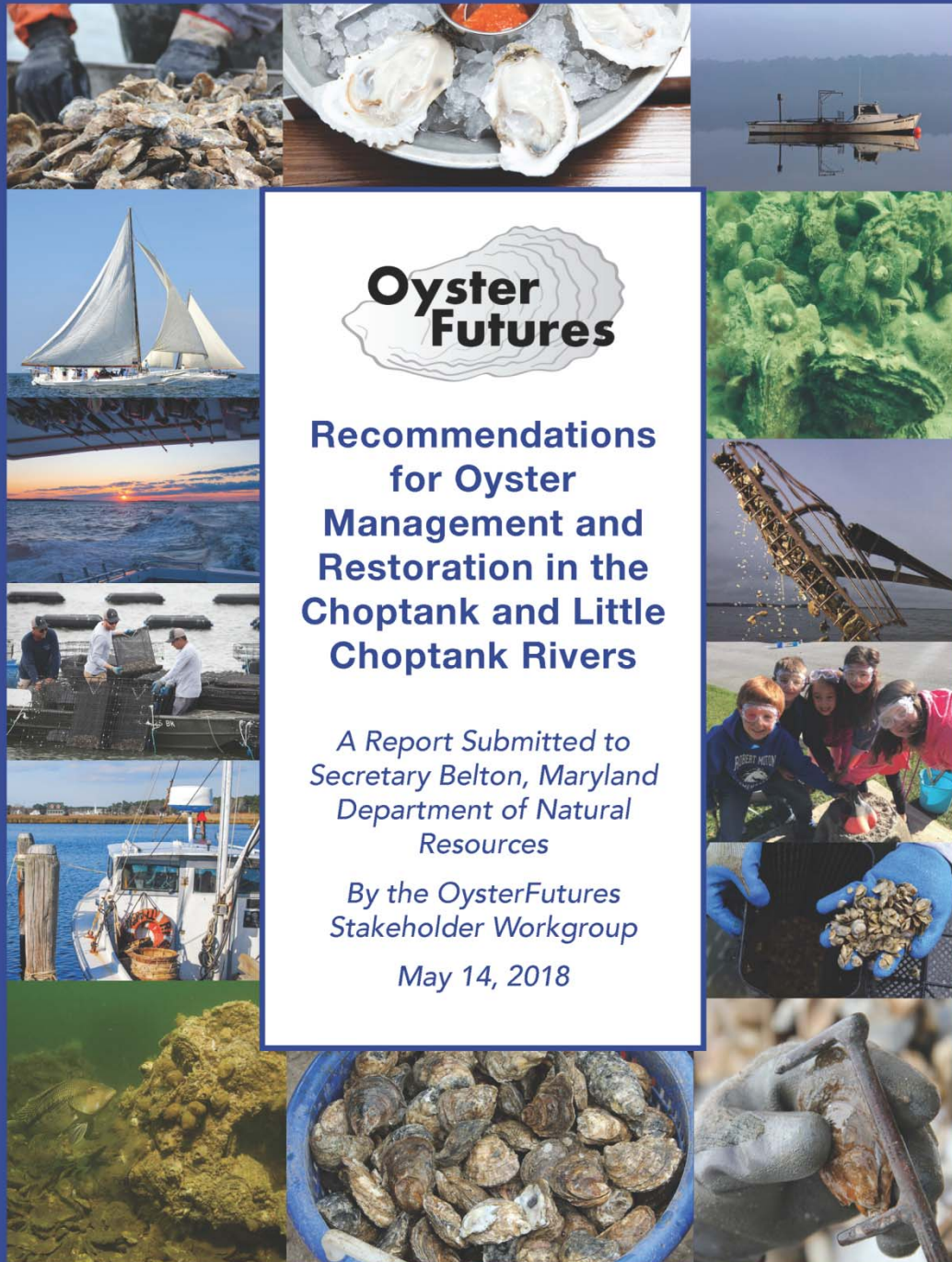




Presented by  
**Elizabeth North and Michael Wilberg**  
University of Maryland  
Center for Environmental Science

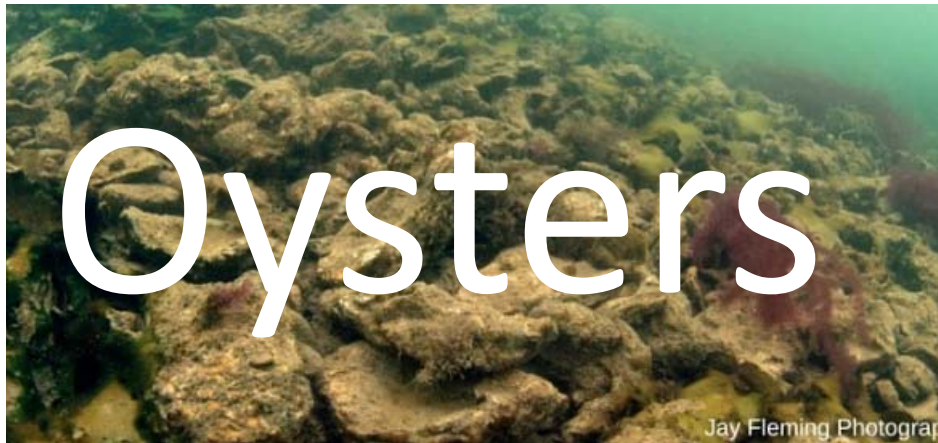


**Recommendations  
for Oyster  
Management and  
Restoration in the  
Choptank and Little  
Choptank Rivers**

*A Report Submitted to  
Secretary Belton, Maryland  
Department of Natural  
Resources*

*By the OysterFutures  
Stakeholder Workgroup*

*May 14, 2018*





# Decline



△ A lot of shell today

# Restoration





# Conflict



[BREAKING NEWS](#) [E-NEWSPAPER](#) [CONTACT US](#) [AD CIRCULARS](#) [CALENDAR](#)  73°

## As oyster planting season ends, debate over Maryland's beloved bivalve continues

By Alex Mann, August 13, 2017



Transferring data from metrics.brightcove.com...

# But, what if your stakeholders could agree?

- To finish large-scale restoration

- To open some sanctuaries

- To keep some closed

- To plant reefballs

- To enhance enforcement

- To consider, coordinate, & educate

- And more ...

