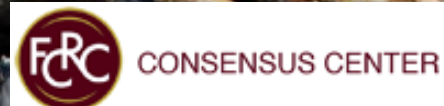


Oyster Futures

Michael Wilberg, Elizabeth North, 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 Natase

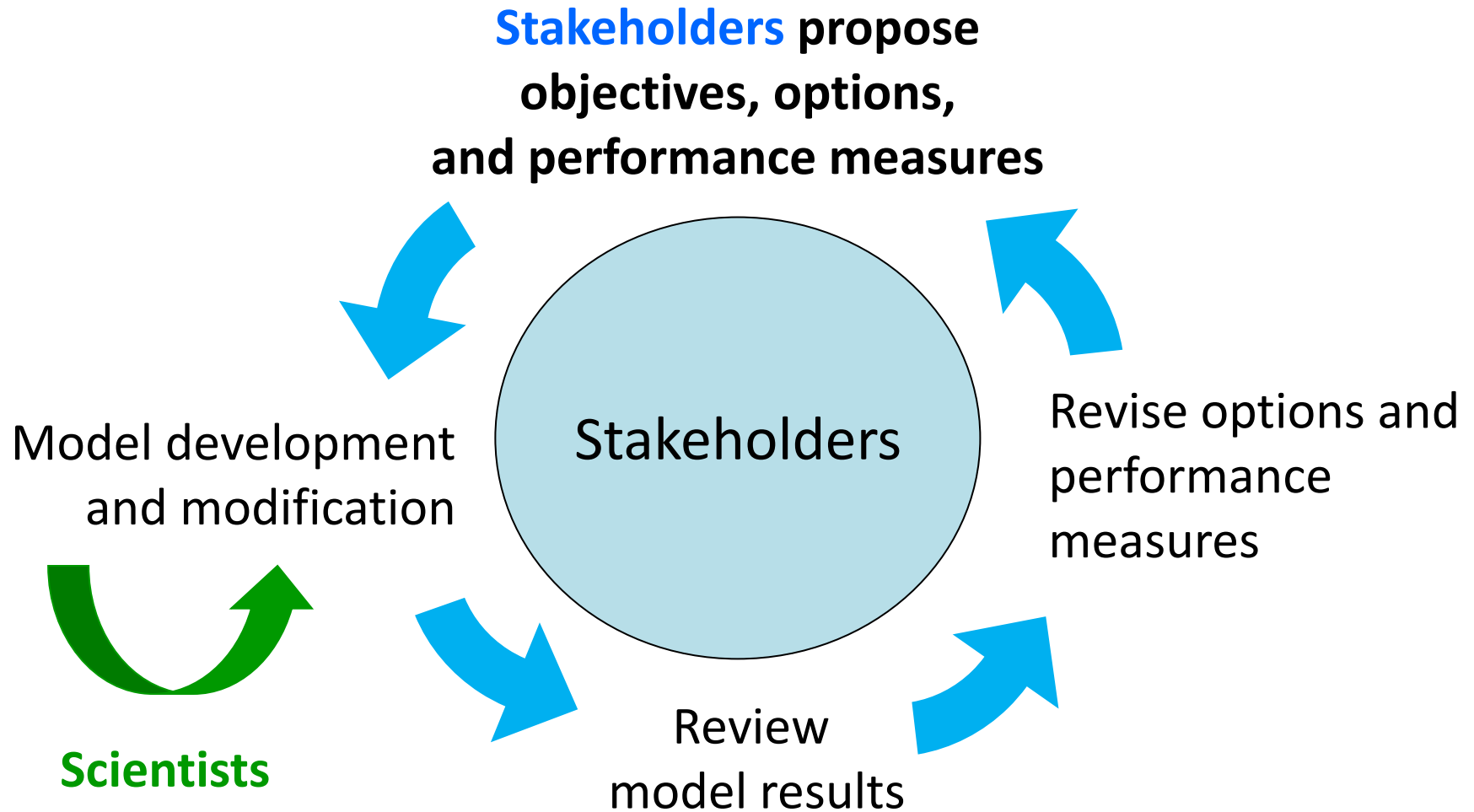




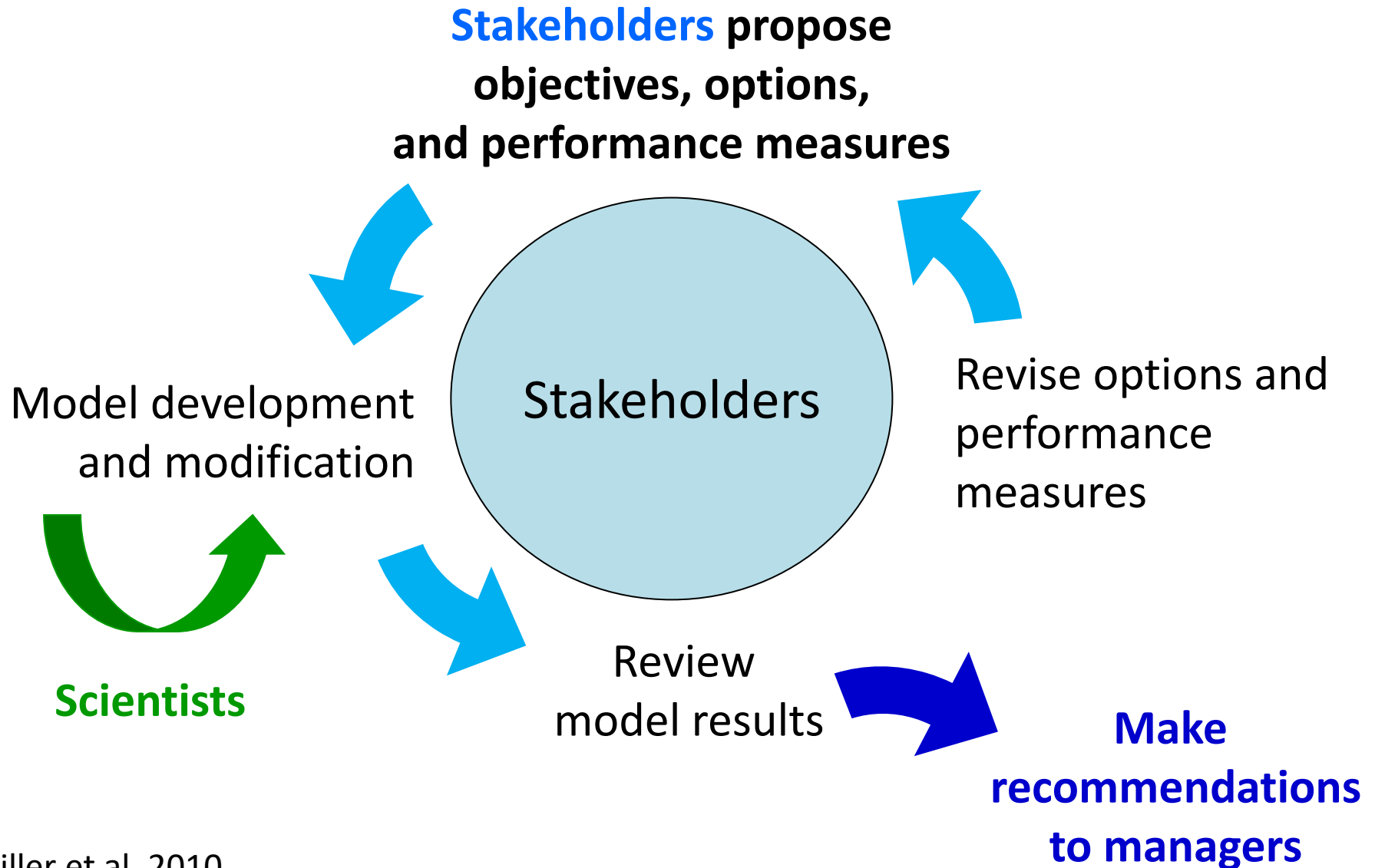
Goal: Help a diverse group of stakeholders develop recommendations for oyster restoration and management that meet the needs of industry, citizen, and government stakeholders in the Choptank and Little Choptank Rivers.



Stakeholder-centered process



Stakeholder-centered process



Information needed

- Actions to consider
- Important outcomes to consider (performance measures)

