



**Chesapeake Bay Program**  
*Science. Restoration. Partnership.*

# Foundations for Tiered Implementation

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# Presentation Goal



Photo by Will Parson/Chesapeake Bay Program

- Explain how focusing on key habitats can speed up Chesapeake Bay restoration
- Show how new approaches can identify where actions matter most
- Introduce a potentially more effective, tiered implementation approach

# RESTORING THE CHESAPEAKE BAY

Clean Water Goal\*



Measurement of the Goal



Achieving the Goal

### Protect Aquatic Living Resources

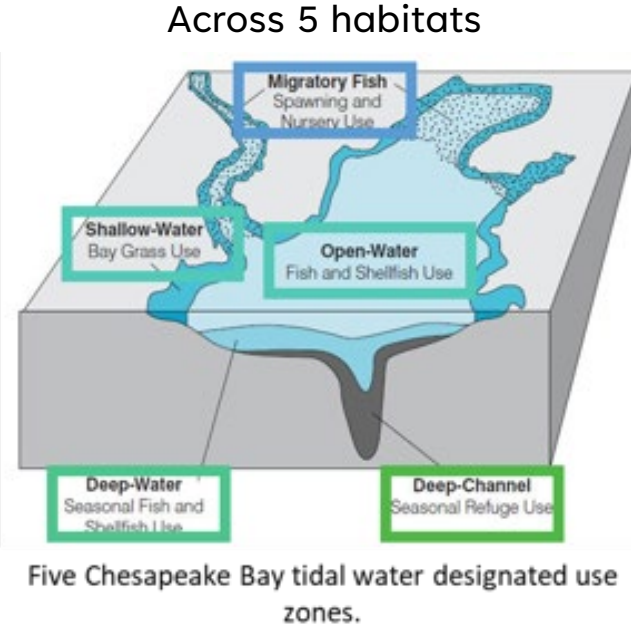
Migratory Spawning and Nursery Habitats	6	Striped Bass: 5-6	American Shad: 5-6
Shallow-Water and Open-Water Habitats	5	White Perch: 5	Yellow Perch: 5
Deep-Water Habitats	4	Hard Clams: 5	Alewife: 3.6
	3	Crabs: 3	Bay Anchovy: 3
Deep-Channel Habitats	2	Spot: 2	Worms: 1
	1		
	0		

Dissolved oxygen (mg liter<sup>-1</sup>) concentrations required by different species and communities.

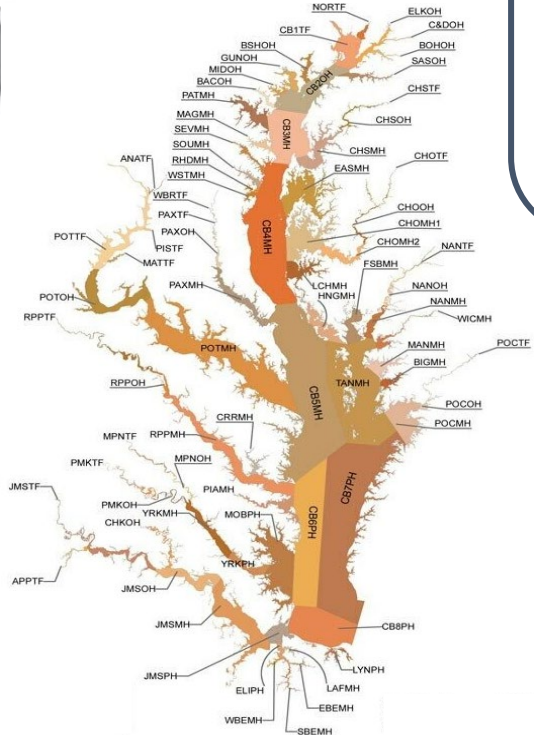
*\*Goal is based on how much oxygen the deeper, harder-to-reach parts of the Bay need. If those deep areas get enough oxygen, then the shallower areas will also have met their targets*

### Numeric Criteria

- Dissolved Oxygen
- Water Clarity/SAV
- Chlorophyll a



in 92 Segments



### TMDL

N, P, sediment targets to meet goal

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### Pollutant Control Programs