# They did.



## OysterFutures Stakeholders

## How did this happen?



# The *Consensus Solutions* process applied to fishing regulations and restoration policies



OysterFutures Stakeholders and Research Team



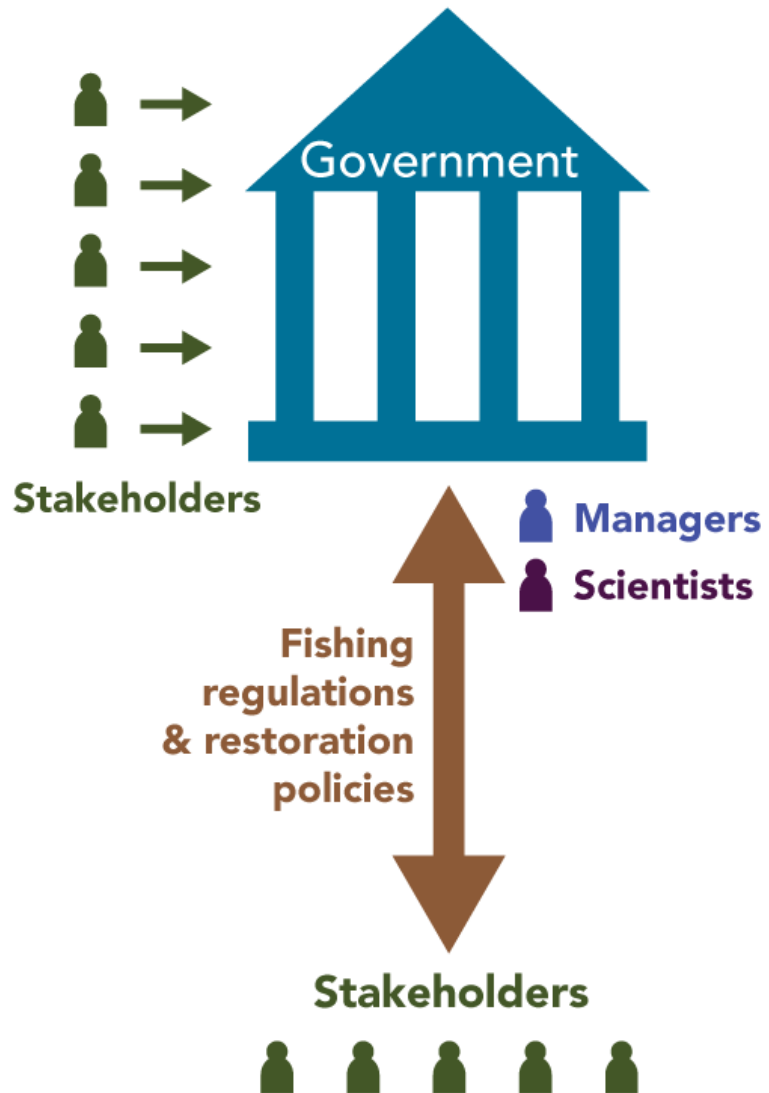
## OysterFutures

is a research program that tested  
the *Consensus Solutions* process

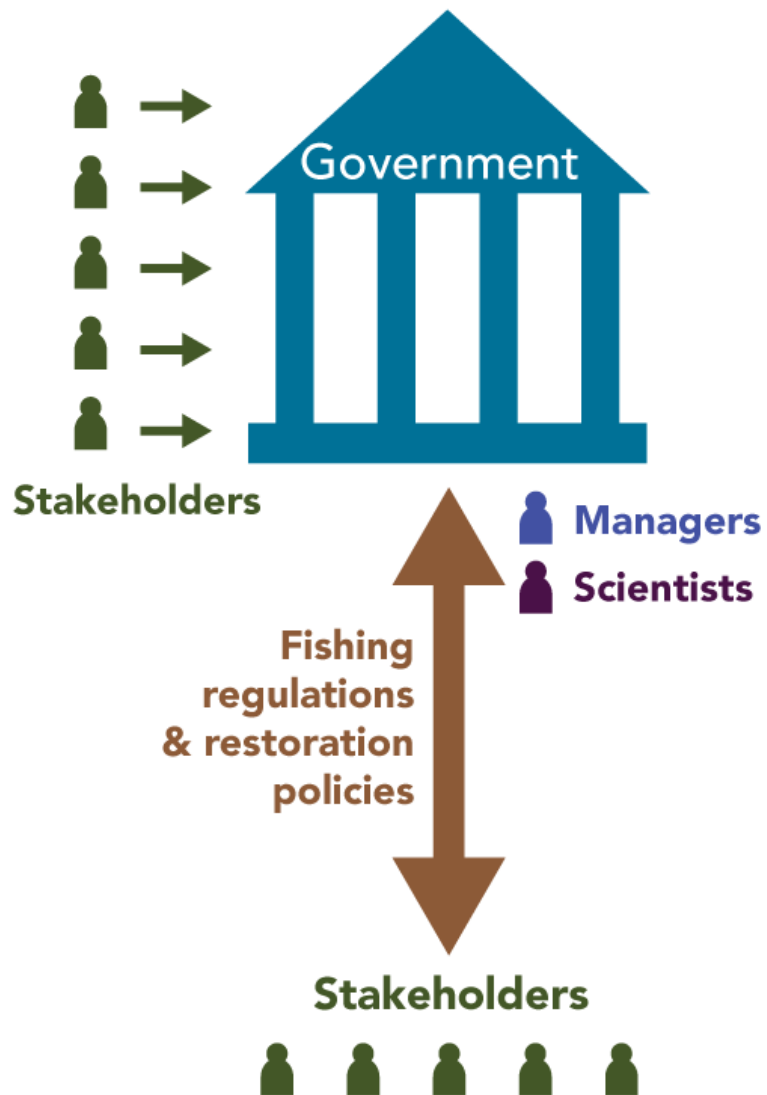




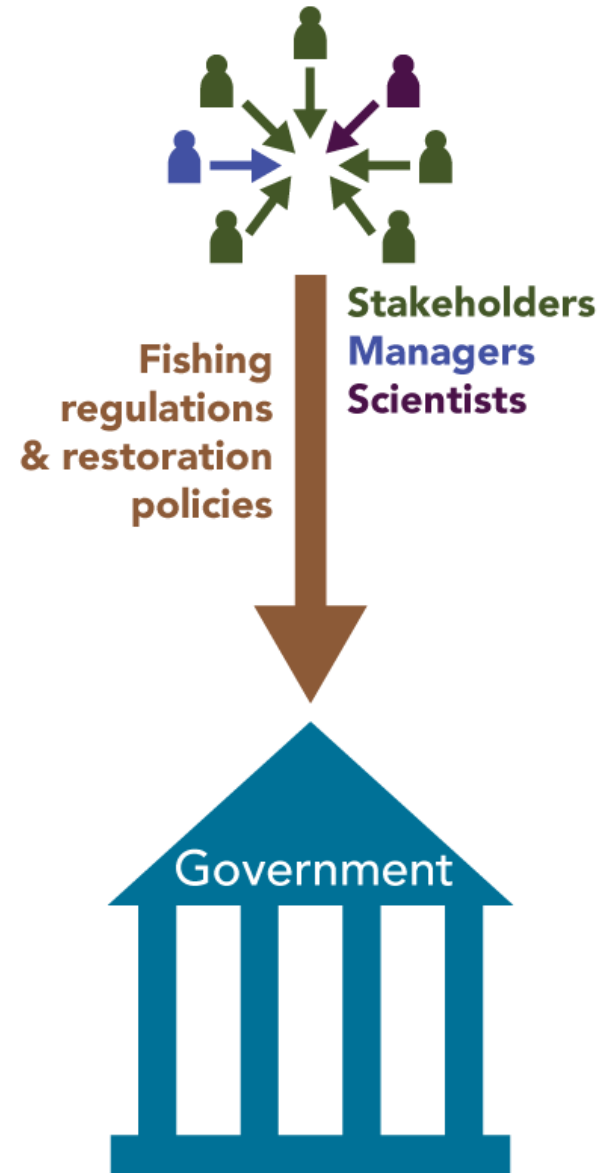
## Current process for making oyster policies



## Current process for making oyster policies



## Consensus Solutions process







**Objective:** test the  
*Consensus Solutions*  
process for developing  
fishing regulations and  
restoration policies

**Study Site:** Choptank and  
Little Choptank Rivers



# Stakeholder Workgroup

Workgroup has 16 members:

- 6 commercial fishers
- 1 oyster buyer
- 2 aquaculturists
- 5 nonprofit group representatives
- 2 agency representatives

Invitations to participate based on phone interviews during which we asked for names of people who are *well respected, knowledgeable, and collaborative*



## OysterFutures Stakeholder Workgroup

60% Industry

40% Citizen, Nonprofit, and Government

### Watermen

- **J.D. Buchanan**, Talbot County
- **Robbie Casho**, Dorchester County
- **Jeff Harrison**, Talbot County, President  
Talbot Waterman's Association
- **Gregory Kemp**, Talbot County, President  
Talbot Seafood Heritage Association
- **Cody Paul**, Dorchester County, Dorchester  
Shell Committee Chair
- **Robert Whaples**, Dorchester County,  
President Dorchester Seafood Heritage  
Association

### Aquaculturalists

- **Bobby Leonard** [Mary-Julia DuBois  
alternate], Tred Avon Treats, Ruff-N-Ready,  
LLC.
- **Johnny Shockley**, Hoopers Island Oyster  
Aquaculture Co.

### Seafood Buyer

- **Aubrey Vincent**, Lindy's Seafood

### Citizen Groups

- **Allison Colden**, Chesapeake Bay  
Foundation
- **Kelly Cox**, Phillips Wharf Environmental  
Center
- **Joe Fehr**, The Nature Conservancy
- **David Sikorski**, Coastal Conservation  
Association

### Nonprofit

- **Ward Slacum**, Oyster Recovery  
Partnership

### Government Agency

- **Dave Blazer** [Chris Judy alternate], MD  
Department of Natural Resources
- **Stephanie Westby**, NOAA



## OysterFutures Stakeholders February 27, 2016

Their goal: an economically viable,  
healthy and sustainable Choptank  
and Little Choptank Rivers  
oyster fishery and ecosystem





