Tiered Implementation of the Bay TMDL ("Tiered TMDL")

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Presentation to the CBP Stakeholders' Advisory Committee
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Tiered Implementation of the TMDL

What
Why
How

What is Tiered Implementation of the TMDL?

Same destination, different journey

Definition

A ***tiered implementation of the TMDL*** establishes intermediate term, spatially explicit pollutant load targets that would result in the greatest anticipated benefit to living resources on our way toward attainment of the Chesapeake Bay water quality standards

Chesapeake Bay Water Quality Goals

Designated Use → **Water Quality Criteria** → **TMDL**

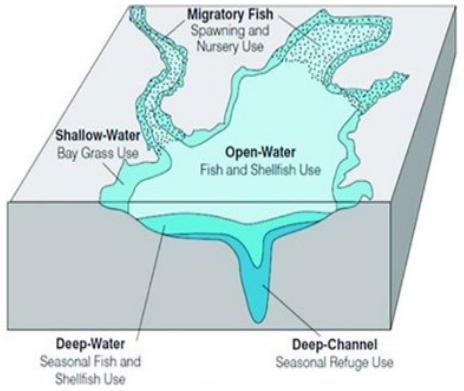
Aquatic living resources

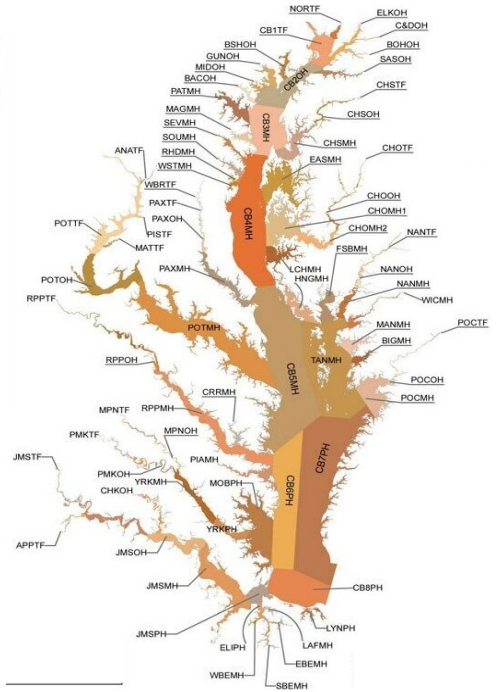
Numeric Criteria within **5 Bay habitats** across **92 "segments"**

Dissolved Oxygen (DO) (30 day avg, 7 day avg, instantaneous):

