Living Resources Feasibility Charette:

An Update for STAC

June 16, 2025

Dr. Kaylyn S. Gootman, EPA-CBPO

Big Picture View

- Fast track to complete a habitat suitability model for the 92 tidal segments of the Chesapeake Bay by 2026

- This project is a priority of the CBP
- Analysis is a step to:
  - 1) Implement recommendations of the CESR report
  - 2) Identify target areas for tiered implementation of the TMDL and
  - 3) First step to implementing the Fish Habitat Outcome under the revised Bay Agreement

Priority Living Resource Habitat Area – identification/quantification

Group Assigned	Fisheries GIT
Task Description	Develop Priority Living Resource Habitat Areas for 92 segments of the Tidal Bay
Task Rationale	CESR report suggests that focus should be given to shallow waters/living resources in addition to meeting the goals of the Bay TMDL. This activity will identify priority living resource areas and give scoring metrics to assist in prioritization of restoration and conservations efforts.
Task Outcome/ "End" User	WIP/Milestone Developers - Will provide critical information to allow/support **tiered implementation targets/focused restoration efforts**

Assignment (Objective)	Develop a habitat suitability model that focuses on shallow water
	• Select species/life stages representative of Bay LR
	• Determine appropriate habitat variables to evaluate for the above
	  • Water quality
	  • Physical characteristics
	  • Temperature
	  • Etc.
	• Develop habitat rating/scoring for geographic area's of the bay (all 92 segments)
	• Develop GIS based data visualization of LR habitat suitability at the highest resolution available.

MB Champion:	VA/MD/DC should have oversight
Coordination Requirements (MB check-in frequency)	• January 1, 2026 – draft habitat suitability model complete • July 1, 2026 – habitat suitability scoring matrix complete • January 1, 2027 - data visualization tool to utilize suitability model and scoring matrix complete • Should be reported on with Tiered Implementation Targets • Should be reported on with Priority Living Resource Scoring Matrix
Delivery Date (Month or Quarter / Year)	January 1, 2027
CBPO Support	GIS Team, Modeling Team, LR data manager

Motivation & Context

Priority Living Resource Habitat Area -Identification/Quantification

-Task meant to drive a result, not just to improve understanding

-Tie to management priority, tie to water quality and improve living resource outcomes

Ties Directly to Fish Habitat Outcomes

Sustainable Fisheries GIT and Fish Habitat Action Team

Fish Habitat Outcome

- Achieve and maintain suitable shallow water fish habitat in tidal and non-tidal areas for key species through focused water quality, conservation and restoration improvements informed by a synthesis of fisheries science and habitat assessments.

Target

- Continually improve the quantity and quality of shallow water fish habitat in tidal areas above baseline conditions as determined by a Bay-wide assessment of fish habitat conditions completed in 2026.

Why a Charette?

Charette: pitch idea to “do-ers”, connects to management context, why it is relevant

Here is what we are thinking of doing

What issues do you see: data, methods, data availability, timeliness, feasibility?

Get a sense of what is feasible at the end

Leave with a work plan, people assigned to specific tasks, timeline and buy in

Prioritized tasks

Need buy-in from the “do-ers”

Who has time and energy to do this?

Commitments and buy-in for people.

Specific guidance on what we are expecting them to do.

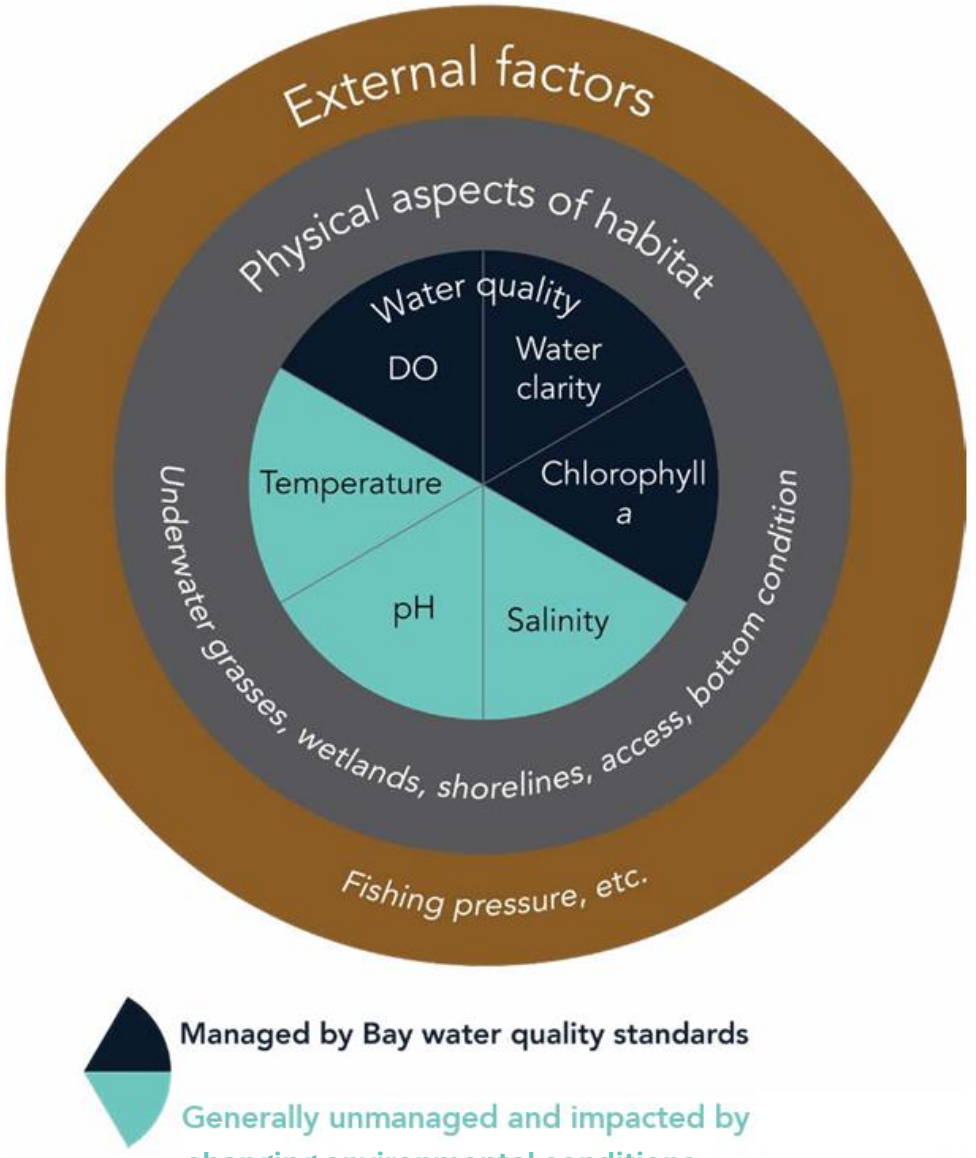
Seeking input for the best/most feasible approach, given constraints