- Oyster Biology
- Fishery
- Ecosystem
- Effects of management actions

OysterFutures Model

Options



Simulation
Model



Performance
Measures

Status quo

Rotational harvest

Change sanctuary boundaries

Manage using shell supplements

Shell additions with rotation

Plant hatchery-reared oysters

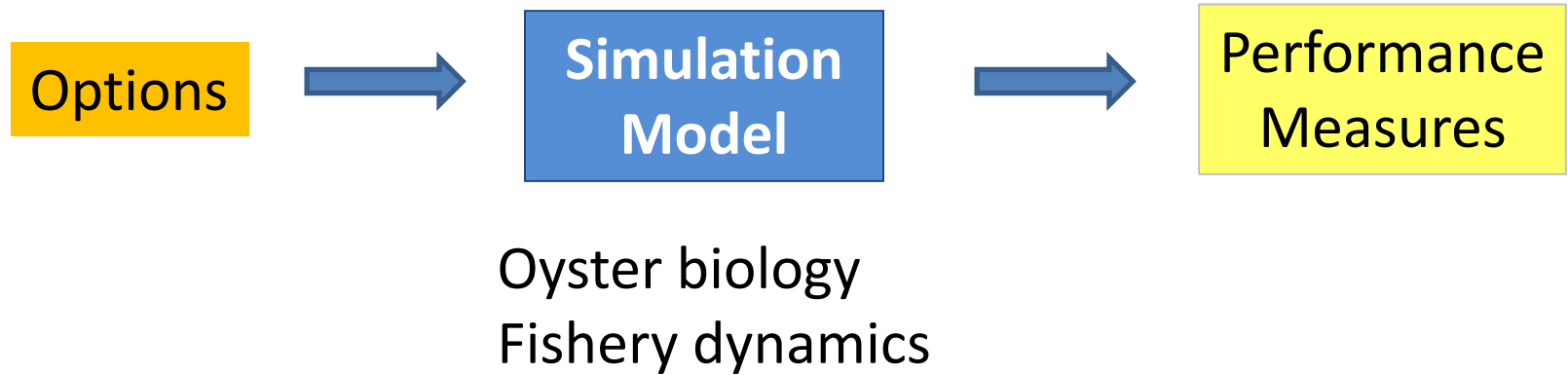
Increased enforcement of regulations

