how the reefs are doing. Estimating number and size of oysters.
- 1st round of monitoring on first seed bed- 100 acres in 2012. Fact sheet up on NOAA.
- Revenue from selling nutrient credits- some should go back to watermen and science to help with restoring economic value of the sanctuaries. Relates to supporting sanctuaries.
- Economic impact of sanctuaries. Initially showed that watermen would suffer a 25% loss. Would have caught- $2-3 million a year. 15 million out of watermen's pocket.
- Consider economic incentives/paybacks for this loss.
- Will factor into performance measures- value of oysters harvested and those not etc.
- Who does the Sanctuary belong to? Is it the Federal government? Once NOAA has done their thing. Is oyster bar going back to public.

Comments and/or Reservations after the Rating

- 2 Rating- Sanctuary- established to promote many things other than growth of oysters. Not there yet. Will take a generation for Harris Creek to show the promise we are hoping for. Too early in process to determine whether to open a restored sanctuary.
- 3 Rating- if we cut into the investments made to improve the overall fishery. Need to work together towards a common goal.
- 3 Rating- Maintenance- funding? Where will it come from.
- What if this focused on sanctuaries that haven't been restored yet?
- There are different kinds of sanctuary. Come up with terms for each. Invested in sanctuaries, not invested in sanctuary and reserves.
- 3 Rating- Are we prepared and do we know if we need to modify or what they might be. 5 year review should shed some light on this.

- 5 year review of Harris Creek. 26M. Go to another sanctuary where money hasn't been spent and we get equal or better results?

G. <u>Understand the full suite of what we are and are not getting for sanctuaries to further refine the management of the Sanctuary Program.</u>

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

H. <u>Consider</u> nutrient credit trading impacts on oyster fishery/resource.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**3.7**	**11**	**5**	**0**	**0**

Comments and/or Reservations:

- 3 Rating- should be considered.
- 3 Rating- overall concept is wrong road- just stop the pollution vs. creating a market.
- 3 Rating- distraction to what we are trying to accomplish.
- What is nutrient trading?
- In theory now- activities that reduce nutrients can sell the credits to a buyer. Working on criteria and other aspects of this. Many more things to jump through.
- Oysters take nutrients out of the system. Others putting nutrient into the system would pay those who have reduced their own inputs.
- Details haven't been worked out. We may not ultimately get there in terms of oysters. Will the buyers want to buy those credits. Many sources of uncertainty.
- Develop a matrix to highlight what is the nitrogen and phosphorous removal provided by sustainable practices by the industry.
- This will be an accelerator of the industry.
- Revenue from selling credits- some should go back to watermen and science to help with restoring economic value of the sanctuaries. Relates to supporting sanctuaries.
- Won't include these in the initial set of recommendations but will in the 2nd set.

I. <u>Consider the impacts of</u> ocean acidification and climate change/sea level rise on the oyster resource.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- West coast has seen impact on spats. There will be impacts in the Bay.
- 2nd phase will look at these "what if" issues.
- Ocean acidification may be tough problems.

E. THRIVING COMMUNITY/REGION

1. **Vision Theme E—Thriving Community/Region**—The Choptank River oyster fishery and ecosystem serve as key components of the Region's cultural heritage and economic viability, and serve to sustain an economically viable and thriving fishery, recreation and tourism industry.
   Comments/Proposed Refinements:

- None

2. **Workgroup Issues Identification.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are grouped below in several categories:

- Given where we are at, a viable oyster resource is a huge issue for this region. Restoration effort- need to get funds back into our communities and create positive results.
- We need an agreement to work collaboratively with each other and respect each other without slander. Initially called for moratorium but backed off because of the need for collaboration. Attitude about objectives and respected.
- Sensitive to these perceptions back and forth.

3. **Clarifying, Refining and Rating Options to Address Issues.** On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. Restoration efforts should bring funds back into the regions communities. Given where we are at, a viable oyster resource is a huge issue for this region. Restoration efforts are needed to get funds back into our communities and create positive results.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Need to be careful about the role government plays in the marketing area.
- Public private partnerships should be considered to bring more tourism/recreational interests
- Community supported fisheries- marketing local products- Choptank specific. If oysters can fit the model/marketing strategy consider this strategy.
- MD Oyster Pledge- marketable product. Might try to proceed with this program.
- Oysters into an economic driver 12 months a year should be the goal- marketing is one part of it.