Ultimately, final decision will come from Fish GIT, NOAA, and EPA

Opportunity to Link

1. Water quality management decisions

2. Potential improvements in tidal living resource responses



Overall Charette Objective, Goals, Structure

May 6 – May 7, 2025

Smithsonian Environmental Research Campus

Objective

Determine the approach to target and track linked responses of living resources, structural habitat, and water quality while considering known constraints, including ability of approach to meet objectives at zero cost, and generate a workplan, including a timeline and who is contributing to this effort.

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Charette Goals

1. Define project outcomes that would have the most potential for Bay Program partnership implementation.
2. Assess the feasibility of different analysis approaches to link living resources, structural habitat, and water quality through the lens of what the CBP could have influence on.
3. Develop a draft workplan.

Charette Goals

1. Define project outcomes that would have the most potential for Bay Program partnership implementation.
2. Assess the feasibility of different analysis approaches to link living resources, structural habitat, and water quality through the lens of what the CBP could have influence on.

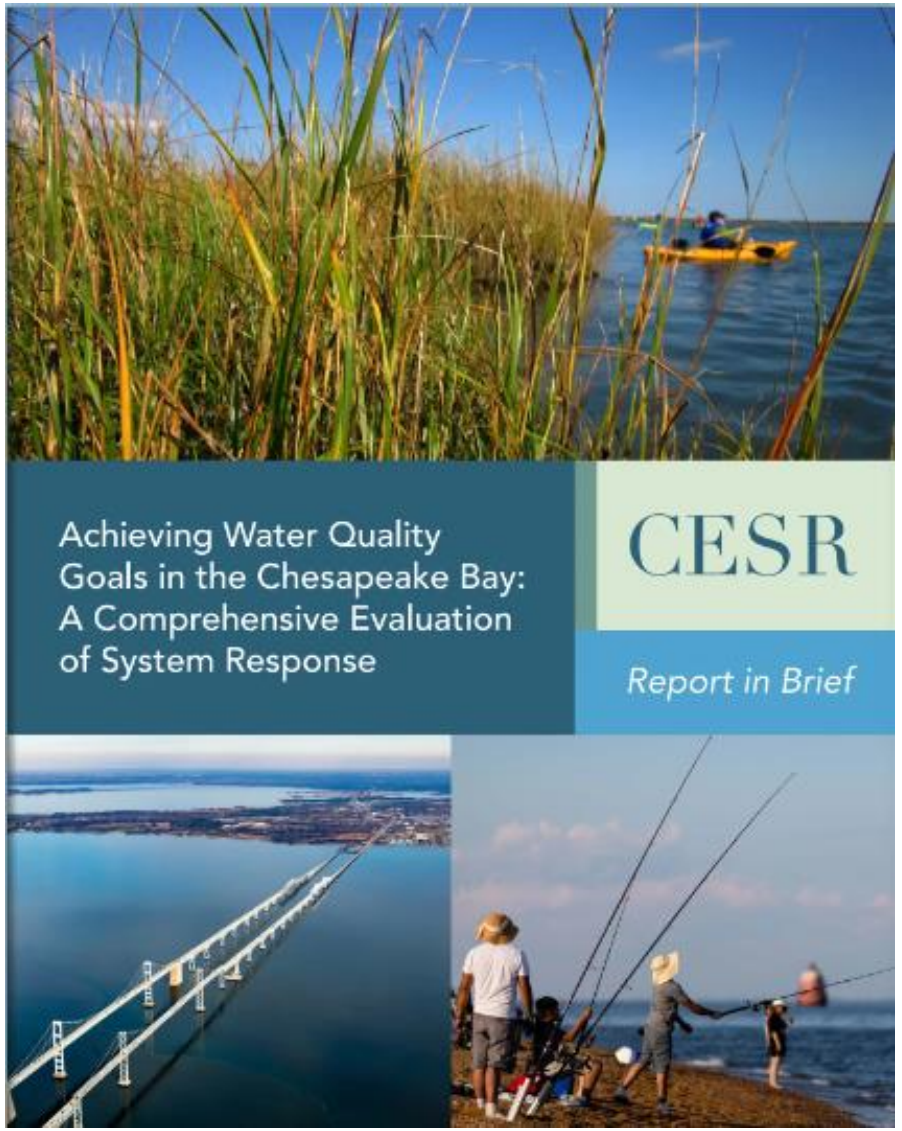
Day 1

3. Develop a draft workplan.

Day 2

Motivation

Why Living Resources and Why Now?

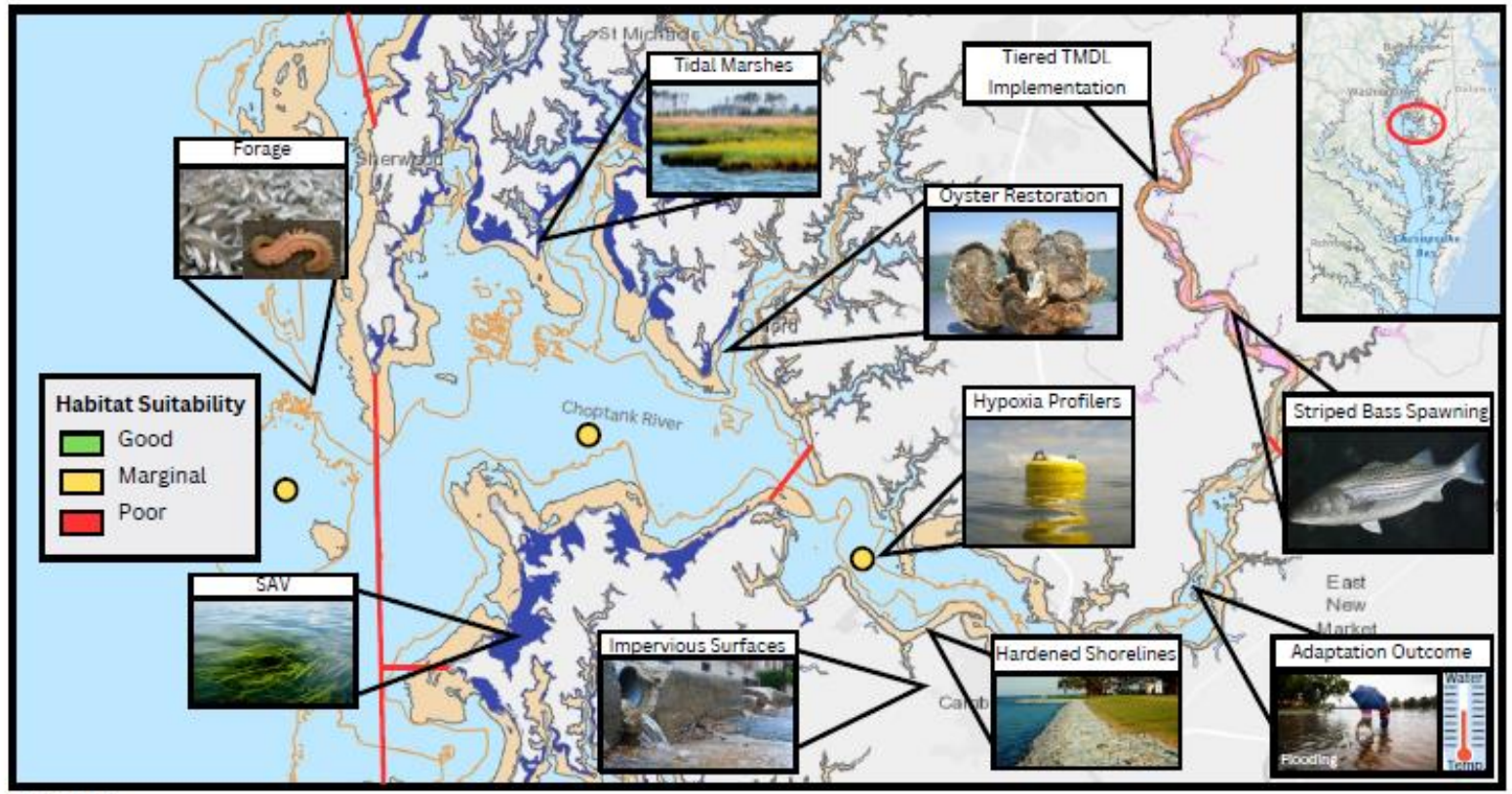


CESR Implication

One option was to consider "tiered TMDL" that prioritizes implementation across space and time to maximize living resource response (CESR, pp. 82-83) --- e.g. "provide the most potential lift to living resources while working toward the final TMDL goal"