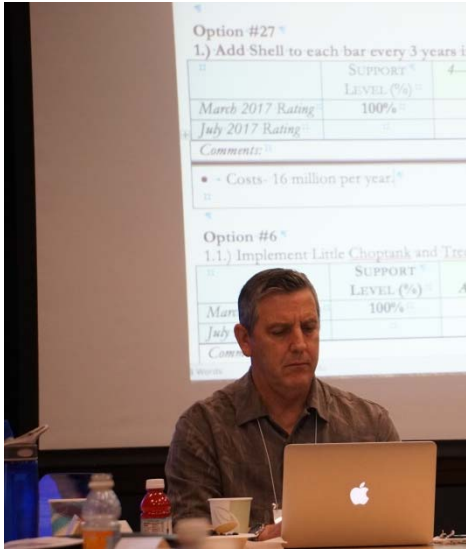
# Still Smiling



March, 2018



# Listening, thinking, working together



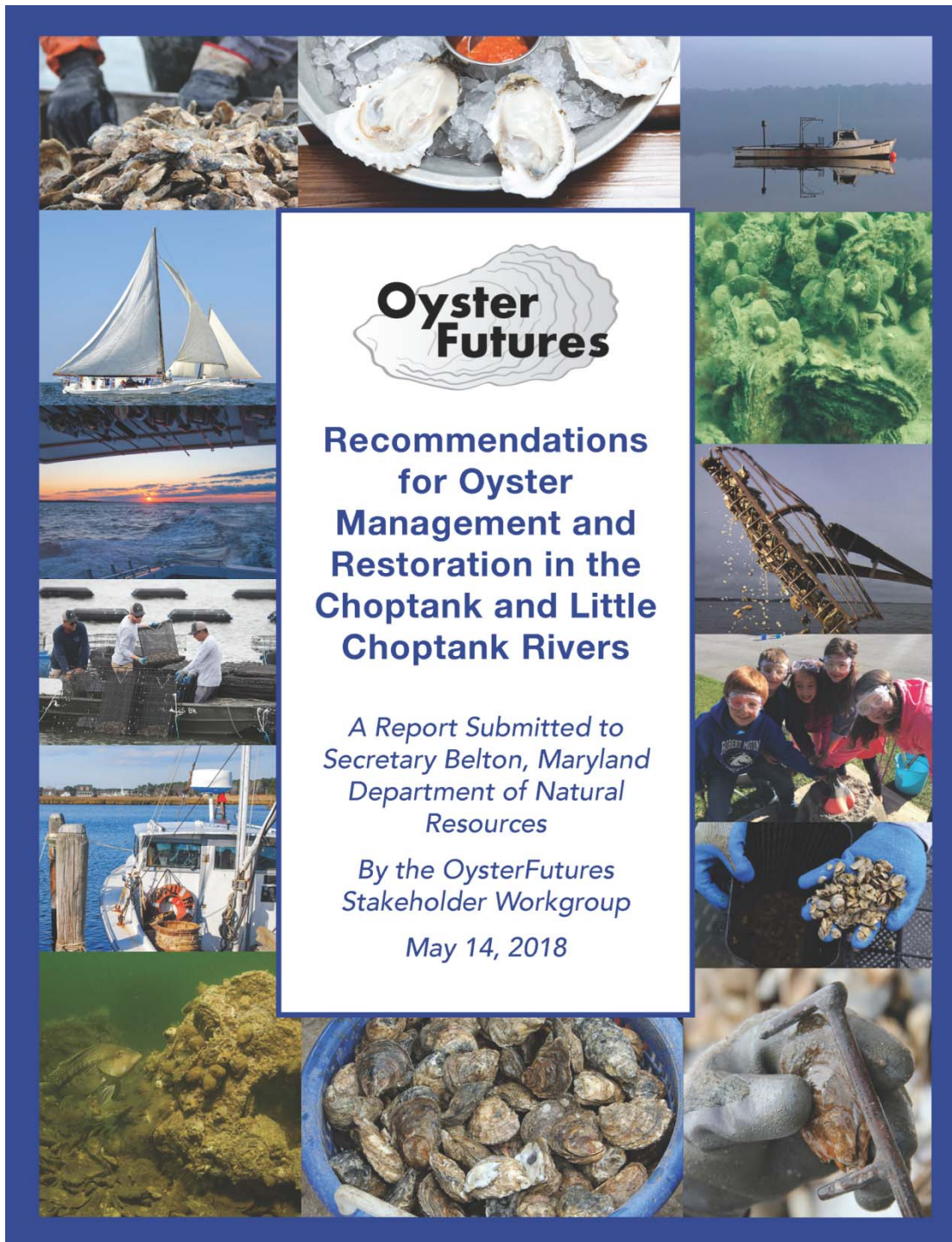
## Key Points

- Consensus-driven
- Facilitated
- 60% Industry
- 75% Agreement
- Science-based



Photos by  
Dylan Taillie and Emily Nastase





## *Package* of Consensus Recommendations

The stakeholders  
recommend *all* of the  
recommendations  
and  
recommend  
*continuing to work  
with stakeholders.*



## MANAGEMENT RECOMMENDATIONS

### A. THE NEED FOR CHANGE

The OysterFutures Workgroup recommends that DNR take swift and positive action to change existing regulations and policies regarding oyster management in the Choptank and Little Choptank Rivers. Maintaining the Status Quo (current regulations and policies) does not benefit the oyster resource or the ecosystem and human economies that depend on it. Change is needed.

### B. ENFORCEMENT RECOMMENDATIONS

The OysterFutures Workgroup reviewed enforcement options that could be modeled to determine their impact on oyster abundance, habitat, and harvest. The Workgroup found that enforcement and compliance play an important role in ensuring the protection of the oyster resource, and has the following recommendations:

1. In consultation with oyster resource stakeholders, DNR should enhance enforcement presence on the water, address noncompliance by providing funding to increase the numbers and training of compliance officers, and support strategies such as checking oysters where they are bought.
2. To enhance compliance, DNR should modify regulations so a single oyster bar is not divided between gear types, or where parts are open and other parts are closed.
3. To help inform and guide oyster resource participants in the Choptank system, DNR should address, correct and update DNR oyster resource mapping issues such as bottom mapping to better define oyster bars, and provide electronic maps that could be used with GPS chart programs.
4. DNR should provide the necessary resources to make its website more user friendly.
5. To protect the oyster resource, oyster populations, and the oyster industry, DNR should strive for full compliance with the current size laws and sanctuary regulations.

### C. LIMITED ENTRY RECOMMENDATION

The OysterFutures Workgroup discussed options for maintaining a level of fishing effort which would improve the long-term viability of the oyster fishery and the health of the oyster resource. The workgroup has the following recommendation:

1. Working together with oyster resource stakeholders, DNR should evaluate a limited entry oyster fishery that can provide access to watermen making the majority of their living from commercial fishing, enables generational succession in the fishery, and should have a way for new participants to gain entry that does not solely rely on having a large amount of capital.

### D. ROTATIONAL HARVEST RECOMMENDATION

The Workgroup evaluated opening portions of sanctuaries to rotational harvest where no restoration

## Consensus Recommendations

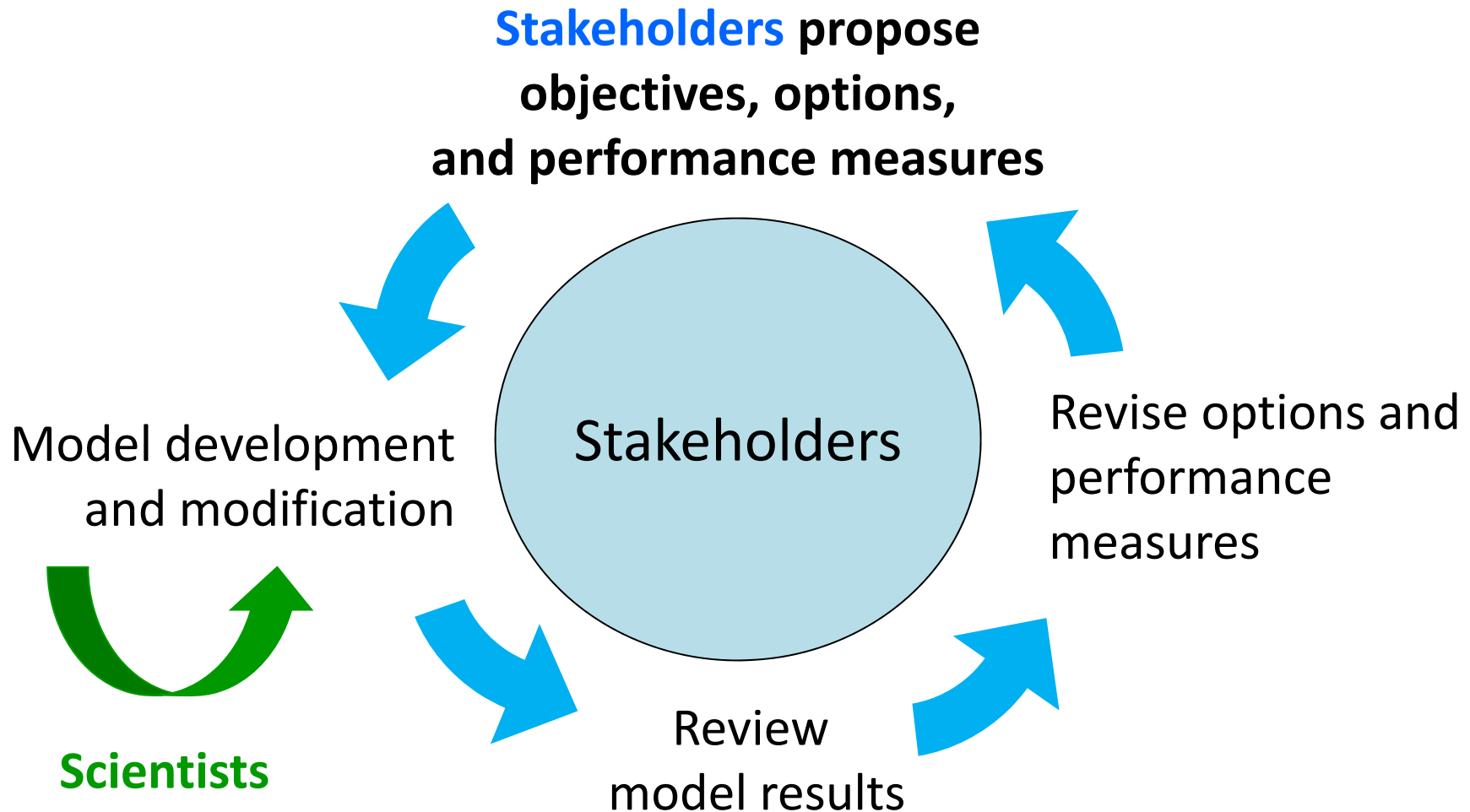
- Enhance **enforcement**
- Explore a **limited entry** program
- Allow **hand tonging in some sanctuary areas**
- **Plant more shell and spat**
- **Complete planned restoration**
- **Place privately-funded reef balls**
- Combine the above options
- Use *Consensus Solutions* in MD
- Develop cost effective strategies for shell and substrate
- Coordinate marketing and business plans
- Increase fees and taxes
- Promote education, training, and research