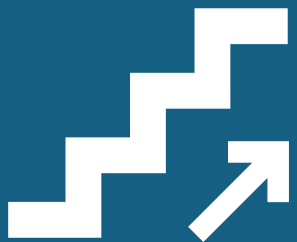
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### Accountability

# Current Approach vs. Tiered Implementation



The traditional approach centers on meeting water quality standards in all 92 Bay segments, including deep-channel zones that are slow and difficult to improve



A tiered approach shifts early attention to places where actions can have quicker ecological payoff, resulting a dual-focus including shallow and deep-channel zones

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# What We Want to Achieve



Cleaner water across the Chesapeake Bay



Healthier habitats for fish, wildlife, and people



Better dissolved oxygen, water clarity, and lower pollutant levels



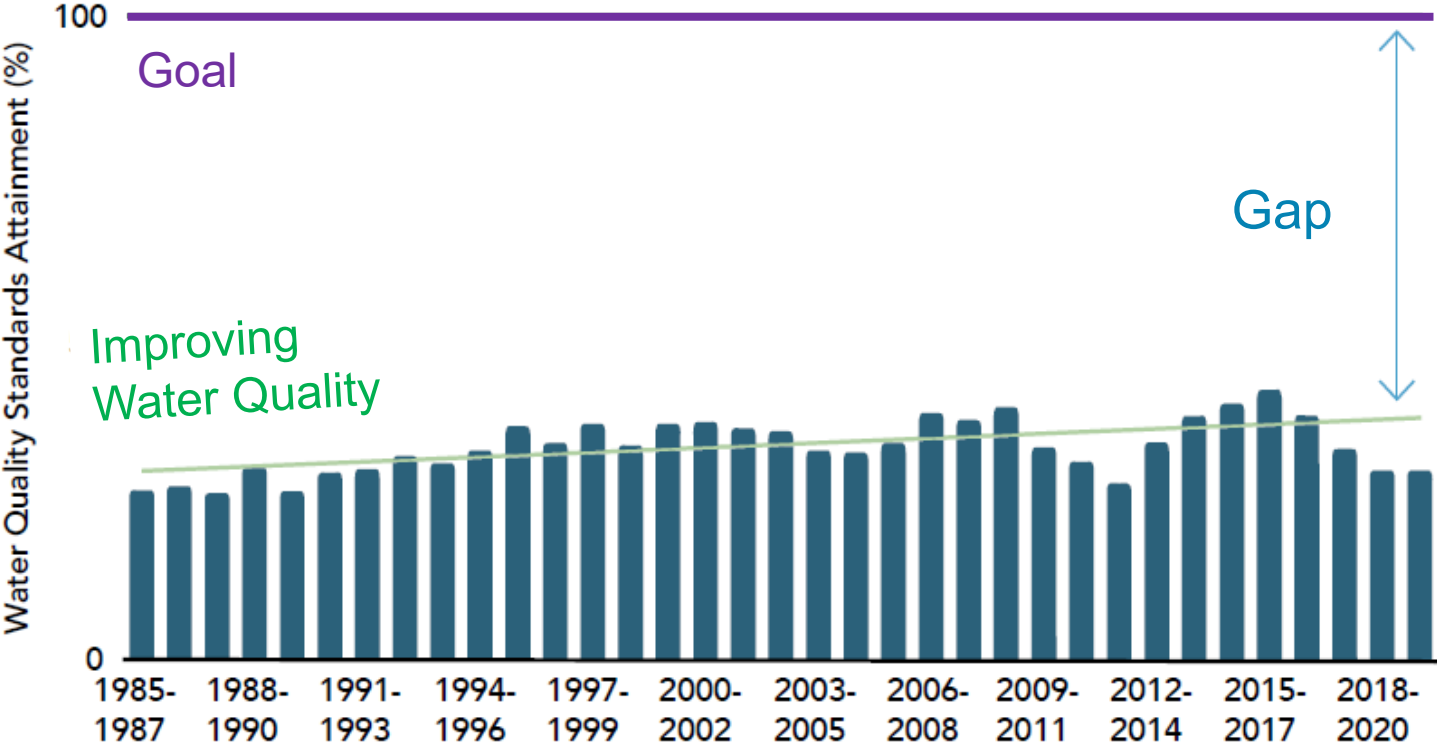
Demonstration of progress across the 92 Chesapeake Bay segments