Modify size limits

Placing reefballs

Completion of restoration efforts

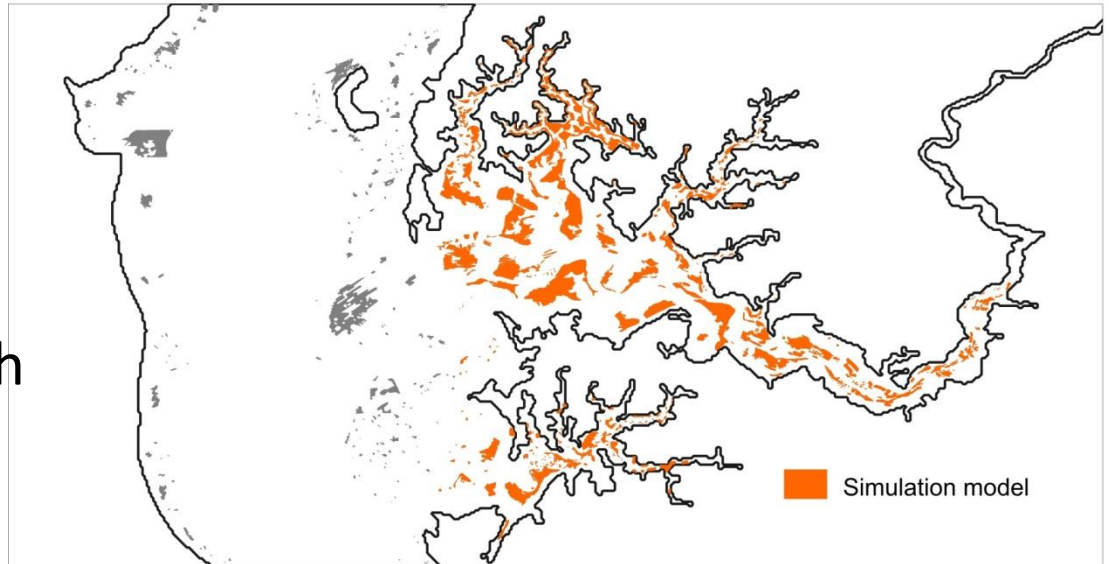
OysterFutures Model



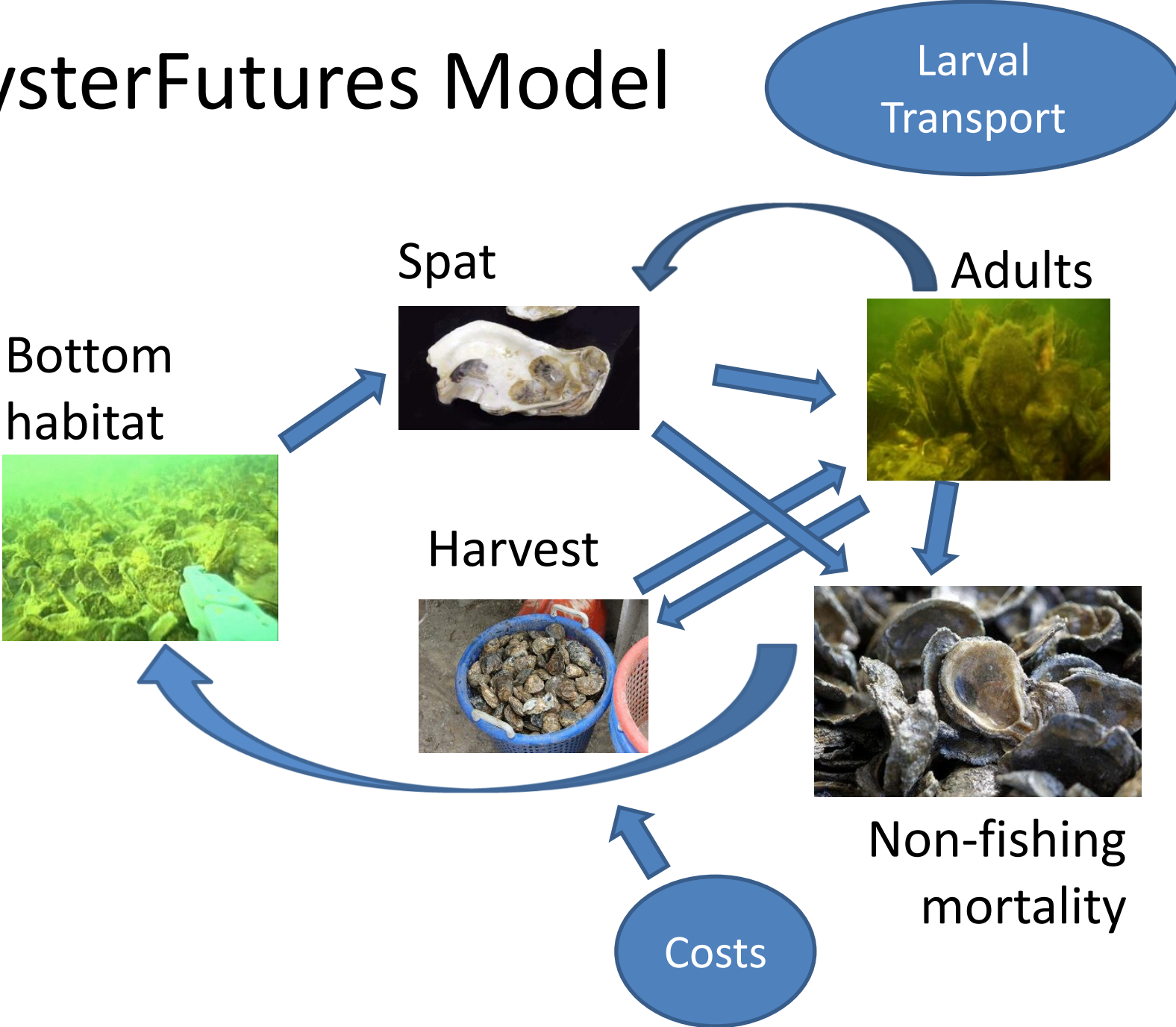
OysterFutures Model



- Tracks separate populations on each of 1,132 habitat polygons
- Connectivity between polygons estimated with larval transport model
- Projects 25 yrs into future