CESR: Opportunity in Shallow-Water Habitats to Link Living Resources and Water Quality Outcomes

Tidal Fish Habitat Interconnectivity



3/14/2025

1:217,972

0 1.5 3 6 mi

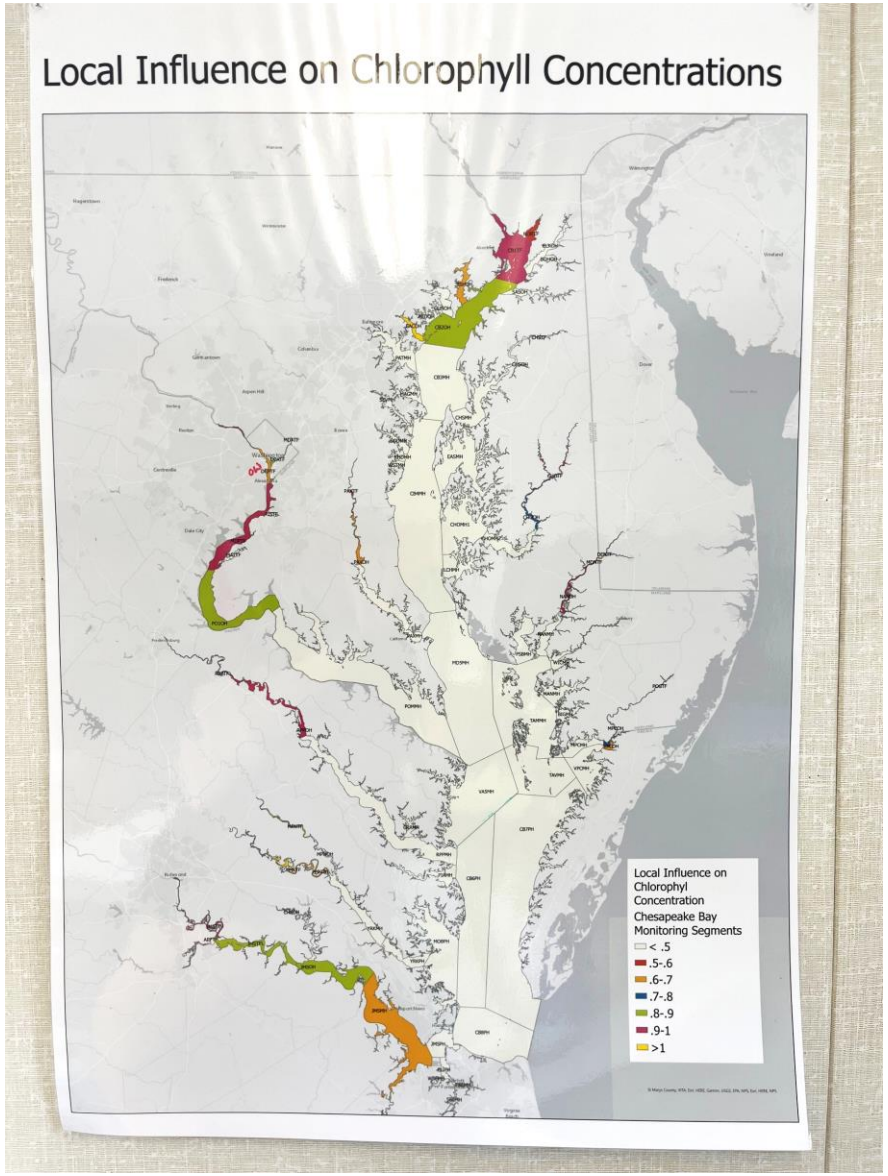
0 2.25 4.5 9 km

VITA, Esri, HERE, Garmin, USGS, EPA, NPS, SAV Ecology, Monitoring, & Restoration Program, Virginia Institute of Marine Science, Esri, HERE, NPS