How did the collaborative OysterFutures  
simulation model help support these  
recommendations?

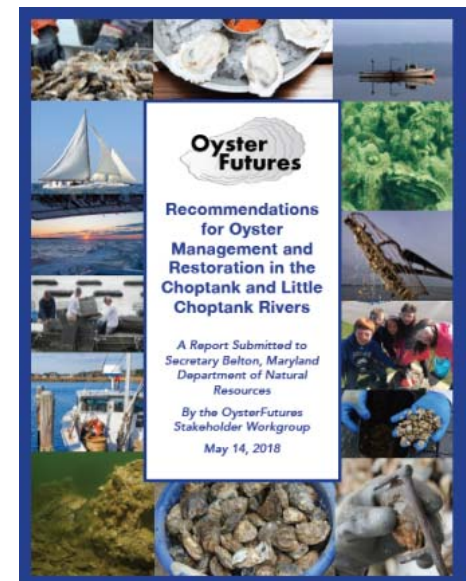
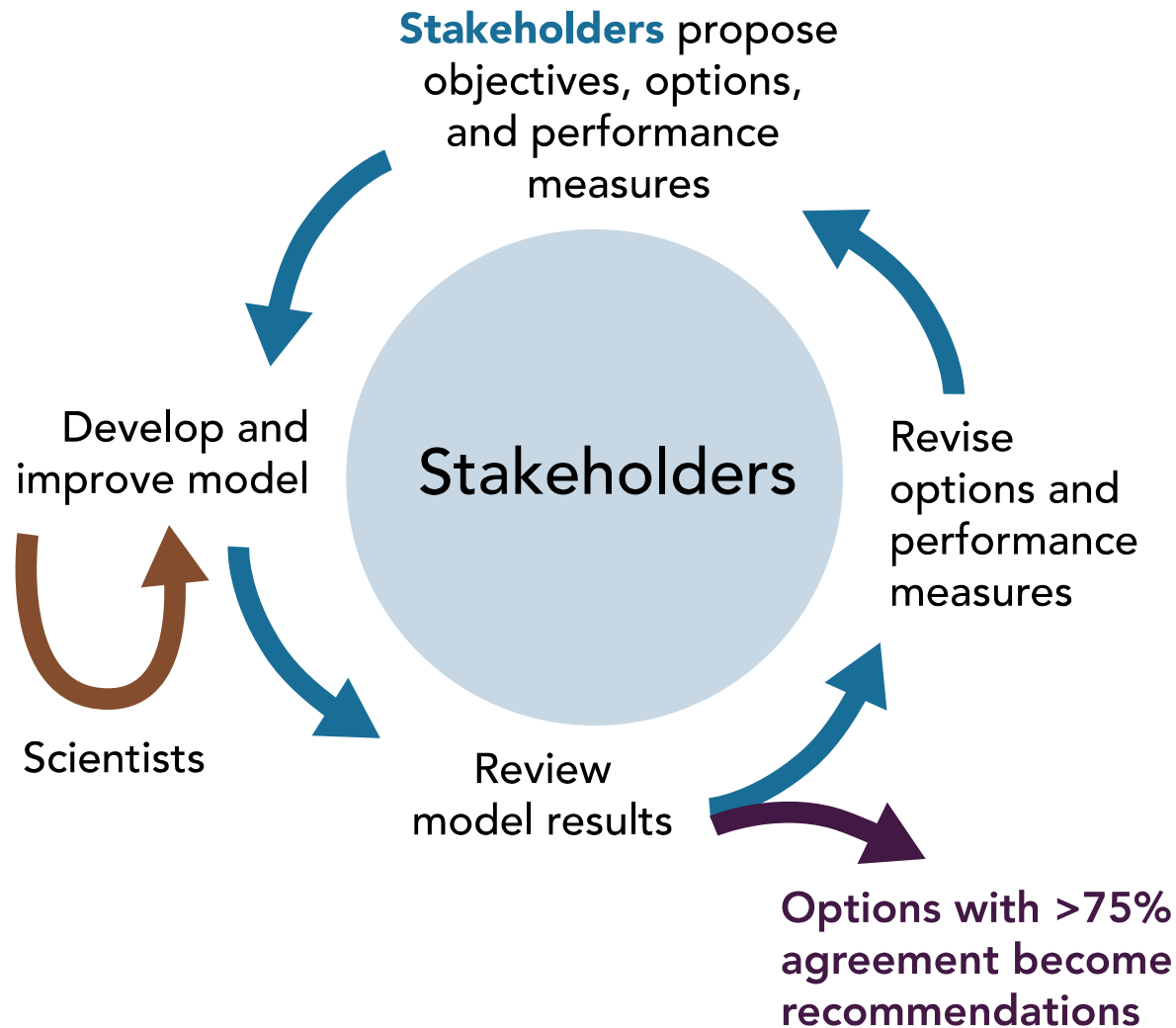
Mike Wilberg