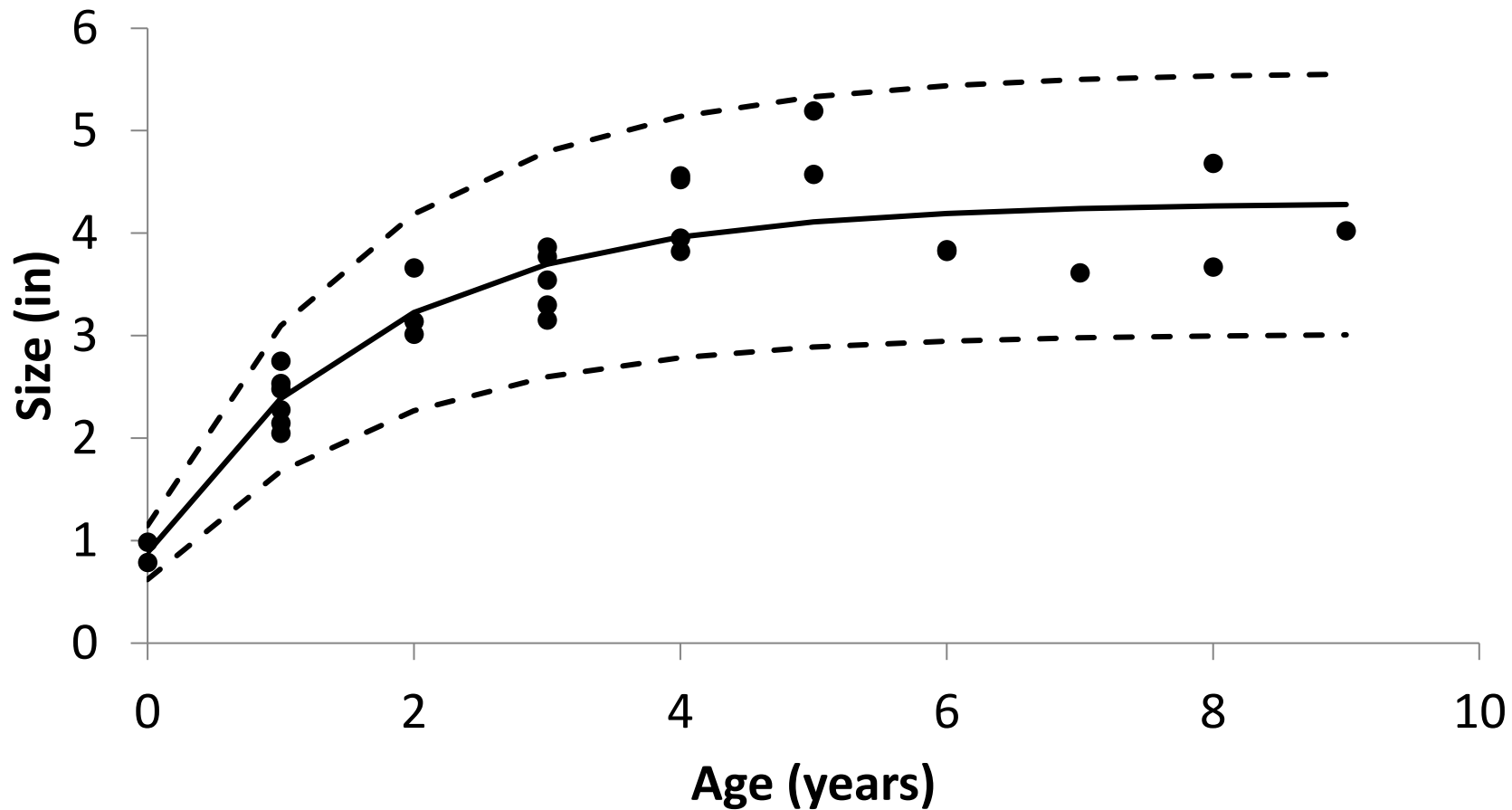
OysterFutures Model



Oyster Biology

- Growth (scientific literature)
- Maturity (scientific literature)
- Egg production (scientific literature)
- Larval transport (model developed for this project)
- Abundance and mortality (models developed for this project)
- Shell production (scientific literature)