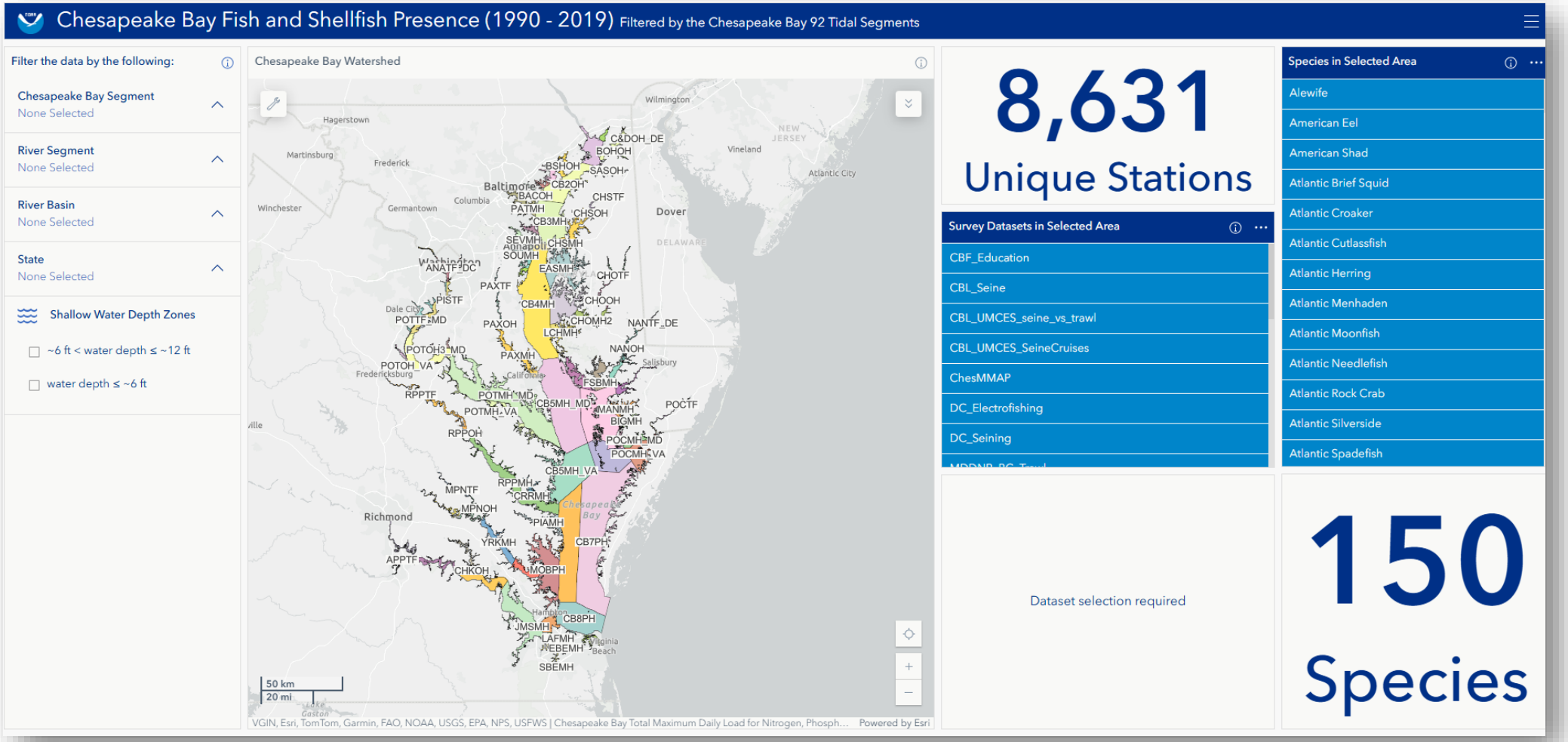
Legend

- Tidal segment boundary line
- 5m shallow water contour
- 2m shallow water contour
- SAV (2019-2023)
- Striped bass spawning habitat
- Hypoxia Buoy Profilers