# Stakeholder-centered approach

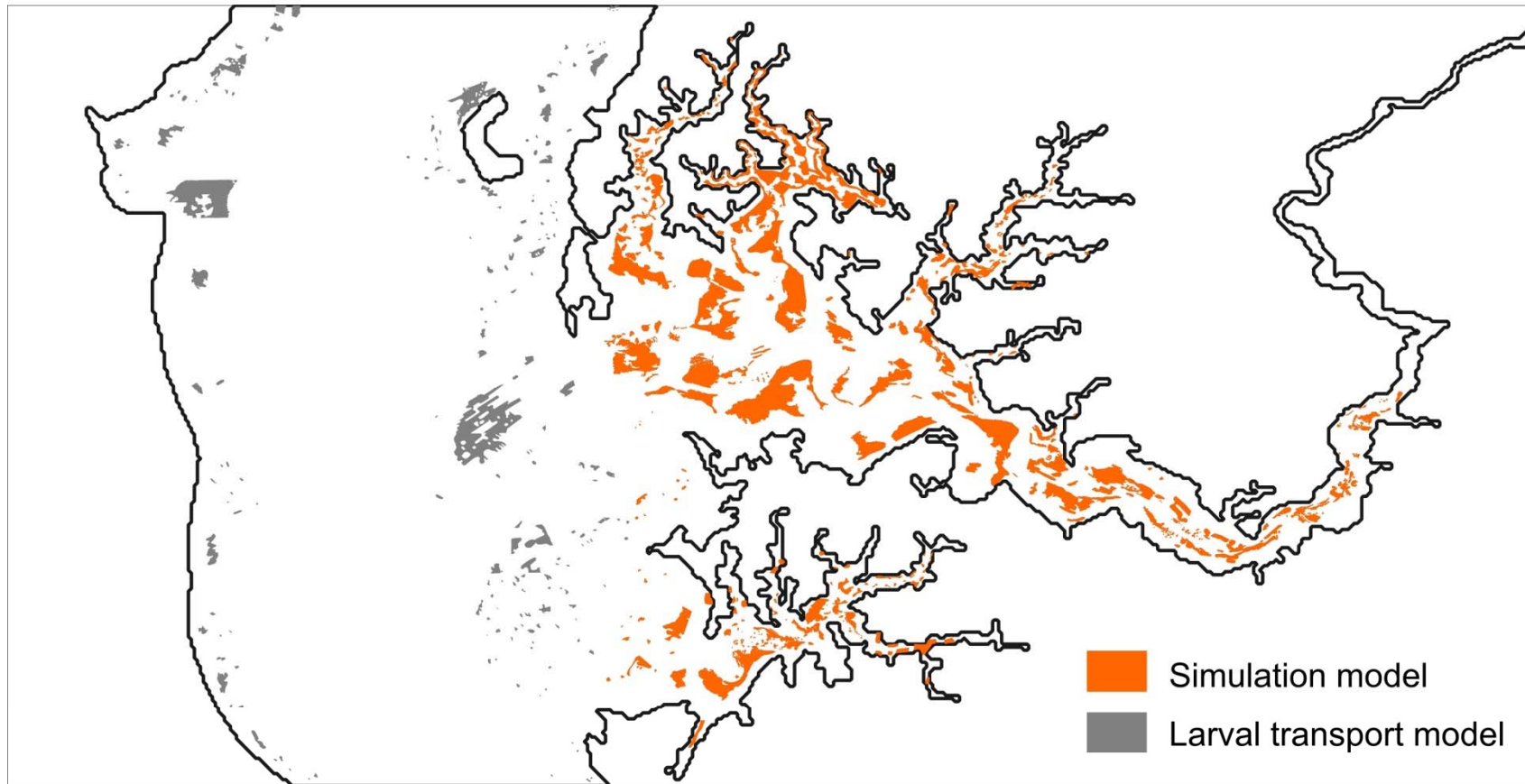




## Stakeholders are at the center of the *Consensus Solutions* process



## Oyster habitat in OysterFutures model

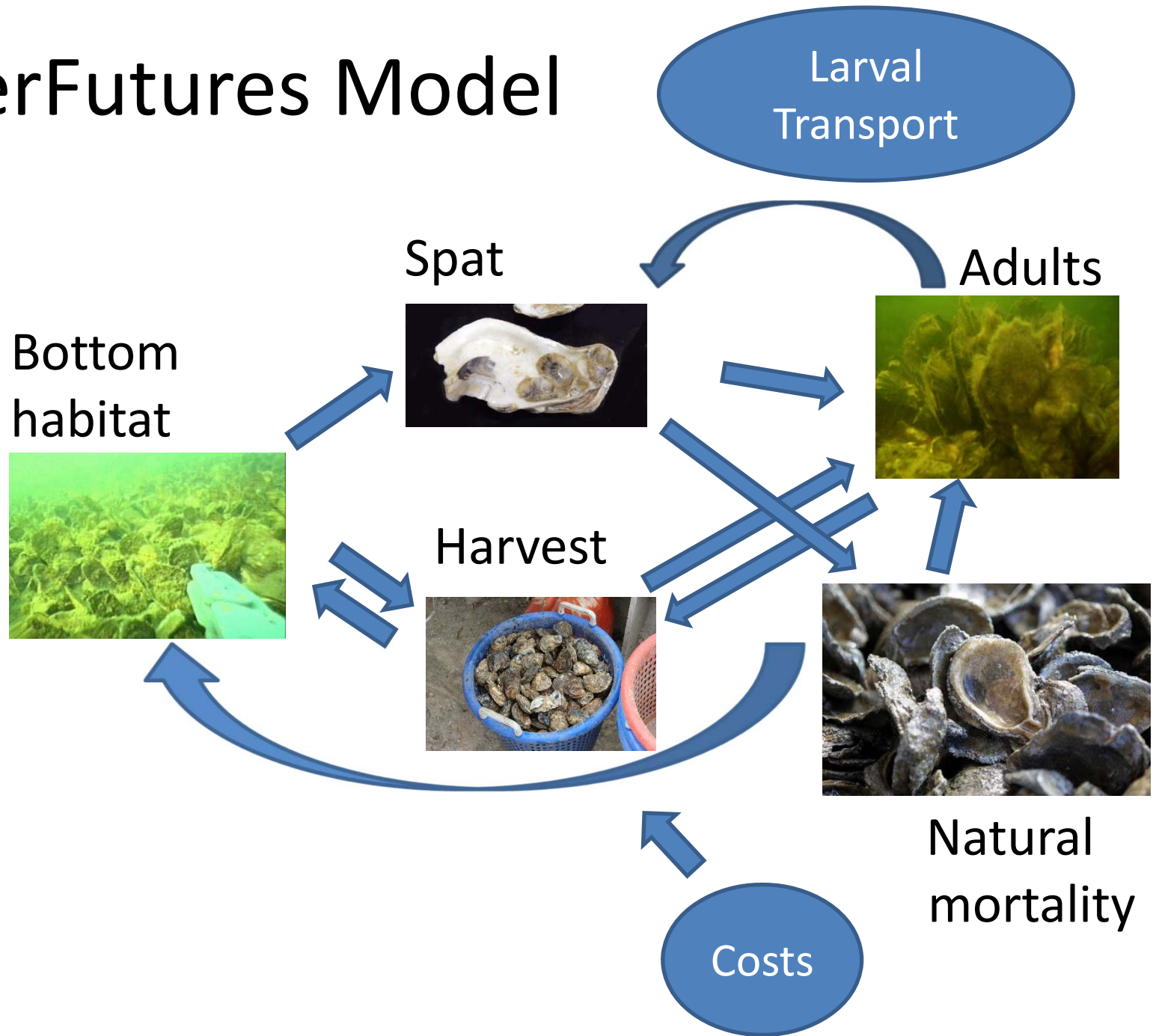


Based on:

- Acoustic (SONAR) mapping
- Stakeholder knowledge
- Maryland Bay Bottom Survey

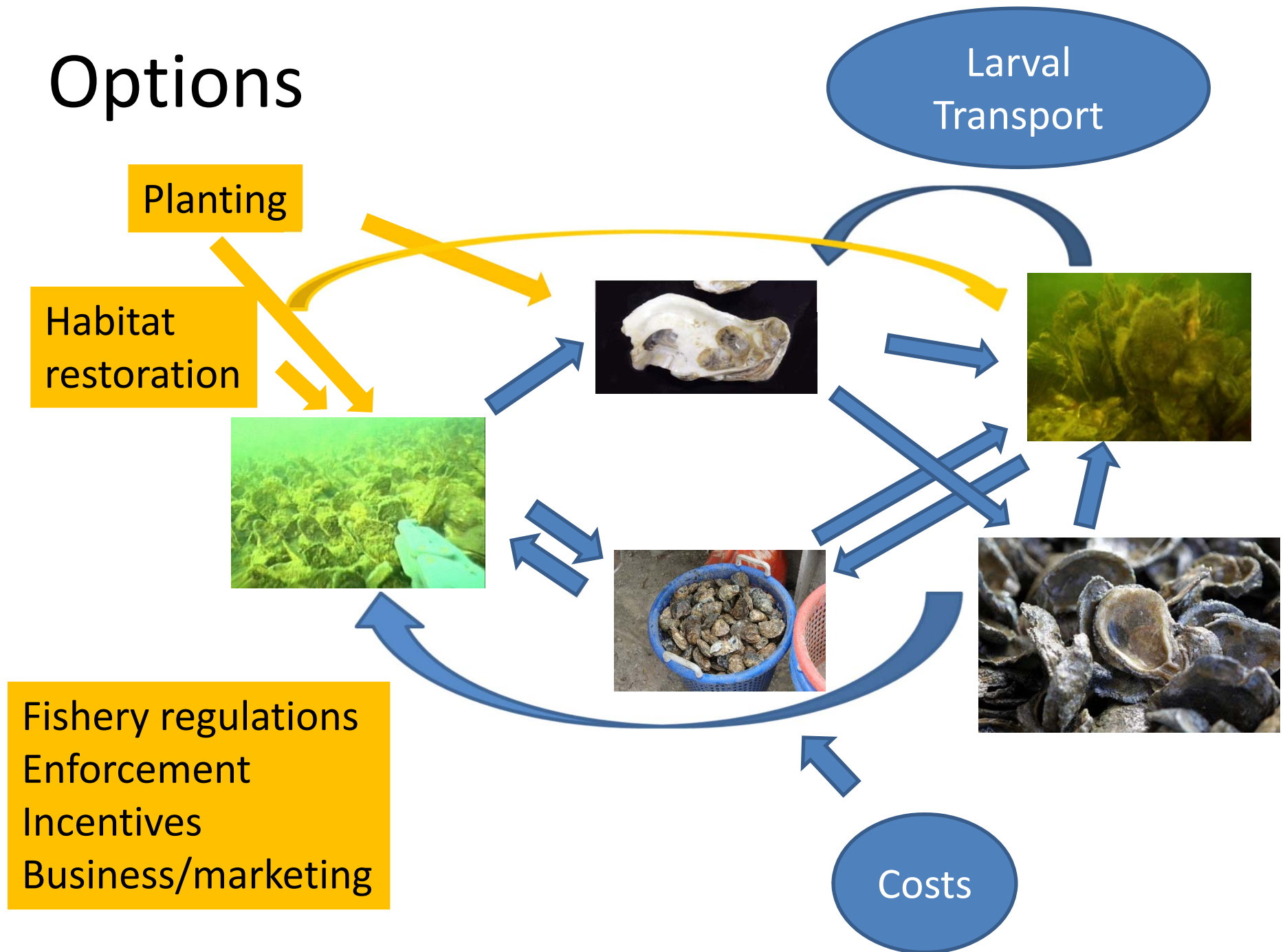
(Orange polygons are also  
in larval transport model)