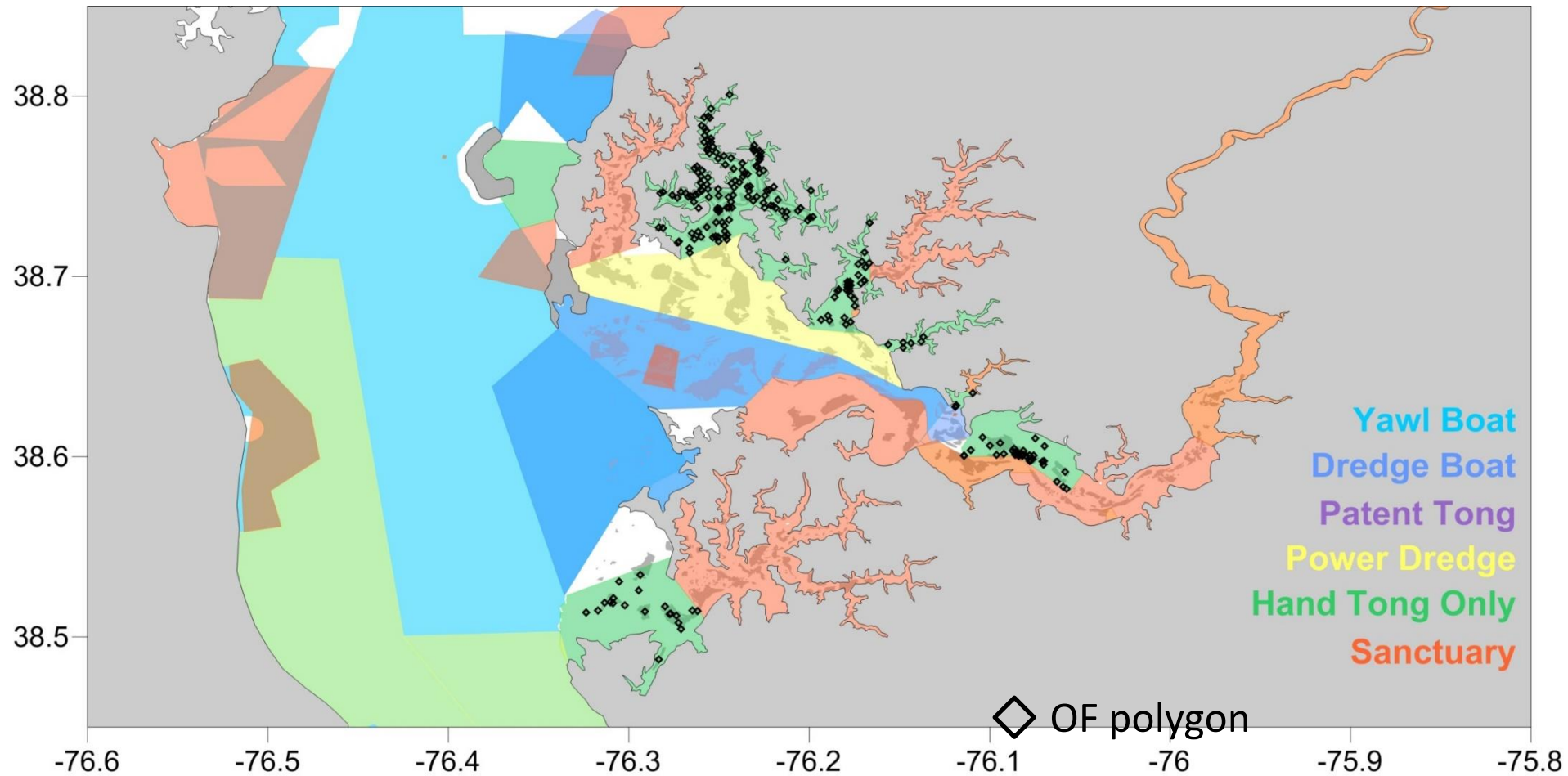
Growth (From Oyster Recovery Partnership monitoring)



Fishery

- Regulations
 - Maryland Dept. Natural Resources
 - Compliance? (stakeholder expert judgement)
- How many oysters are in a bushel?
 - Stakeholders provided new information on the number of oysters per bushel
- Price per bushel (Maryland DNR data and stakeholder knowledge)
- Where and when do people fish?
 - Discussions with the group
 - Stakeholders provided data on costs of fishing
 - Developed a bio-economic model to describe oyster fishing based on profitability