B. Providing incentives for businesses for shucking houses/capacity to address shell replenishment.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

C. More public funds into marketing strategies, celebrating heritage. These bring tax dollars into the state and they should be returning funds to support local oyster. E.g. Organize a tour on both sides of the bay. VA Oyster trail. Not just oysters but the fishery industry more generally.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

D. Consider the Working Waterfronts Program as good resource to reach out to.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

E. Look for ways to use a strategy like True Blue the one used for crab use and restaurants, in the oyster fishery.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

F. EDUCATION INITIATIVES

1. **Vision Theme F—Education Initiatives** —Stakeholders of the Choptank River Region are committed to working together collaboratively to provide education and communication on the importance of maintaining the health and productivity of the oyster fishery resource and the role it plays in ensuring the Community thrives.

   Comments/Proposed Refinements, If Any:
   - Positive portrayal of the key role that watermen play in championing the oyster resource.

2. **Workgroup Issues Identification.** On the first day the Workgroup reviewed the survey results and identified issues for developing options and strategies. The discussion comments are featured below:
   - This conversation is education.
   - E.g. NOAA Marine Resource Education program- focusing on fisheries in federal waters- didn't focus on bay fisheries. Learned lots of information.
   - CCA- did a class for recreational fishermen. 25 in course in Baltimore in January 2016.
   - What would kinds of programs could be beneficial to the industry from an educational perspective. A program like this could focus on those coming into the industry.
   - Puget Sound oyster industry- not a native to the area. Lots done through aquaculture. Look at the lessons learned and techniques and adapt to the Choptank.
   - Bring presenters in to see how they have addressed and solved issues around management and education.
   - Education is a critical part of the solution.
   - Should have been more communication in the past changes such as the sanctuaries. More between and among the groups

3. **Clarifying, Refining and Rating Options to Address Issues**. On the second day the facilitators brought back some draft options based on the first day's discussion for review, acceptability rating and refinement by the Workgroup.

A. Support education in fisheries science and management

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

B. The workgroup itself represents an educational initiative and a forum for communication among stakeholders.

C. Identify education programs that would be beneficial to the industry, especially young entrants. ~~from an educational perspective~~

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

D. Look at lessons learned from other areas and fisheries in terms of how they addressed and solve issues around oyster resource management and education, such as Puget Sound, Virginia, Delaware, scallops etc.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

E. Support the role of oyster resources and ecology for aquaculture and commercial fishing, education programs for primary & secondary school students along with help from community college.

	AVG. RATING	*4—Acceptable*	*3—Minor Reservations*	*2—Major Reservations*	*1—Not Acceptable*
Initial Rating	**4.0**	**16**	**0**	**0**	**0**

Comments and/or Reservations:

- Program emphasizes not either or aquaculture/ wild harvesting.
- Understand the diversity of the oyster resources.
- CCA- presentation on community involvement- embraced oysters. Westminster celebrating. Start with 4th grade- field trips, community involvement with the industry.
- Learning a lot about oysters. Education broadens horizons. Kids will be building reef balls and collecting shells to the hatchery.
- Comprehensive workshops on oysters and reefs evolution, history, inform citizens and inform leaders making decisions.
- Education involving watermen will help the public understand better the value of the oyster resource. Positive interactions with the public help address the "pirate" stereotype.
- John Williamson- NE Science Center- MREP- Council chair when scallop industry went through their changes. Provide insight on that context and example.

III. NEXT STEPS

A. Workgroup Meeting Schedule

The Workgroup discussed the meeting schedule and agreed on the following dates for future meetings:

- Meeting #2- April 30 May 1 2016 Saturday 2-6:30 p.m. Sunday- 8:30 a.m. -5:30 p.m.
- Meeting #3- September 10-11, 2016, Saturday 2-6:30 p.m. Sunday - 8:30 a.m. -5:30 p.m.
- *Fall Symposium, Late September/October*
- Meeting #4- January 20-21, 2017, Friday 2-6:30 p.m., Saturday 8:30 a.m.-5:30 p.m.
- Meeting #5- March 24-25, 2017, Friday 2:00-6:30 p.m., Saturday 8:30 a.m.-5:30 p.m.

B. Workgroup Communications

The Workgroup discussed whether their meetings should be open to the public and decided to keep the meeting closed and implement outreach and communication efforts such as a press release following each Workgroup meeting. They encouraged the Research Team to organize a symposium on Oysters as part of the communication and outreach efforts.