Water Clarity/Aquatic Vegetation

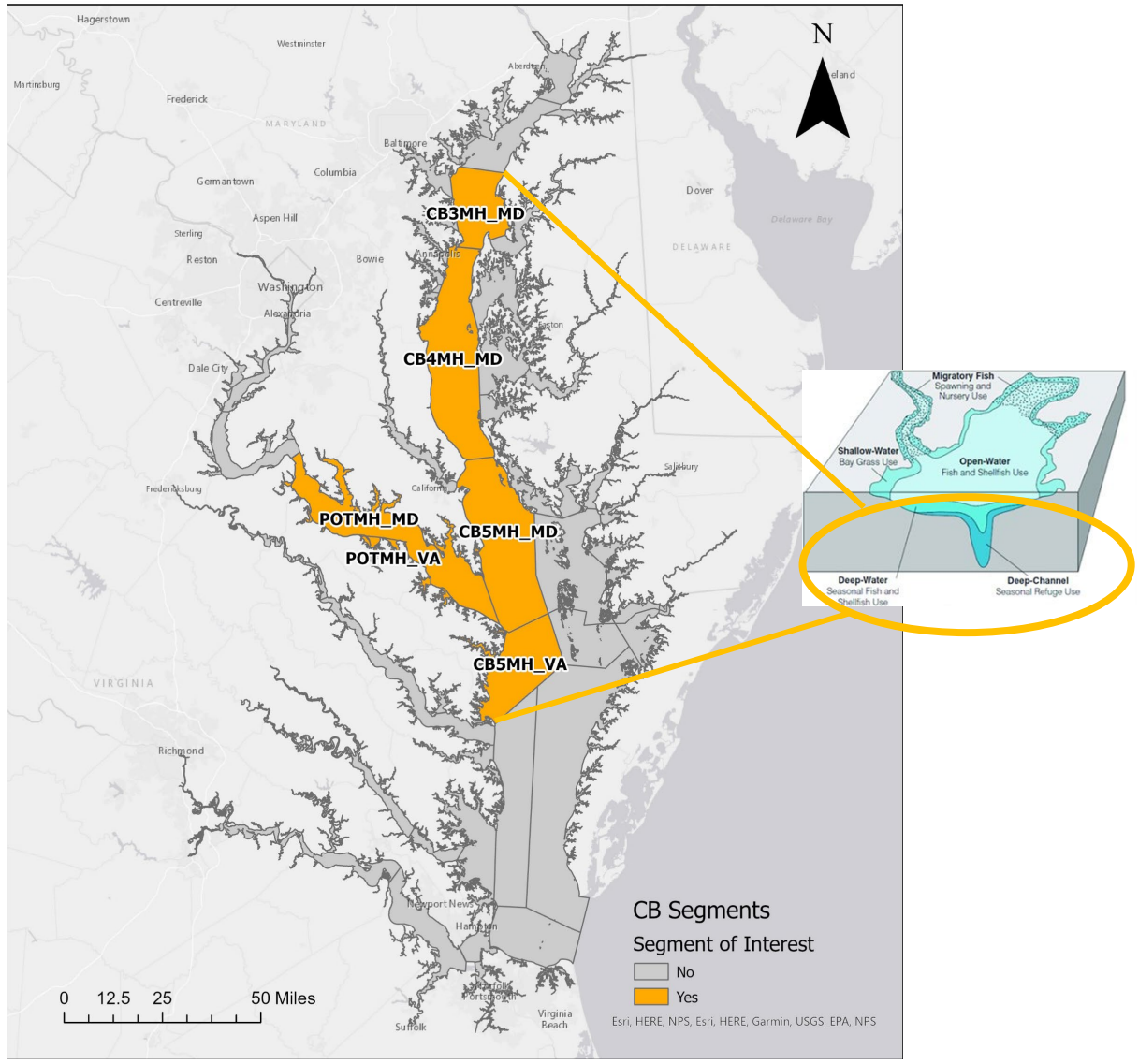
Chlorophyll a (James)





Nitrogen, Phosphorus, & Sediment targets to meet water quality criteria

Existing Approach



Timeline

15 year deadline (with milestones)