Acknowledging Local Influence

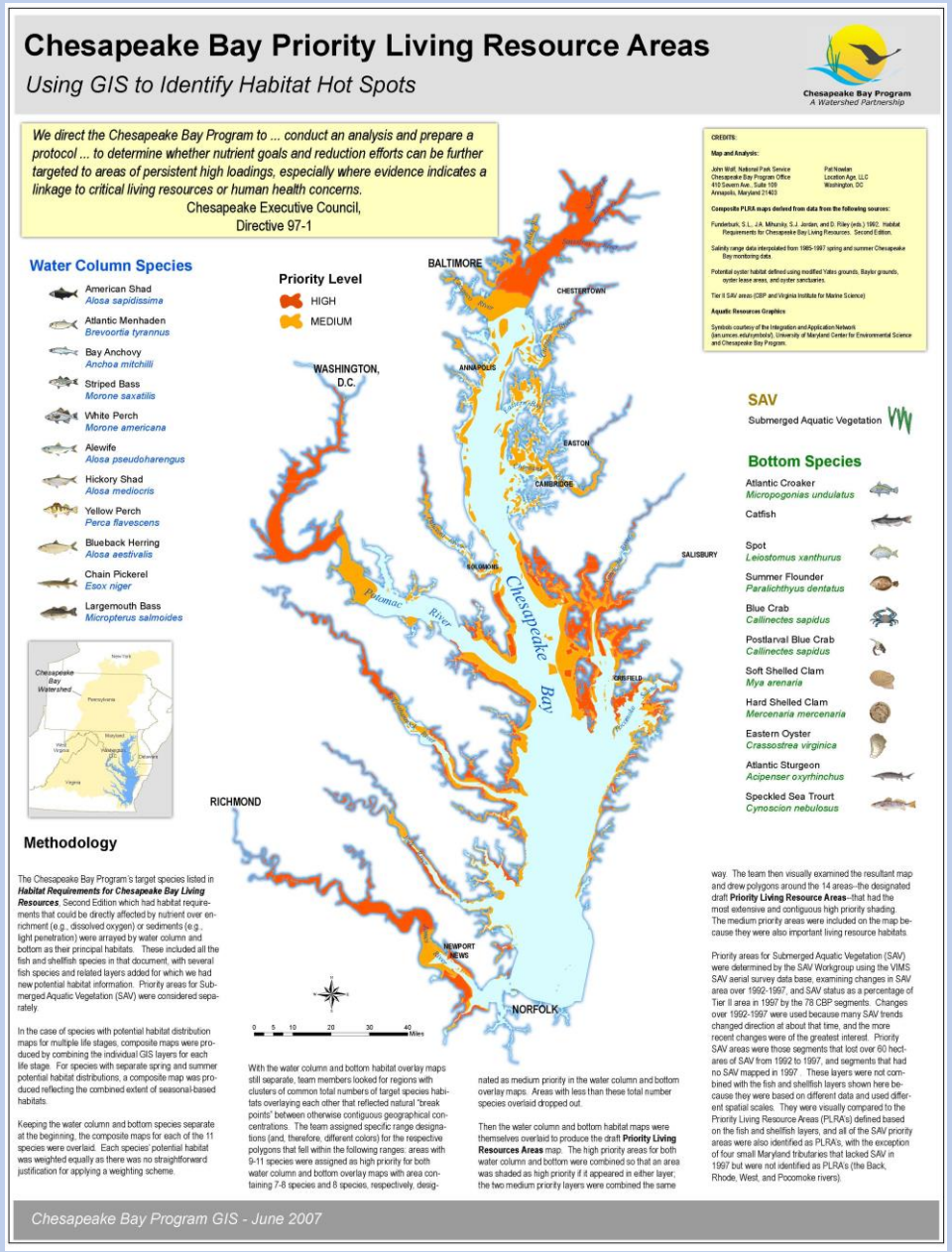


Diverse Data Sources



https://www.arcgis.com/apps/dashboards/b17988e1612e49d193a0223441b0a639

Tiering TMDL Implementation



Temporal

Intermediate goal: 10-15 years

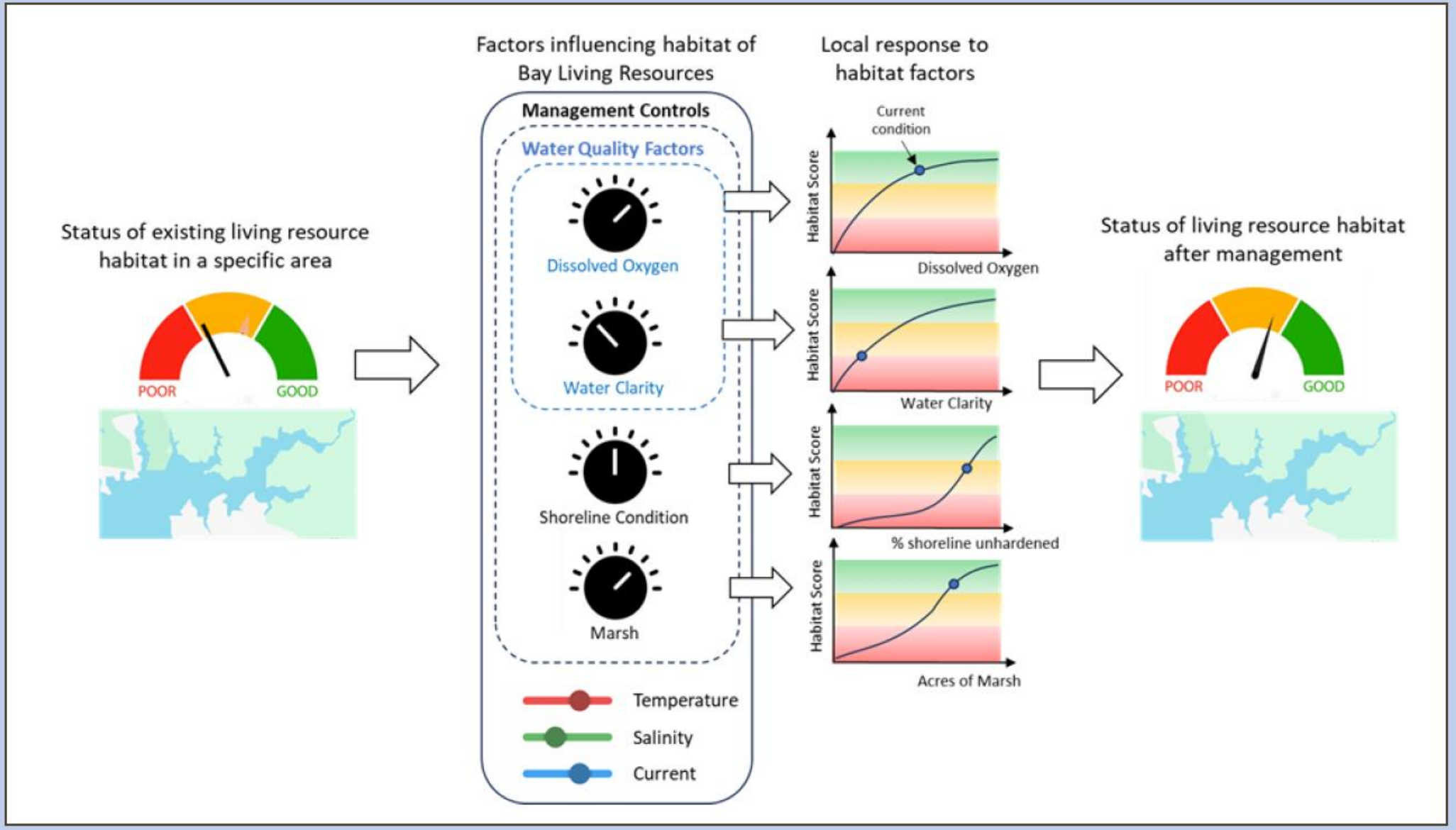
Spatial:

Establish interim nutrient and sediment targets based on places where water quality is factor for living resource potential (red & orange, left), while acknowledging:

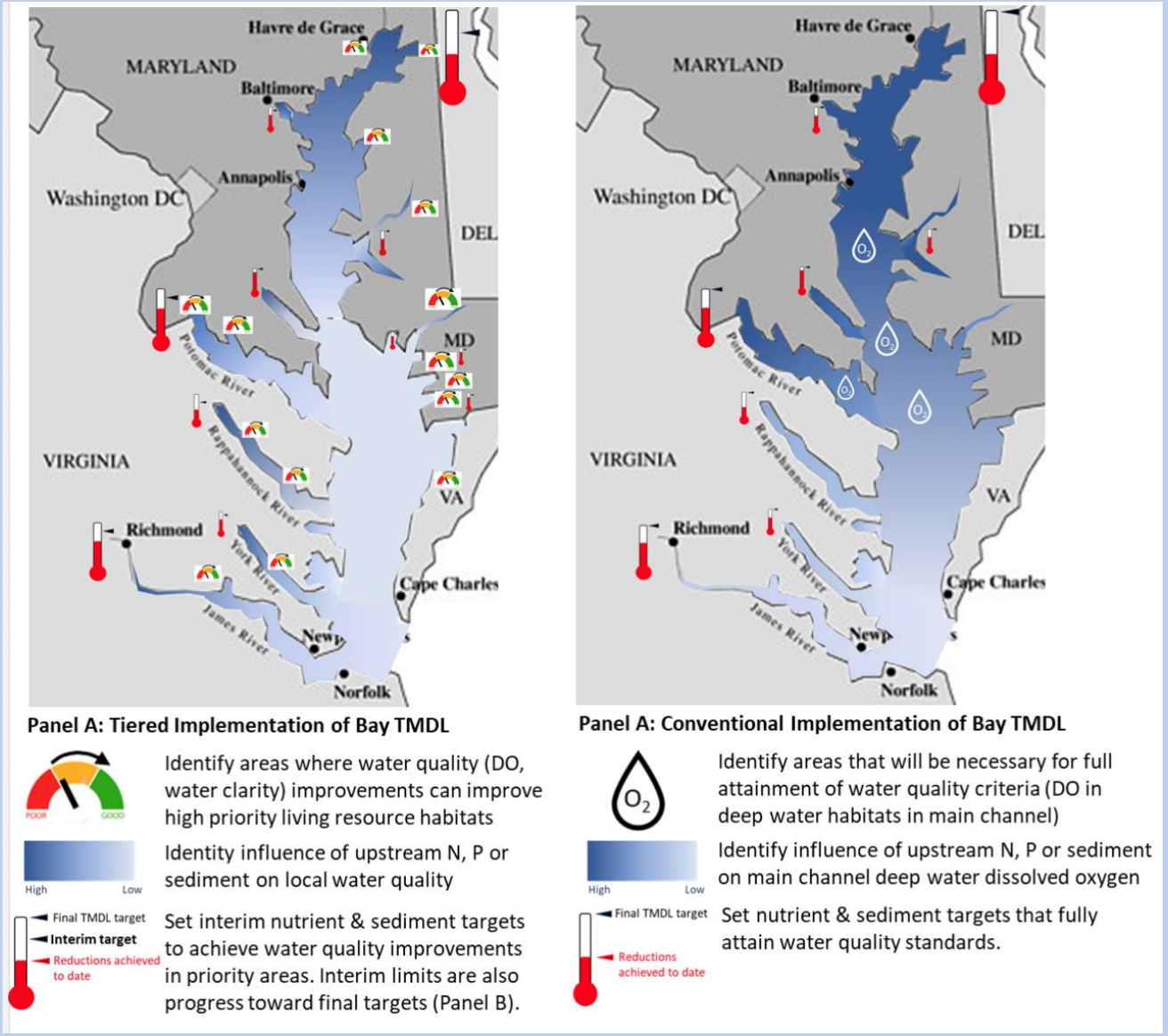
- interdependence across areas (including progress in main channel);
- importance of local, non-WQ living resource factors/stressors.