Workgroup Comments on Communication Policy

- Faith in members representing their groups. Value in the private meeting. Build understanding on what we are saying. This is a focus on Choptank and a "representative" work group. Bringing in a larger community may not be worth it.
- Support the symposium to bring in the public.
- Legislators not very aware of this dialogue. How do you deal with elected leaders?
- Cautionary note- about opening up the process. Prefer this kind of venue followed up by a symposium.
- The participation of the public might be a positive aspect.
- Media- press conference to tell the media what is going on. Create a press release explaining the process and meeting outcomes.
- Public direct involvement in the workgroup- use the symposium.
- Plan for initial press release on this project.
- Write a press release?- Run by Workgroup members and put out, on Facebook page, website, etc..
- Inform and keep community involved and aware but also protect the process.
- Press release- with member quotes- show diversity in backgrounds- indicate optimism.
- Members can send quotes- to Elizabeth North.
- Announce at mid range in project recommendations- inform the public on that.
- A symposium
- Do an initial press release.
- Use symposium as a check in for the public. Report on Oyster Futures- mid point.
- All members support this approach to communications
- Figure out later in the process- whether DNR will have a public process-
- The consensus Workgroup recommendations may kick off another process at the state level.
- Members should reach out to the research team for presentations etc. with constituents.
- NSF tasks include testing whether stakeholder participation to improve management decisions.

- Website? Forum to send people to describe this process.
- List of participants- share phone numbers among work group. Create a contact list internal for the workgroup.

Workgroup Information Needs/Requests

- Draft a report- meeting summary in several weeks
- Disease reports-
- Sanctuaries- legal status- who is responsible going forward.
- Sanctuary 5 year report
- Harvest data in the Choptank region.
- Any stock assessments?
- Fall survey
- Number of licenses and surcharge in the fishery.
- Little Choptank- how much spent and how much spat placed on shells.
- % of income from the fishery- part time/ full time- methodology for this- understanding of the economic benefit? Bushel sales per day. Ticket data- on oysters.
- Info on aquaculture- production #s MD and VA oyster and clams so we can see where we are headed.
- Information on the Little Choptank project-
- 2015 annual report is in draft-
- Harris Creek fact sheet
- More data is good for use to understand.
- Info on shell enhancement, what's spent, how managed. Other infrastructure on smaller scale? DNR has this.
- What % of bottom sanctuaries oyster bar have that can be worked? Maryland wide? No. But for the Choptank- Bottom mapping.
- 1980s bay bottom survey- and mid 2000 estimate of bottom lost.
- Just the Choptank- how much oyster bars takings.
- Info on other substrate have been used- oyster, clam shell, Florida shell, gravel etc.
- Sanctuary reevaluation report-
- Jake Goodwin's study on Cook's point- not published yet.
- How many shells have we gotten from local sources. Costs for bring shells in from out of state.
- Info on water quality- upper Choptank- oyster shell point on up. Compared with a little farther down. Years ago- after 1 inch of rainfall- couldn't work bottom for 3 days.
- Bushels sold in MD and how many bushels of shells put back.
- Breakdown of what public fishery looks like and where gears allowed.
- Oyster Summit in VA- called for complete counting for flow of shell in the Bay.
- Some we can deliver before the next meeting. Email- and print outs if preferred.

At the conclusion of the meeting the Workgroup members went around the table to offer comments on the meeting and completed meeting evaluations (see Appendix #3)

Appendix #1 Workgroup Organizational Meeting Agenda

OysterFutures Workgroup
Meeting I—Organizational Meeting
Friday – Saturday, February 26 - 27, 2016

Horn Point Laboratory—AREL Conference Room
2020 Horns Point Road—Cambridge, Maryland

Workgroup Meeting Objectives
✓ To Review Scope and Purpose of the Workgroup
✓ To Review and Approve Participation Guidelines and Consensus-Building Procedures
✓ To Identify and Agree to Workgroup Guiding Principles and Goal Statement
✓ To Review Current Fishery Status, and Management and Angling Practices
✓ To Build Consensus On a Shared Long Term Vision of Success for the Oyster Fishery
✓ To Identify Key Vision Themes and Related Issues Regarding Fishery Practices and Outcomes
✓ To Hear an Overview of Fishery Modeling Principles and Goals
✓ To Identify and Discuss Preliminary Options for Modeling and Evaluation of Key Topical Issues
✓ To Identify Needed Next Steps and Information, and Agenda Items for Next Meeting