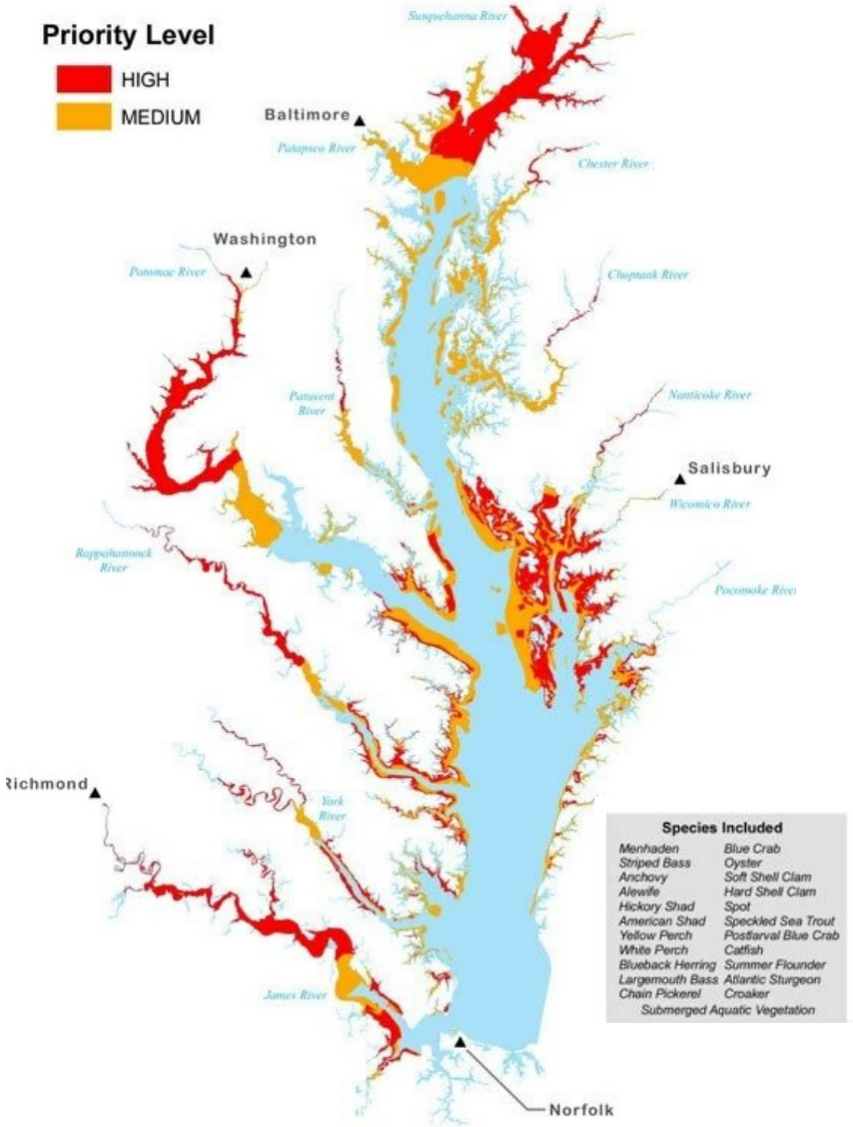
Approach

Nutrient load targets set to 100% WQS, focus on most challenging to achieve: DO criteria in deep water habitats in 4 segments (orange, left).

Nutrient effectiveness across watershed set based on DO impact in deep water main channel (water quality “currency”)

Tiered Approach to Implementation

Example of Prioritization based on potential living resource impact (Source: Chesapeake Bay Program, 2009)



Timeline

Intermediate goal: ex. 10-15 years

Long-term goal: ex. 25-30 years (final goal)

Approach

Intermediate nutrient targets based on living resource potential, while acknowledging:

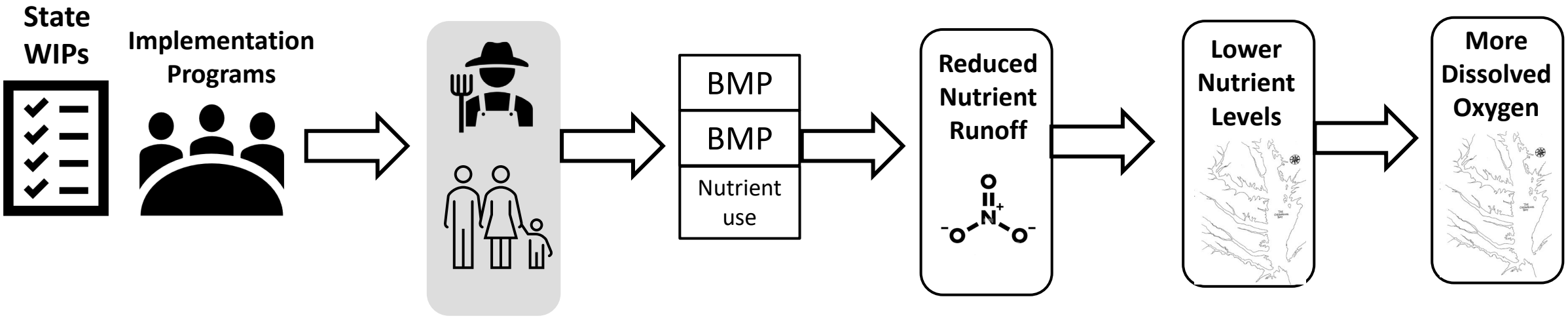
- interdependence across areas (including progress in main channel);
- importance of local, non-WQ living resource factors/stressors.