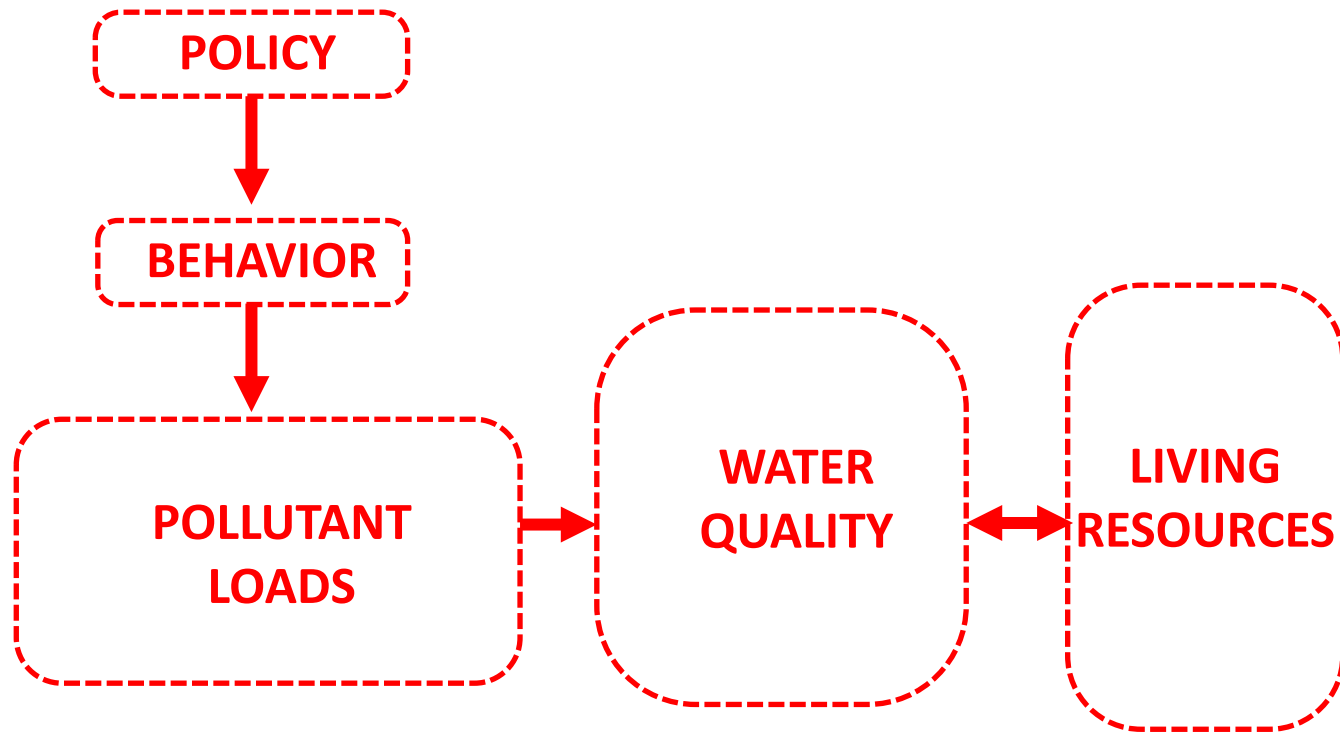
# Motivation: The CESR Report


- 40+ years of restoration has led to progress but not full success in the Chesapeake Bay
- We need to understand the remaining gaps
- CESR helps identify what might be done differently going forward

**Percent Attainment of Water Quality Goals in the Chesapeake Bay (measured for 3 year averages)**



# CESR Approach



- Systemic evaluation of what has occurred
- Policy relevant framing
-  50+ volunteer scientists
- Literature synthesis & supplemental empirical work

# Key CESR Insights

- Some habitats respond faster to water quality improvements than others
- We can help fish and habitats even before all water goals are met
- Focus on areas where restoration gives the quickest benefits



-Maryland Sea Grant

# Living Resource Habitat Factors That Matter

## Water Quality

Managed by Bay Water Quality Standards

- Dissolved Oxygen
- Water Clarity
- Chlorophyl-a

Generally Unmanaged and Impacted by Changing Environmental Conditions

- Temperature
- pH
- Salinity

## Physical Habitat Aspects

Underwater Grasses

Wetlands

Shorelines

Access

Bottom Condition

## External Factors

Fishing Pressures

Etc.