Meeting Agenda Day One—Friday, February 26, 2016		
All Agenda Times—Including Adjournment—Are Approximate &Subject to Change		
12:00 PM		***Lunch and Introductions—Overview of Social Science Study***
1.)	**1:00 PM**	**Overview of OysterFutures Workgroup, Project Scope, and Role of the Model**
2.)	**1:30 PM**	**Introductions and Workgroup Members' Expectations for Project Success** *(Review of Questionnaire Responses)*
3.)	**2:00 PM**	**Agenda Review and Approval**
4.)	**2:05 PM**	**Review and Approval of Participation Guidelines and Consensus-Building Procedures, and Discussion of Draft Guiding Principles**
5.)	**2:25 PM**	**Discussion and Adoption of OysterFutures Workgroup Goal Statement** *(Review of Questionnaire Responses)*
~3:00 PM		***Break***
6.)	**3:15 PM**	**Shared History Exercise**
7.)	**3:45 PM**	**Overview of Oyster Fishery Regulatory and Management Framework**
8.)	**4:10 PM**	**Introduction to Creating a Vision of Success for the Oyster Fishery**
9.)	**4:15 PM**	**Overview of Challenges, Opportunities and Trends for the Oyster Fishery** *(Review of Questionnaire Responses)*
10.)	**4:25 PM**	**Shared Vision of Success for the Oyster Fishery** *(Review of Questionnaire Responses)* • **Identification of a Vision of Success for the Oyster Fishery Exercise**

		• **Identification of Desired Oyster Fishery Vision Themes Exercise**
11.)	**4:50 PM**	**IDENTIFICATION OF KEY TOPICS/ISSUES EXERCISE** *(Review of Questionnaire Responses)*
12.)	**5:15 PM**	**SUMMARY OF DAY ONE AND REVIEW OF DAY TWO AGENDA**
13.)	***~5:30 PM***	***RECESS AND INFORMAL SOCIAL***

MEETING AGENDA DAY TWO—SATURDAY, FEBRUARY 27, 2016		
All Agenda Times—Including Adjournment—Are Approximate &Subject to Change		
1.)	**8:00 AM**	**WELCOME AND AGENDA REVIEW**
2.)	**8:15 AM**	**OVERVIEW OF MODELING TOOL AND PRINCIPLES, AND OVERVIEW OF STAKEHOLDER ROLE REGARDING SHAPING MODELING TOOL**
3.)	**8:45 AM**	**DISCUSSION AND IDENTIFICATION OF CRITERIA FOR EVALUATING MODELING OPTIONS**
4.)	**9:15 AM**	**IDENTIFICATION AND INITIAL EVALUATION OF MODELING OPTIONS BY TOPICAL ISSUE IN TURN**
~10:00 AM		***BREAK***
4.)	**10:15 AM**	**IDENTIFICATION AND INITIAL EVALUATION OF MODELING OPTIONS BY TOPICAL ISSUE IN TURN—CONTINUED**
~12:00 PM		***LUNCH (ON SITE)***
5.)	**12:30 PM**	**IDENTIFICATION AND INITIAL EVALUATION OF OPTIONS BY TOPICAL ISSUE IN TURN** *(Review of Questionnaire Responses)*
6.)	**3:30 PM**	**REVIEW AND CONSENSUS TESTING OF OPTIONS AND GUIDANCE TO MODELING TEAM**
7.)	**4:00 PM**	**OVERVIEW OF OYSTERFUTURES WORKGROUP PROCESS AND SCHEDULE**
8.)	**4:15 PM**	**DISCUSSION OF COMMUNICATION OPTIONS FOR THE PROJECT**
9.)	**4:45 PM**	**NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING** • Review Workplan action items and assignments • Identify agenda items and any needed information for next meeting
10.)	***~5:00 PM***	***ADJOURN***