Link 1) Critical Habitats and 2) Water quality conditions in those habitats (e.g., open water DO)

Assessing local water quality, stressor, and habitat conditions



Tiered approach will require different approaches to planning and scientific/technical analysis



From Concept to Implementation

1. Conduct habitat suitability analysis
2. Assess living resource habitat improvement potential of various segment/habitat combinations (dials) (local conditions to response to stressors reductions)
3. Identify relative contribution of upstream and estuarine N, P and sediment on segment-habitat nutrient levels
4. Set interim N, P, and S targets based on 1-3 (policy decision).
5. A future WIP planning process that includes consideration of other factors that impact living resource habitat and that includes incentives to adapt to observable outcomes (stressor-response)

Remember:

Outcomes need to have the most potential for CBP partnership implementation *and be feasible*

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Ability to meet management objectives, resources required, data availability, achievable within timeline, reproducible to track changes over time, includes factors CBP can control

Charette Outcomes

Project Management

Bruce Vogt (NOAA), Kaylyn Gootman (EPA)

Teams

1) Management Relevancy Team (NOAA, EPA, USGS)

2) Analysis Team (VIMS, UMCES, NOAA, EPA)

Workplan

Gannt chart on next slide

Data Sets

Water Quality Data

VIMS model for now

Later, Phase 7

Habitat Data

Substrate

Tidal Wetlands

SAV

Bathymetry

Oysters

Shoreline

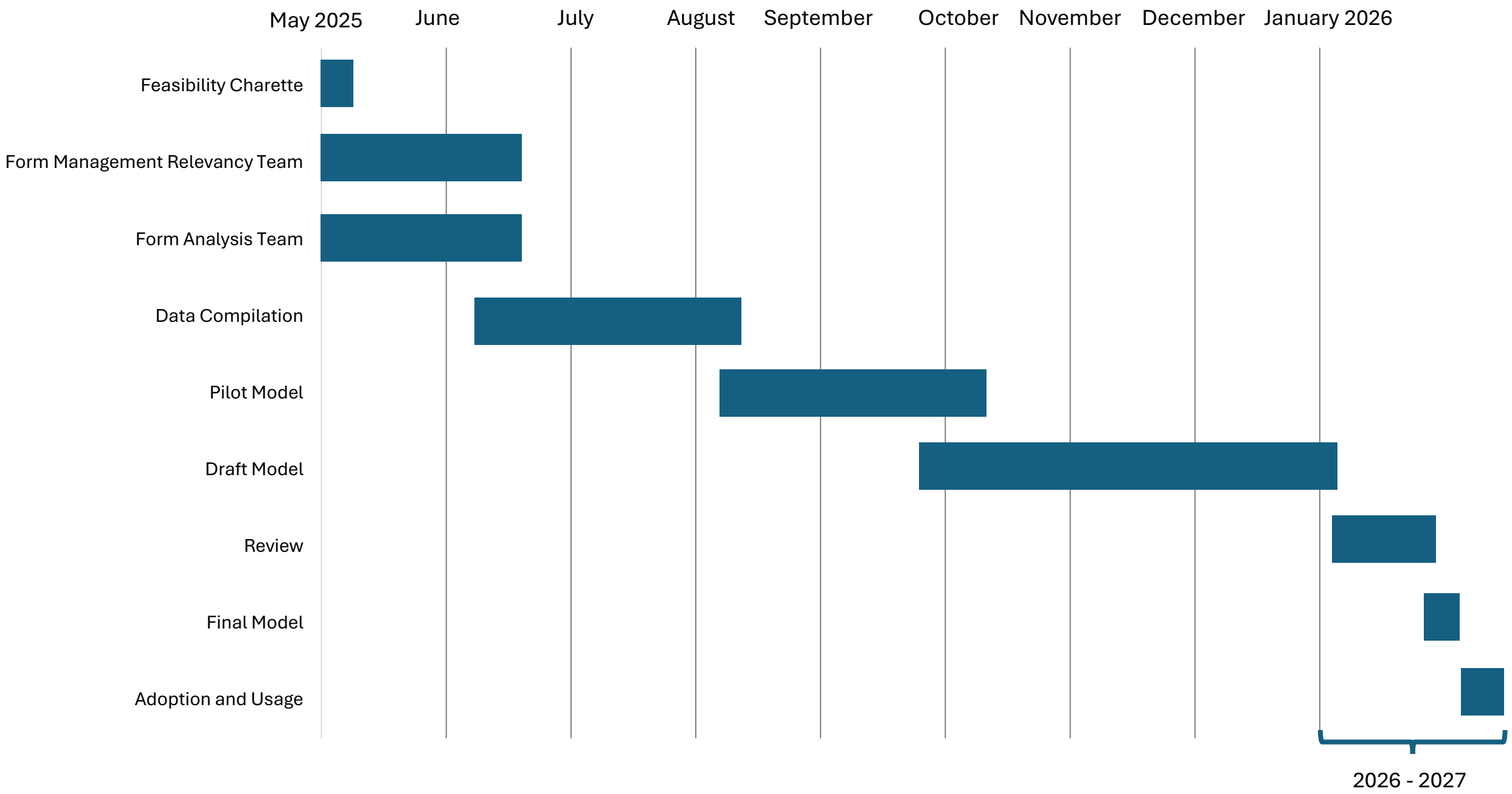
Others

Fish Data

Juvenile Striped Bass

Bay Anchovy

Croaker


May 2025
June
July
August
September
October
November
December
January 2026
Feasibility Charette
Form Management Relevancy Team
Form Analysis Team
Data Compilation
Pilot Model
Draft Model
Review
Final Model
Adoption and Usage
2026 - 2027

Thank You!

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Chesapeake Bay Program
Science. Restoration. Partnership.