# OysterFutures Model

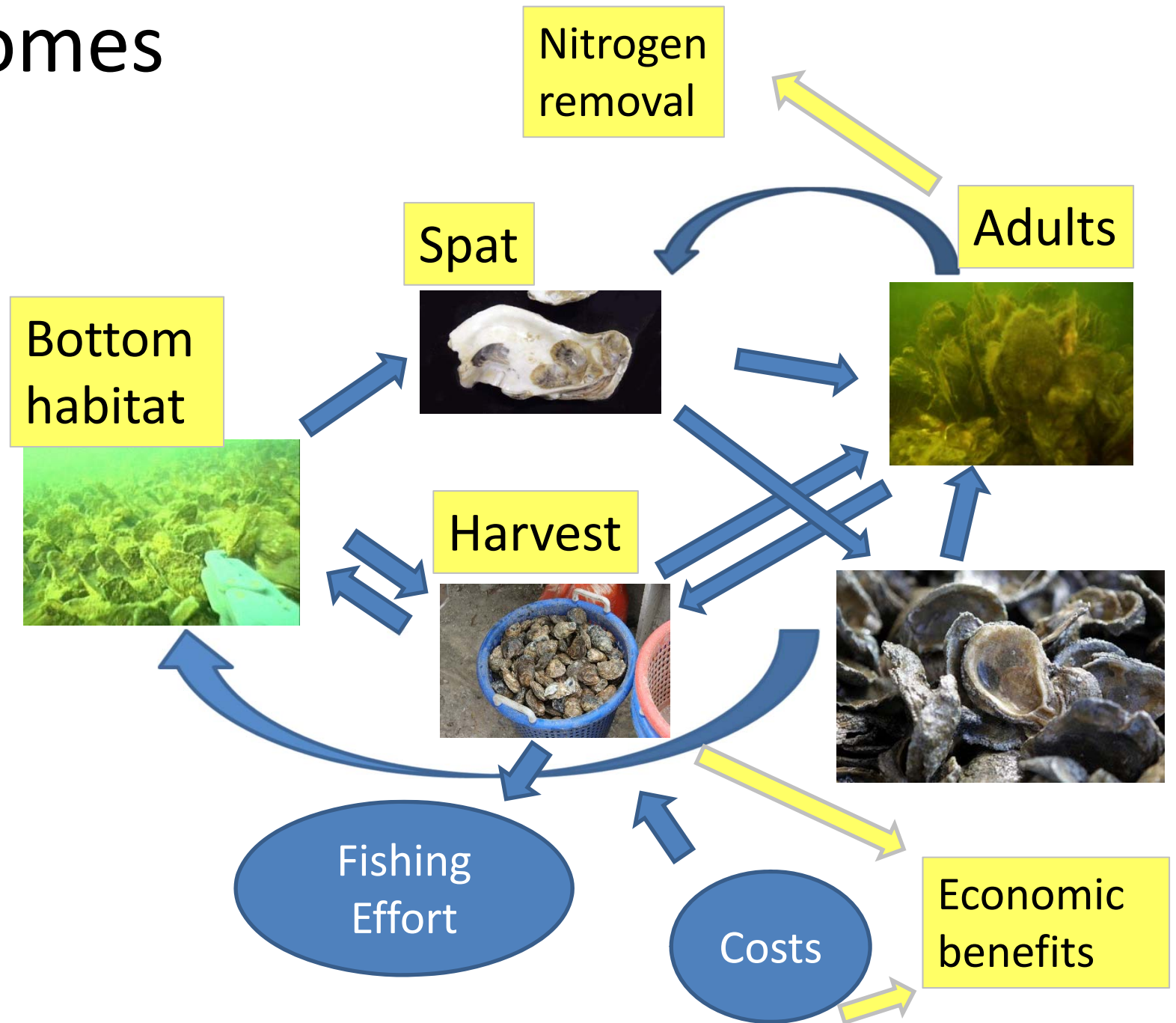




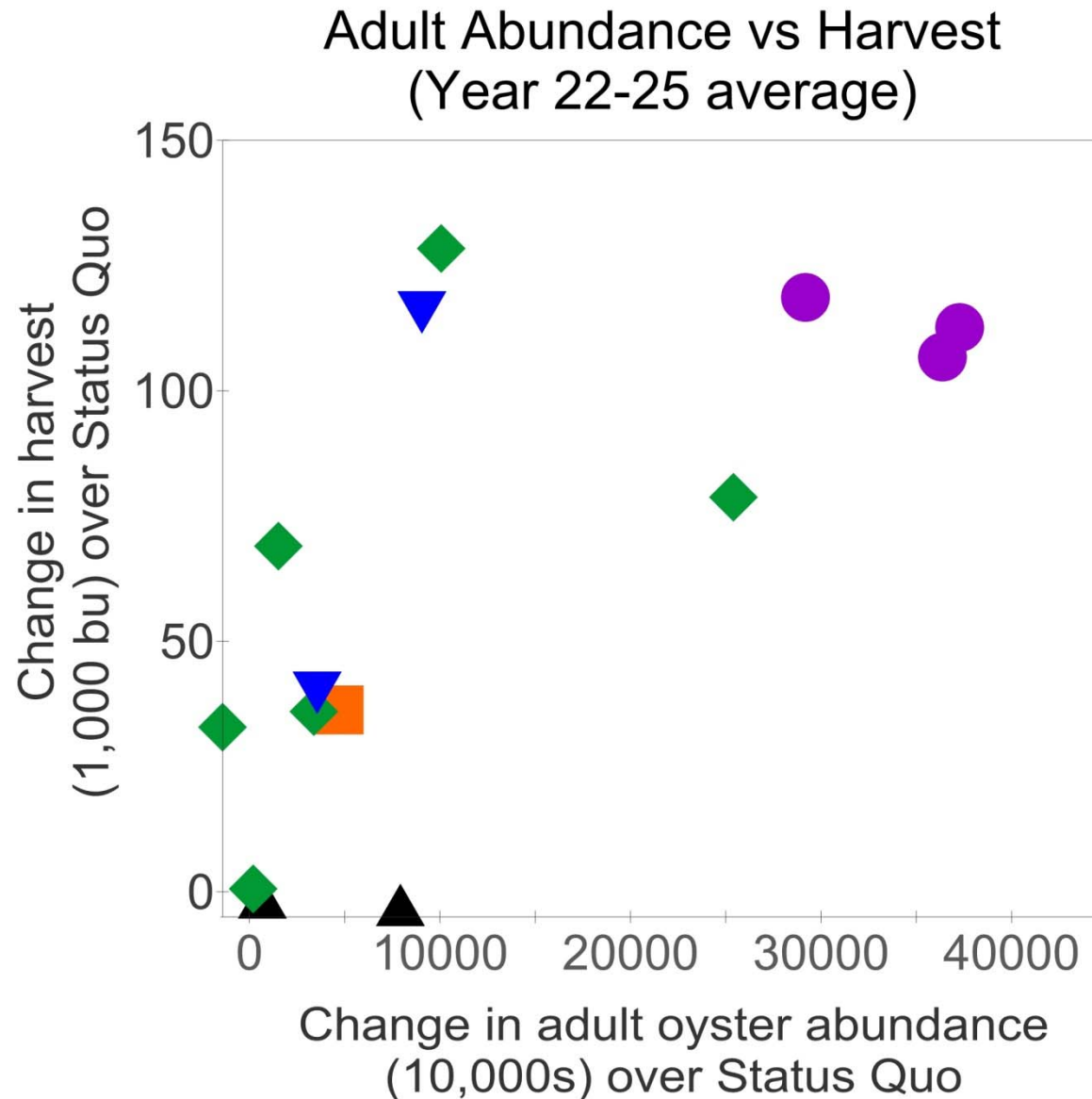
# Options



# Outcomes



## Win – win options exist: high abundances and high harvest



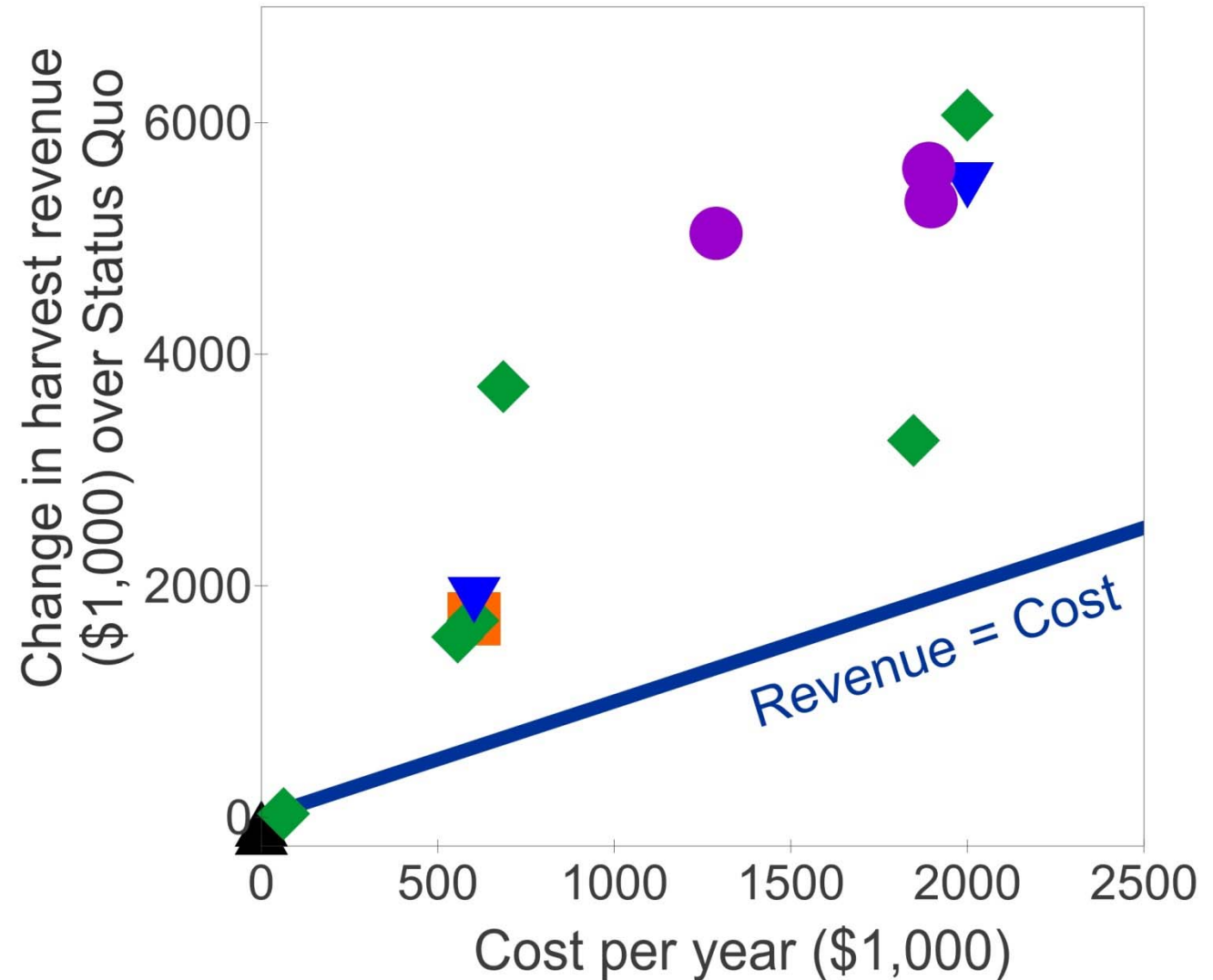
### Important note:

For most options, these strong positive benefits did