Appendix #2 Workgroup Membership and Representation

MEMBER	AFFILIATION
WATERMAN	
Billy Abey	East New Market, MD
J.D. Buchanan	Preston, MD
Geoff Harrison	Tilghman, MD
Gregory Kemp	McDaniel, MD
Logan Rippons	Cambridge, MD
Scott Todd/**Cody Paul**	Woolford, MD
AQUACULTURE	
Bobby Leonard	Tred Avon Treats, Ruff-N-Ready, LLC.
Johnny Shockley	Hoopers Island Oyster Aquaculture Co.
SEAFOOD BUYERS	
Aubrey Vincent	Lindy's Seafood
ENVIRONMENTAL CITIZEN GROUPS	
Kelly Cox	Phillips Wharf Environmental Center
Bill Goldsborough	Chesapeake Bay Foundation
Mark Bryer/ **Joe Feher**	The Nature Conservancy
RECREATIONAL FISHING GROUP	
David Sikorski	Coastal Conservation Association (CCA)
MARYLAND DEPARTMENT OF NATURAL RESOURCES	
Dave Blazer	Maryland Department of Natural Resources
OYSTER RECOVERY PARTNERSHIP	
Ward Slacum	Oyster Recovery Partnership
FEDERAL AGENCY	
Stephanie Westby	National Oceanic and Atmospheric Administration (NOAA)

PROJECT SCIENTISTS AND FACILITATORS	
NAME	AFFILIATION
UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE	
Elizabeth North	Fisheries Scientist
Jeffery Cornwell	Estuarine Biogeochemist
Raleigh Hood	Biological Oceanographer
Thomas Miller	Fisheries Ecologist
Lisa Wainger	Environmental Economist (Social Scientist)
Michael Wilberg	Fisheries Scientist
VIRGINIA INSTITUTE OF MARINE SCIENCE	
Troy Hartley	Environmental and Natural Resource Policy (Social Scientist)
FCRC CONSENSUS CENTER, FLORIDA STATE UNIVERSITY	
Jeff Blair	Workgroup Facilitator
Robert Jones	Workgroup Facilitator

Appendix #3 OysterFutures Workgroup Meeting Evaluation Summary

OYSTERFUTURES WORKGROUP
FEBRUARY 26 - 27, 2016—CAMBRIDGE, MARYLAND
MEETING EVALUATION SUMMARY

Members used a 0 to 10 rating scale where a 0 meant Totally Disagree and a 10 meant Totally Agree. 15 evaluation forms were received.

1. Please assess the overall meeting.

9.3 The background information was very useful.
9.4 The agenda packet was very useful.
9.5 The objectives for the meeting were stated at the outset.
8.5 Overall, the objectives of the meeting were fully achieved.

2. Do you agree that each of the following meeting objectives was achieved?

9.8 Review of the Scope and Purpose of the Workgroup.
9.7 Adoption of Participation Guidelines and Consensus-Building Procedures.
9.7 Adoption of Workgroup Guiding Principles and Goal Statement.
8.9 Review of Current Fishery Status, and Management and Angling Practices.
9.4 Agreement on Shared Long Term Vision of Success for the Oyster Fishery.
9.3 Identification of Key Vision Themes and Related Issues Regarding Fishery Practices and Outcomes.
9.1 Overview of Fishery Modeling Principles and Goals.
8.6 Discussion of Preliminary Options for Modeling and Evaluation of Key Topical Issues.
9.5 Review of Next Steps and Agenda Items for Next Meeting.

3. Please tell us how well the Facilitator helped the participants engage in the meeting.

9.7 The members followed the direction of the Facilitator.
10.0 The Facilitator made sure the concerns of all members were heard.
9.8 The Facilitator helped us arrange our time well.

4. Please tell us your level of satisfaction with the meeting?

9.7 Overall, I am very satisfied with the meeting.
9.9 I was very satisfied with the services provided by the Facilitator.
9.8 I am satisfied with the outcome of the meeting.

5. Please tell us how well the next steps were communicated?

9.6 I know what the next steps following this meeting will be.
9.4 I know who is responsible for the next steps.

6. **What did you like best about the meeting?**
    - Respectful dialogue and information presented.
    - Civil communication among stakeholders
    - The opportunity to communicate with multiple stakeholders.
    - Collaborative spirit.
    - Enjoyed insight from different stakeholders and educated on new information.
    - People.
    - Felt very comfortable, good forum for sharing. Felt free to express opinions.
    - Good food.
    - I thought it was well done and am looking forward to future meetings.
    - Great that young watermen are speaking up.
    - The communication.
    - Civil discussion.