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# A Tiered Approach

Take actions that make the biggest difference sooner

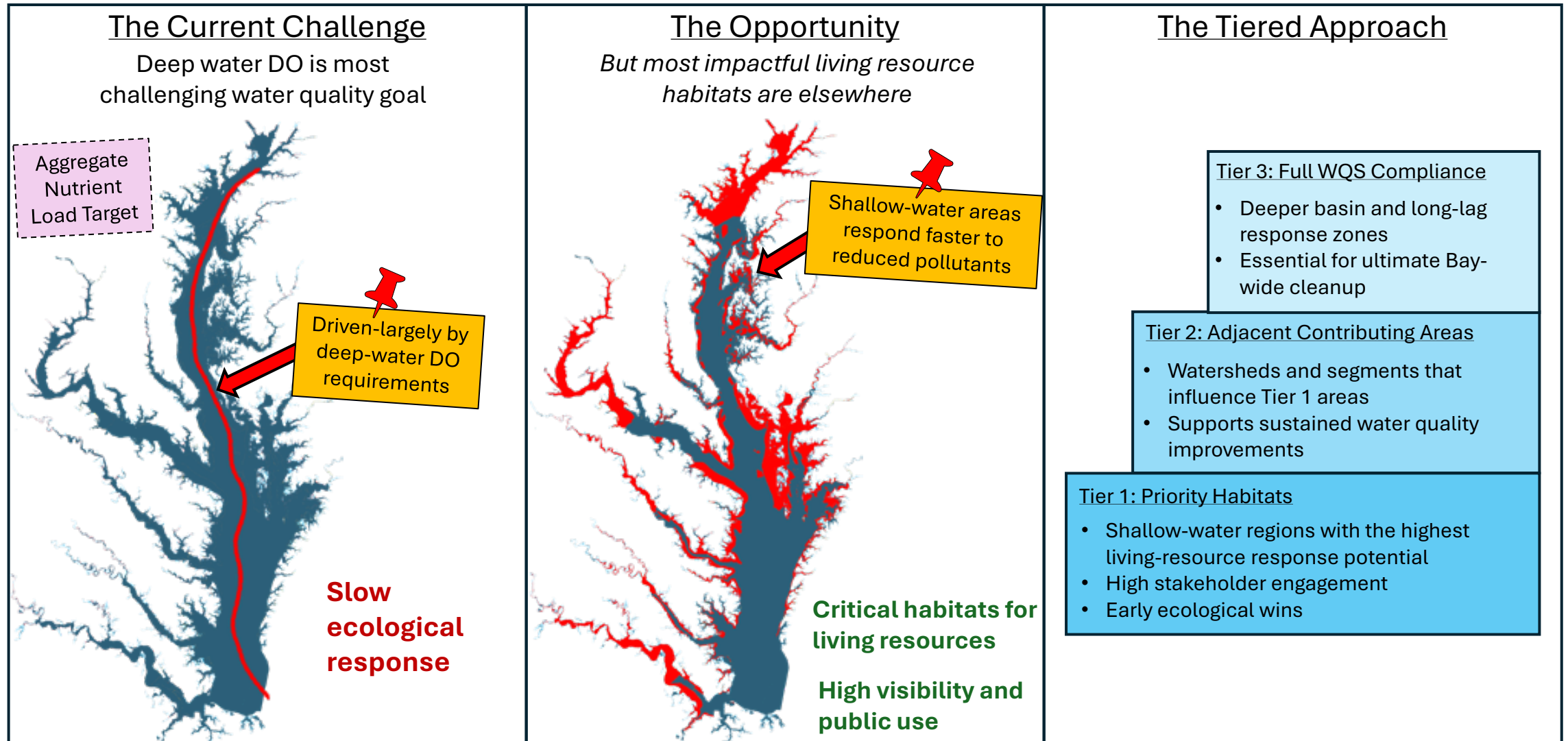


Prioritize areas with the greatest habitat improvement potential



Keep current clean-water goals in place

# Tiered Implementation: Prioritizing Actions Where the Bay Responds Fastest



Tiered implementation accelerates visible Bay recovery, strengthens living resources, improves recreational and cultural landscapes, and still advances long-term WQS goals