not start to be realized until around 10 years after implementation.

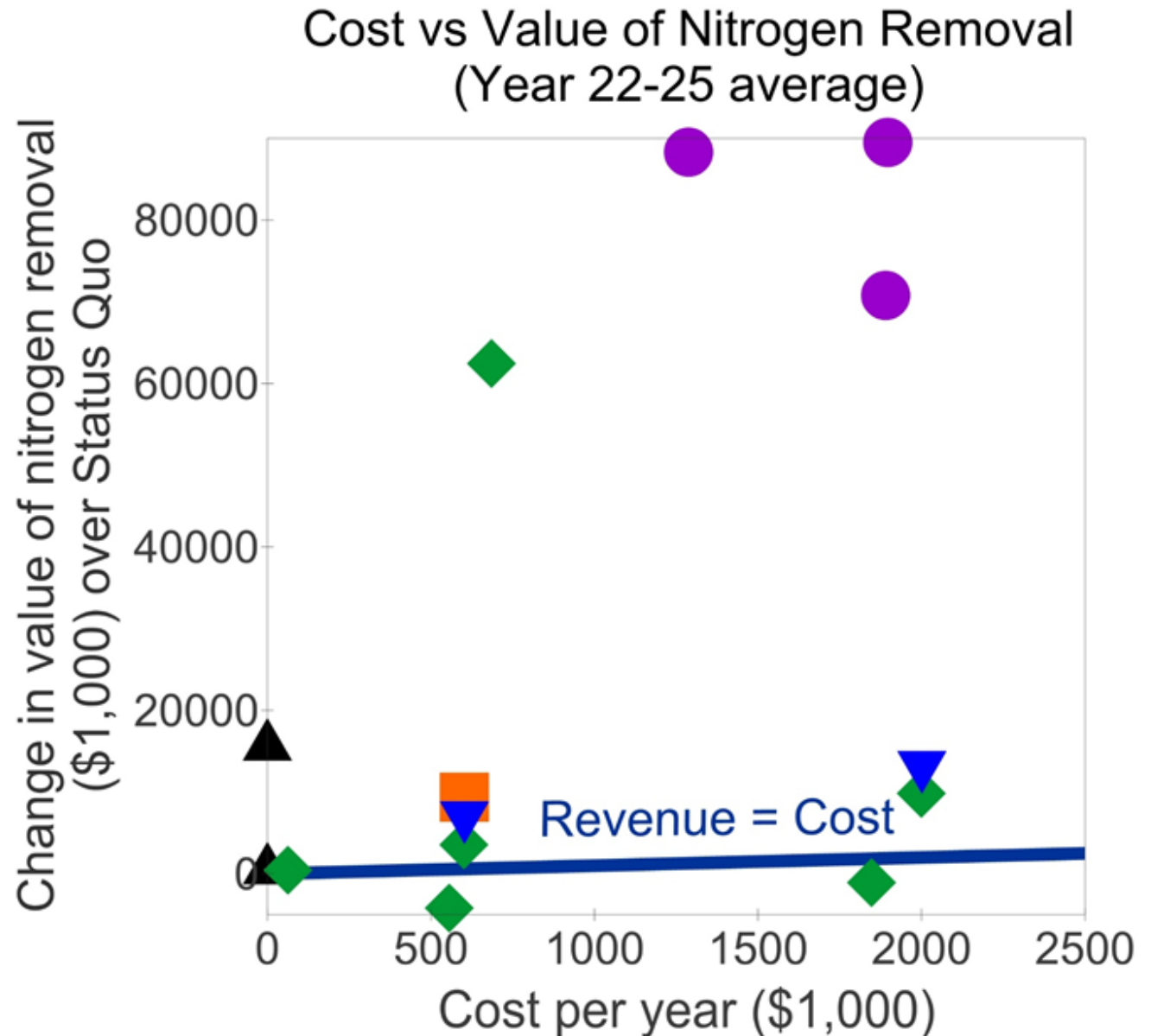


All but two  
scenarios showed  
increased revenues  
to watermen

Cost vs Harvest Revenue  
(Year 22-25 average)



All but two scenarios resulted in higher value of nitrogen removal compared to cost