7. **How could the meeting have been improved?**
    - Rib eye and baked potato dinner
    - None
    - Very good
    - Nothing.

8. **Do you have any other comments?**
    - Great job!
    - Thank you for having us. I really enjoyed the facilitation style.

Appendix #4 OysterFutures Workgroup Purpose and Project Summary

STATEMENT OF PURPOSE. The goal of OysterFutures is to develop recommendations for oyster policies and management that meet the needs of industry, citizen, and government stakeholders in the Choptank and Little Choptank Rivers.

With funding from the National Science Foundation, we will hold a series of workgroup meetings with a representative group of stakeholders. Through these meetings, the stakeholders will produce a collective vision for the future of oysters in this region and build consensus on policy and regulatory options which will be informed by stakeholder and scientific knowledge and by the joint development and use of a modeling tool. The Maryland Department of Natural Resources has agreed to evaluate the consensus recommendations that result.

The stakeholders participating on the workgroup will be representatives from the key interest groups that affect and are affected by the oyster fishery. Researchers from the University of Maryland Center for Environmental Science and the Virginia Institute of Marine Science will serve as consultants to the stakeholders. Professional independent facilitators with experience in fisheries issues will convene the stakeholder meetings. The facilitators will ensure that a consensus-based approach which includes the input of diverse stakeholders is used to develop the collective vision and recommended actions for a sustainable and profitable future for the oyster industry in the Choptank and Little Choptank Rivers.

PROJECT SUMMARY. Achieving effective natural resource management is challenging because of the multiple and often competing objectives of different stakeholder groups, a limited set of policy options, and uncertainty in the performance of those options. Yet, managers need policies that allow continued use of natural resources while ensuring access for future generations and maintenance of ecosystem services. Formal approaches are needed that will assist managers and stakeholders in choosing policy options that have a high likelihood of achieving social, ecological, and economic goals. The goal of this project, OysterFutures, is to address this need by improving the use of predictive models to support sustainable natural resource policy and management. A stakeholder-centered process will be used to build an integrated model that combines estuarine physics, oyster life history, and the ecosystem services that oysters provide (e.g., harvest, water quality) to forecast outcomes under alternative management strategies. Through a series of facilitated meetings, stakeholders will participate in a science-based collaborative process which will allow them to project how well policies are expected to meet their objectives using the integrated model. This iterative process will ensure that the model will incorporate the complex human uses of the ecosystem as well as focus on the outcomes most important to the stakeholders. In addition, a study of the socioeconomic drivers of stakeholder involvement, information flow, use and influence, and policy formation will be undertaken to improve the process, enhance implementation success of recommended policies, and provide new ideas for integrating natural and social sciences, and scientists, in sustainable resource management. In this presentation, the strategy for integrating natural system models, stakeholder views, and sociological studies as well as methods for selecting stakeholders and facilitating stakeholder meetings will be described and discussed.

Appendix #5 OysterFutures Workgroup Meeting Schedule

PROJECT SCHEDULE

WORKGROUP MEETING SCHEDULE		
MEETING SCHEDULE—2016 AND 2017		
I.	February 26-27, 2016	Horn Point Laboratory
II.	April 30 – May 1, 2016	Horn Point Laboratory
III.	September 10 - 11, 2016	Horn Point Laboratory
IV.	January 20 – 21, 2017	Horn Point Laboratory
V.	March 24 – 25, 2017 (Management Options)	Horn Point Laboratory
VI.	TBD	
VII.	TBD	
VIII.	TBD	

PROJECT WEBPAGE (URL): http://northweb.hpl.umces.edu/research/OysterFutures.html
PROJECT FACILITATION: The meetings are facilitated by Jeff Blair and Bob Jones from the FCRC Consensus Center at Florida State University. Information at: http://consensus.fsu.edu/

FCRC CONSENSUS CENTER

Appendix #6 OysterFutures Workgroup Consensus Guidelines

WORKGROUP CONSENSUS-BUILDING PROCEDURES

DEFINITIONS

Consensus is a **Process,** an **Attitude** and an **Outcome**. Consensus processes have the potential of producing better quality, more informed and better-supported outcomes.

As a **Process**, consensus is a problem solving approach in which all members:

- Jointly share, clarify and distinguish their concerns;
- Educate each other on substantive issues;
- Jointly develop alternatives to address concerns; and then
- Seek to adopt recommendations everyone can embrace or at least live with.