# How Will Tiered Implementation Work?

Sequence pollutant-reduction efforts in locations that offer the greatest immediate lift for living resources

Use monitoring and model insights to guide where actions will matter most

Align information to target actions effectively and prioritize work in specific tidal areas

Similar to stream delisting and “whole-watershed” approaches, since the partnership will target efforts in specific areas to reduce pollutants, meet water-quality standards, *and* support living resources

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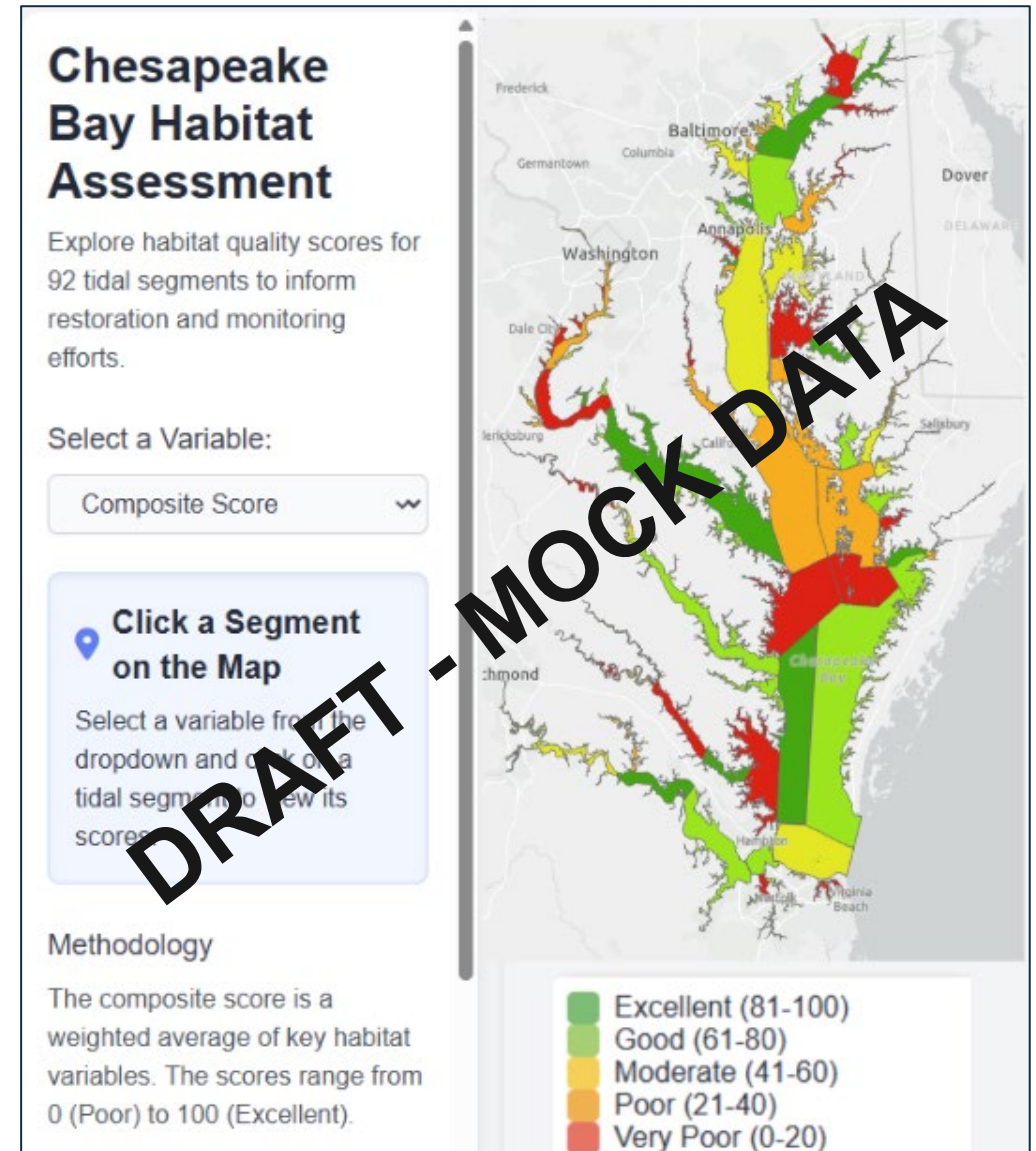
# How We Identify Priority Areas