Gear restrictions



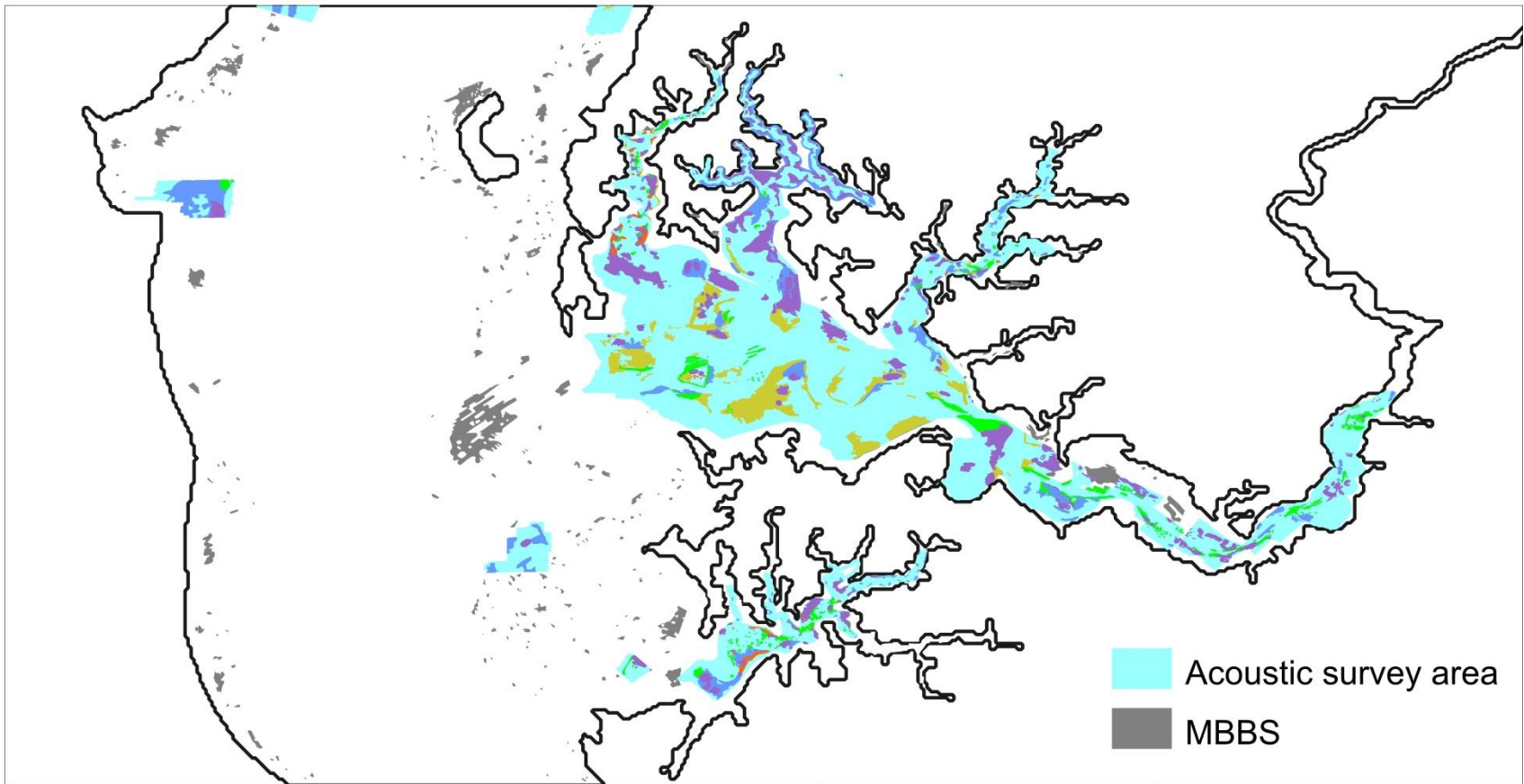
Fishing

- Four gears:
 - Hand tong
 - Diver
 - Sail dredge
 - Power dredge
- All harvestable oysters above a minimum number/sq. m are harvested on each bar
 - Hand tong >4.8-5.3 bushels per day
 - Power Dredge > 7.5-8 bushels per day
 - Diver/Sail dredge – same as power dredge

Ecosystem

- Location and amount of shell
 - Recent sonar surveys
 - Knowledge of watermen in areas that were not surveyed
- Shell degradation
 - Literature
 - Stakeholder expert judgement
- Ecosystem effects of oysters (scientific literature)
 - Nitrogen removal on oyster reefs
 - Nitrogen removal through harvest