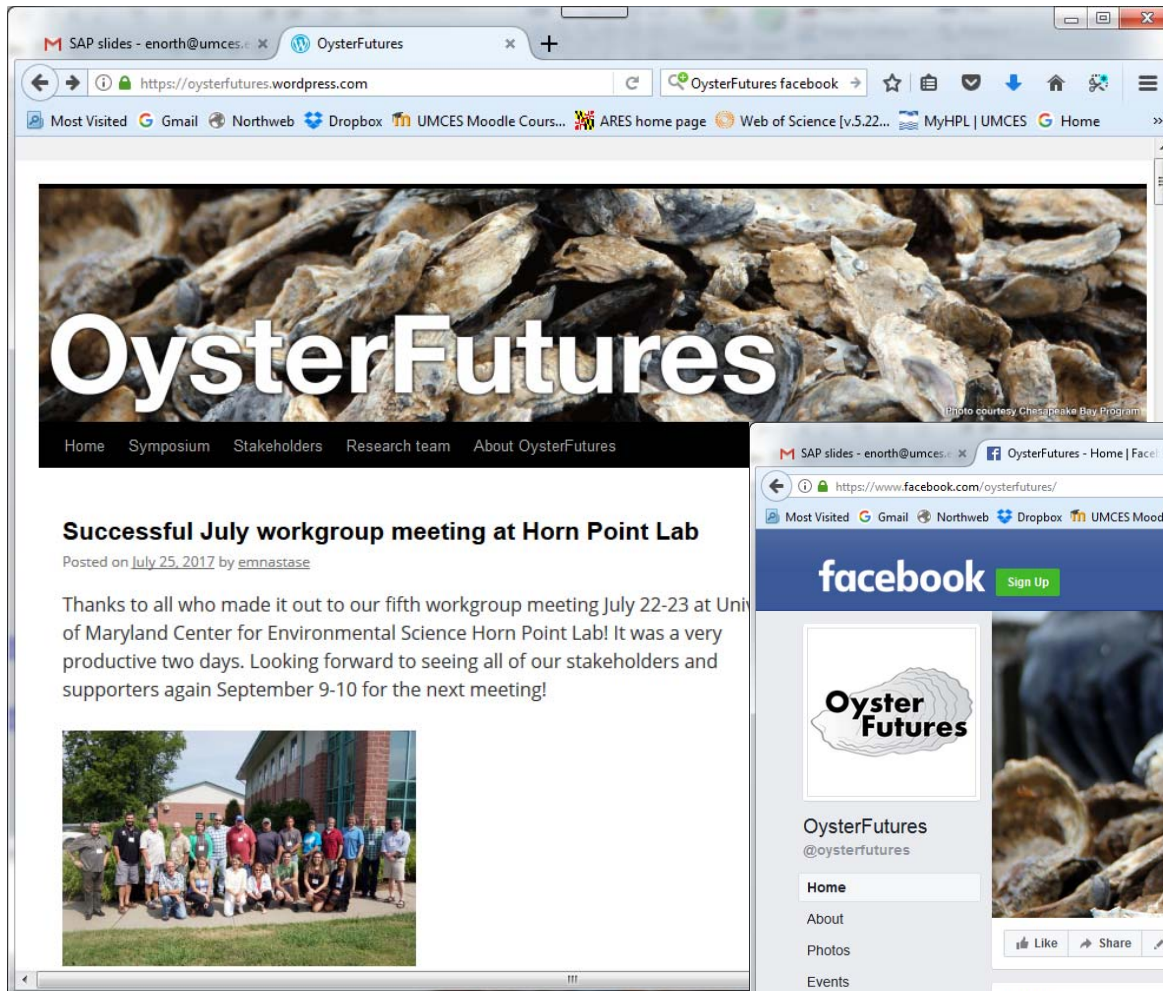
## Comments from participants:

- The right people were at the table
- The *Consensus Solutions* process promotes collaboration, creative problem solving, and sharing of knowledge
- This is the best process that we have ever experienced

Hopefully the State of MD will find the process and our stakeholders' recommendations useful.

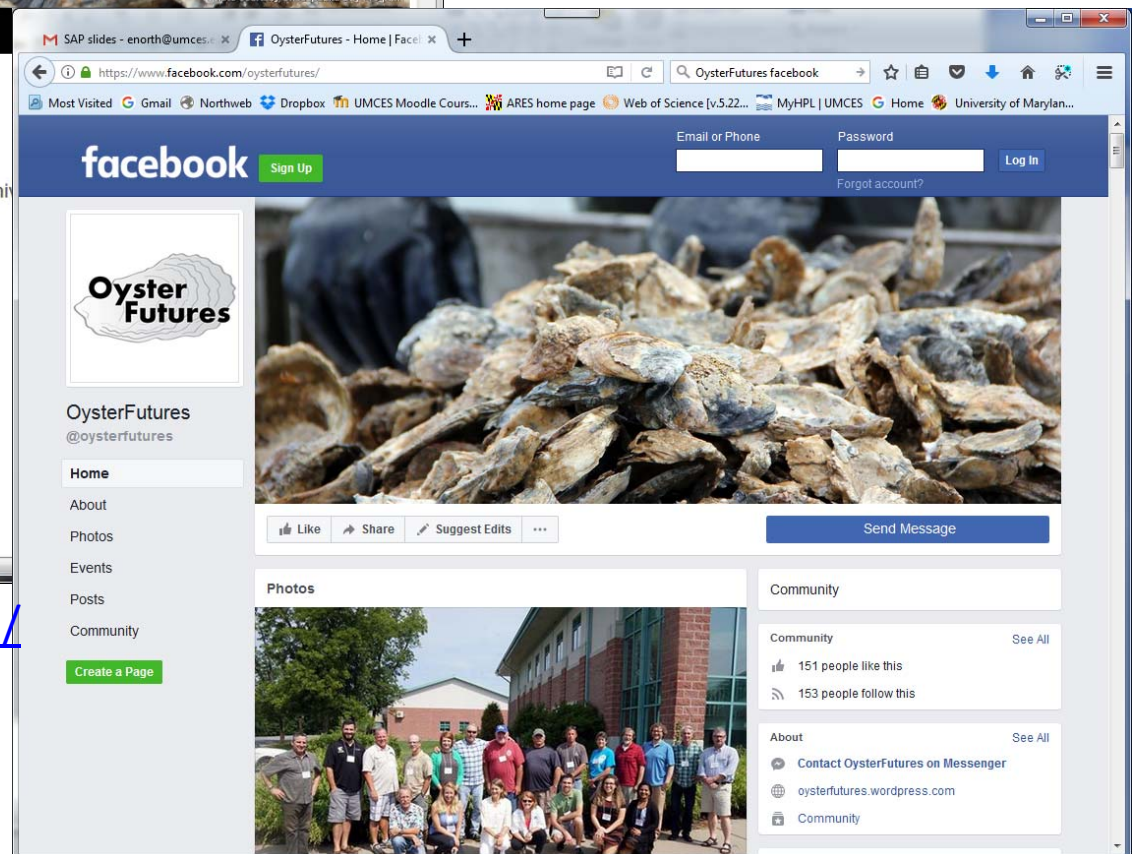






<https://oysterfutures.wordpress.com/>

More info  
on the web



[www.facebook.com/oysterfutures](http://www.facebook.com/oysterfutures)

# Questions, comments, advice?

**Many thanks to:**

---

OysterFutures Stakeholders and Horn Point Laboratory Staff

OysterFutures Research Team Members: Elizabeth North, Michael Wilberg, Jeff Blair, Jeffrey Cornwell, Troy Hartley, Raleigh Hood, Robert Jones, Lisa Wainger, Rasika Gawde, Chris Hayes, Melanie Jackson, Taylor Goelz, Matthew Damiano, Dylan Taillie, Emily Nastase



## **Images**

IAN symbol Library

Paynter Lab

## **Photos from websites:**

<https://oysterrecovery.org/oysters-101/>

[http://www.myeasternshoremd.com/news/caroline\\_county/article\\_453c31bc-49fe-11e2-bc83-001a4bcf887a.html](http://www.myeasternshoremd.com/news/caroline_county/article_453c31bc-49fe-11e2-bc83-001a4bcf887a.html)

[http://www.myeasternshoremd.com/stardem/news/local\\_news/article\\_dea5f6ed-175c-5b4a-9f72-7abb642ae2de.html](http://www.myeasternshoremd.com/stardem/news/local_news/article_dea5f6ed-175c-5b4a-9f72-7abb642ae2de.html)

<http://www.baltimorefishbowl.com/stories/maryland-crab-oyster-celebration-october-16-25/>