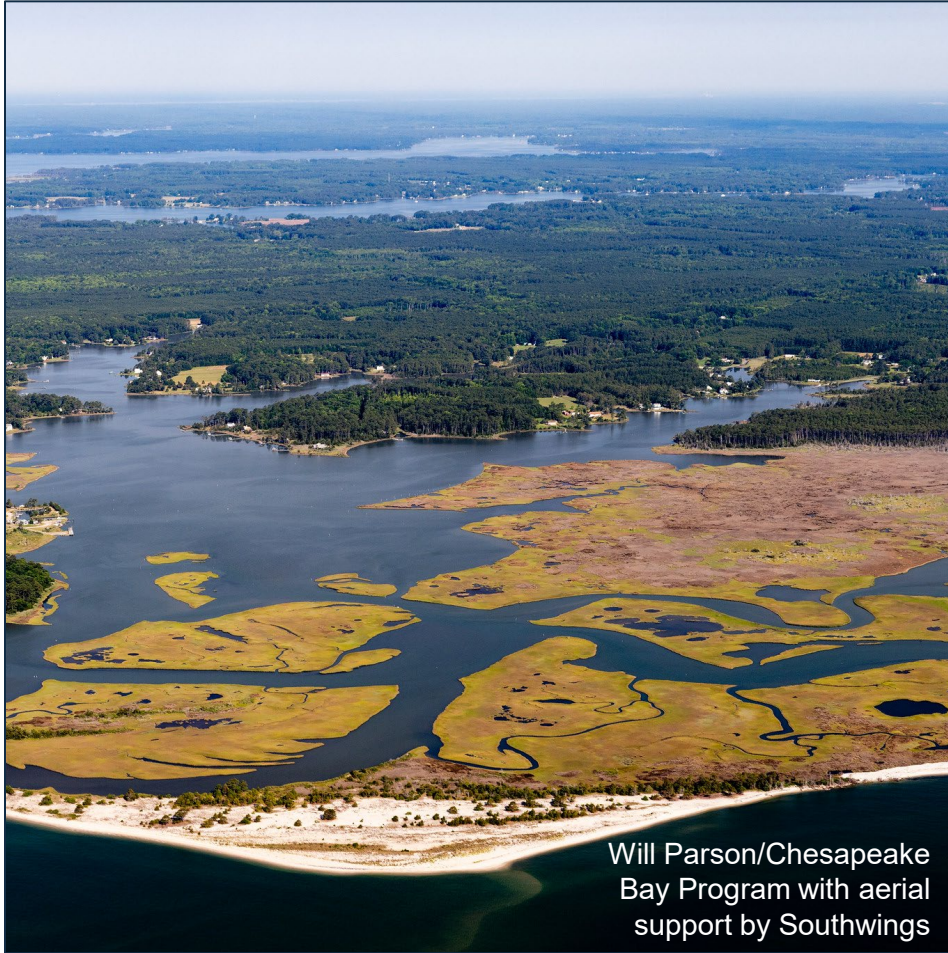
- Use water quality monitoring data, habitat information, and fish data
- Build a Habitat Suitability Index for 92 Bay segments
- Fill data gaps using scientific models
- Identify where small improvements create big ecological gains

# Expected Outcomes

- Clear maps showing high-priority restoration areas
- Better-targeted investments
- Support for future planning and habitat restoration
- Improved water quality *and* living resources



\*Note, this graphic shows an example of what a visualization might look like and includes made-up data for the mockup.



Will Parson/Chesapeake Bay Program with aerial support by Southwings

# Thank You!

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