NOAA Geodatabase Habitat Classifications



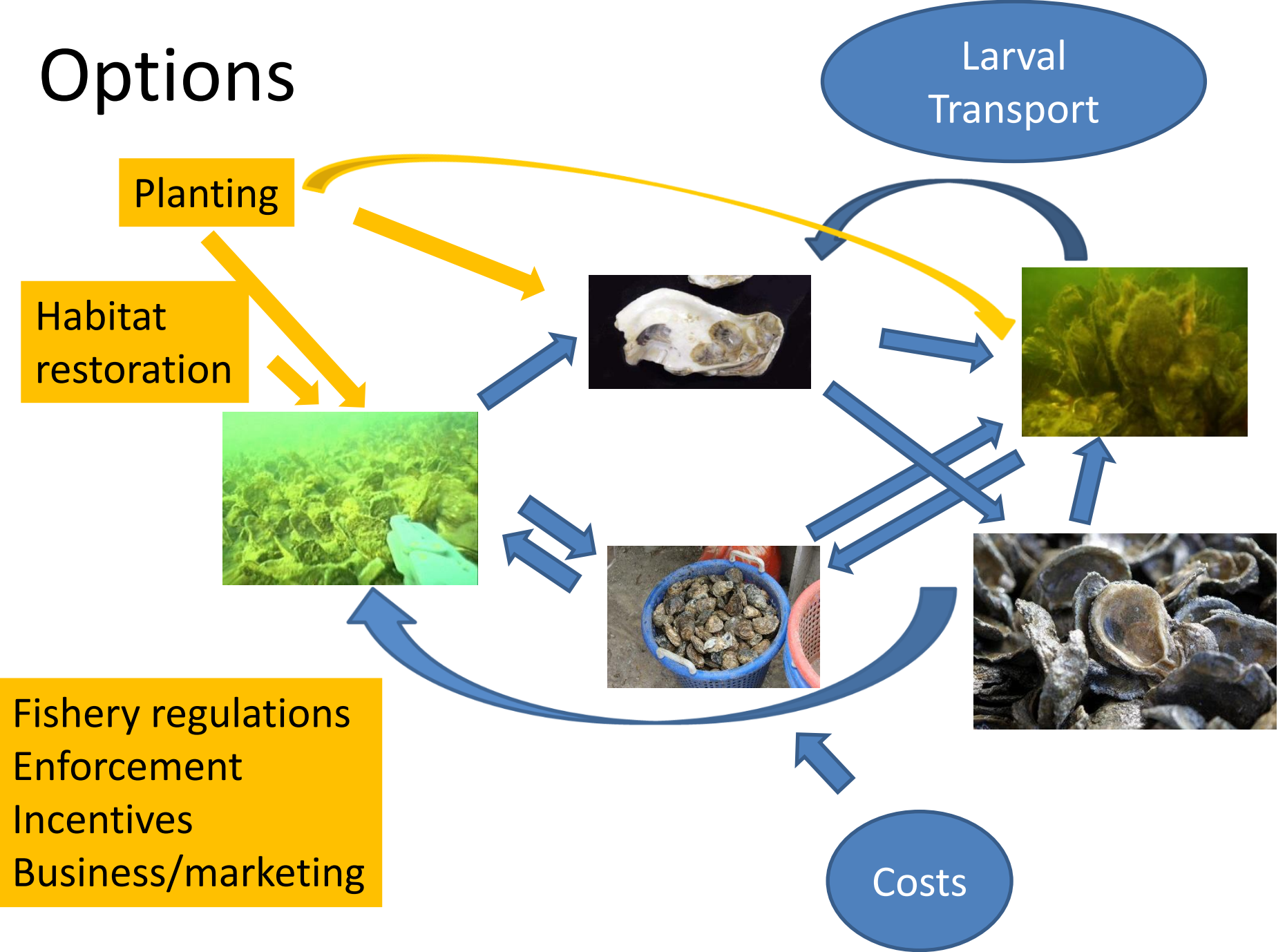
Habitat classifications and polygons in acoustic survey area based on NOAA's Chesapeake Bay CMECS v4 Substrate Component 01062017 geodatabase

- 1: Shell fragments
- 2: Flat (2D) shell, sand/mud
- 3: Flat (2D) shell
- 4: Raised (3D) shell
- 5: Raised (3D) stone

Effects of management actions

- Effects of planting shell
 - Maryland DNR data and stakeholder expert judgement
- Costs of shell and spat
 - NOAA and Maryland DNR data
- Costs of alternate substrate (usually granite)
 - NOAA data
 - Stakeholder data
- Other constraints
 - Stakeholder expert judgement

Options



Results:

- At the March, 2018 meeting, the workgroup unanimously agreed to a package of 29 recommendations
 - Enforcement and regulations
 - Planting shell and spat
 - Restoration efforts
 - Business practices
 - Education efforts
 - Research recommendations



More information available on the web

The screenshot displays the Facebook page for 'OysterFutures'. The page header includes the user's name 'Elizabeth', navigation options like 'Home 20+' and 'Find Friends', and notification icons. The main content area shows a large image of oysters with the 'OysterFutures Community' logo overlaid. Below the image are buttons for 'Add A Button', 'Liked', and 'Message'. The right sidebar provides a 'Promote' dropdown and a summary of weekly performance: 16 Post Reach, 9 Post Engagement, and 2 Website Clicks. The bottom navigation bar offers options for 'Status', 'Photo / Video', and 'Offer, Event +'. A search bar at the bottom left is labeled 'Search for posts on this Page'.

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

and

www.facebook.com/oysterfutures

Questions?

Many thanks to:

OysterFutures
Stakeholders and
Team Members



Images
Paynter Lab
IAN symbol Library