In a consensus process, members should be able to honestly say:

- I believe that other members understand my point of view;
- I believe I understand other members' points of view; and
- Whether or not I prefer this decision, I support it because it was arrived at openly and fairly and because it is the best solution we can achieve at this time.

Consensus as an **Attitude** means that each member commits to work toward agreements that meet their own and other member needs and interests so that all can support the outcome.

Consensus as an **Outcome** means that agreement on decisions is reached by all members or by a significant majority of members after a process of active problem solving. In a consensus outcome, the level of enthusiasm for the agreement may not be the same among all members on any issue, but on balance all should be able to live with the overall package.

Levels of consensus on a committee outcome can include a mix of:

- Participants who strongly support the solution;
- Participants who can "live with" the solution; and
- Some participants who do not support the solution but agree not to veto it.

For Workgroup purposes, **consensus recommendations** shall be defined as any option/recommendation achieving a 75% or greater number of 4s and 3s in proportion to 2s and 1s based on the results of all members present and voting.

WORKGROUP CONSENSUS-BUILDING PROCEDURES

The OysterFutures Workgroup (Workgroup) will seek consensus on its recommendations for options to be evaluated using the Project's Model. General consensus is a participatory process whereby, on matters of substance, the members strive for agreements which all of the members can accept, support, live with or agree not to oppose. In instances where, after vigorously exploring possible ways to enhance the members' support for the final package of recommendations, and the Workgroup finds that 100% acceptance or support is not achievable, final consensus recommendations will require at least 75% favorable vote of all members present and voting. This super majority decision rule underscores the importance of actively developing consensus throughout the process on substantive issues with the participation of all members and which all can live with. In instances where the Workgroup finds that even 75% acceptance or support is not achievable, publication of recommendations will include documentation of the differences and the options that

were considered for which there is more than 50% support from the Workgroup. The report that will be a product of the Workgroup process will clearly describe the level of agreement between Workgroup members on each specific recommendation as well as on the suite of recommendations as a whole.

The Workgroup will develop its recommendations using consensus-building techniques with the assistance of the facilitators. Techniques such as brainstorming, ranking and prioritizing approaches will be utilized. The Workgroup's consensus process will be conducted as a facilitated consensus-building process. Workgroup members, staff, and facilitators will be the only participants seated at the table. Only Workgroup members may participate in discussions and vote on proposals and recommendations. The facilitators, or a Workgroup member through the facilitators, may request specific clarification from a member of the public in order to assist the Workgroup in understanding an issue. Observers/members of the public are welcome to speak during the public comment period provided at each meeting, and all comments submitted on the public comment forms provided in the agenda packets will be included in the facilitators' summary reports.

Facilitators will work with OysterFutures research team and Workgroup members to design agendas that will be both efficient and effective. The OysterFutures research team will help the Workgroup with information and meeting logistics.

To enhance the possibility of constructive discussions as members educate themselves on the issues and engage in consensus-building, members agree to refrain from public statements that may prejudge the outcome of the Workgroup's consensus process. In discussing the Workgroup process with the media, members agree to be careful to present only their own views and not the views or statements of other participants. In addition, in order to provide balance to the Workgroup process, members agree to represent and consult with their stakeholder interest groups.

ACCEPTABILITY RATING SCALE FOR OPTIONS AND RECOMMENDATIONS

During the evaluation of proposed options Workgroup members will be asked to develop and rate the acceptability of options. Members with concerns about an option should be prepared to offer specific refinements or changes to address reservations. Following discussion and refinement, members may be asked to do additional acceptability ratings of an option or options if requested. In general, 4s and 3s are in favor of an option and 2s and 1s are opposed. Once rated for acceptability, options(s) with a 75% or greater number of 4s and 3s in proportion to 2s and 1s will be considered preliminary consensus recommendations for inclusion in the final package of recommendations.

At any point during the process, any option may be re-evaluated and rated at the request of any Workgroup member. The status of a rated option will not be final until the final Workgroup meeting, when a vote will be taken on the entire package of consensus ranked recommendations.

The following scale will be utilized for acceptability rating exercises:

Acceptability Rating Scale	***4 = Acceptable,*** *I agree*	***3 = Acceptable,*** *I agree with* ***minor reservations***	***2 = Not Acceptable, I*** *don't agree unless* ***major reservations*** *addressed*	***1 = Not Acceptable***