The “Why” of Tiered Implementation

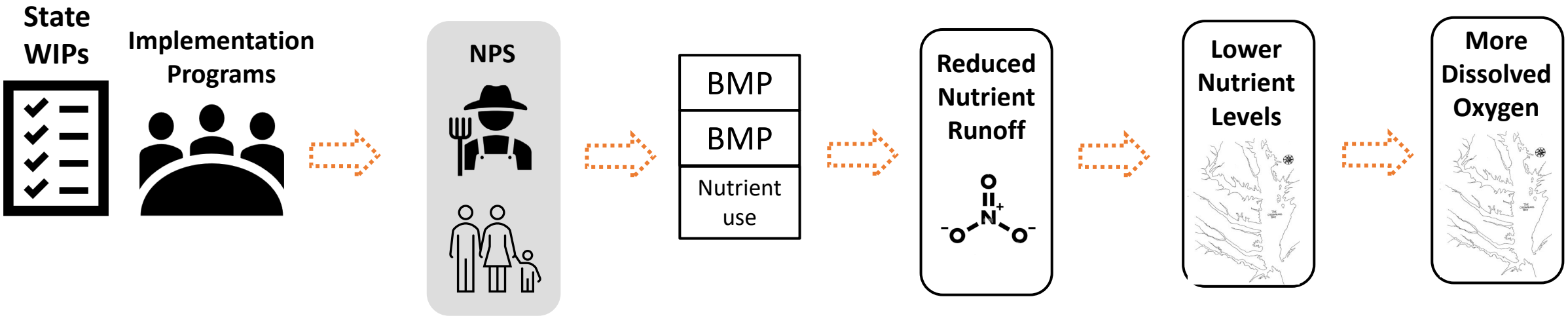
WQ goals are more difficult and costly to achieve than originally anticipated.

Broadening management focus can accelerate improvements in living resource without “full achievement” of WQS

The Water Quality Goal Challenge



The Water Quality Goal Challenge

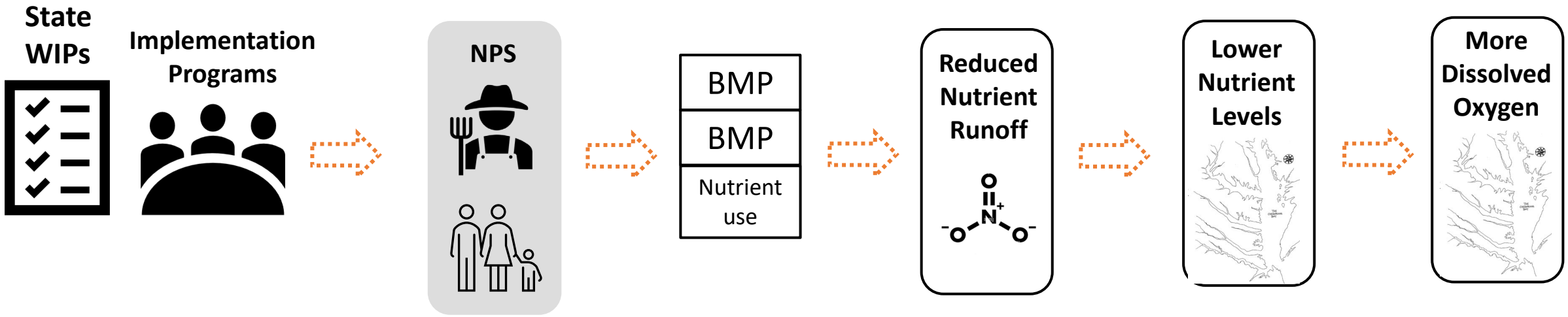


Causal Relationships

Magnitude

Uncertainty

The Water Quality Goal Challenge



Causal Relationships

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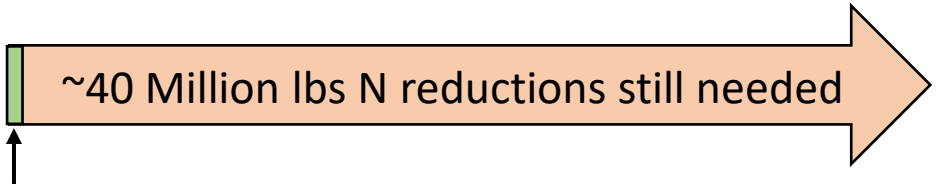


Nonpoint reductions achieved between 2009-2023 (<1 million lbs, modeled loads)

Uncertainty

The Water Quality Goal Challenge

State WIPs

Implementation Programs

NPS

BMP

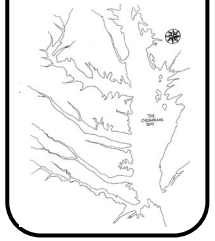
BMP

Nutrient use

Reduced Nutrient Runoff

Lower Nutrient Levels

More Dissolved Oxygen



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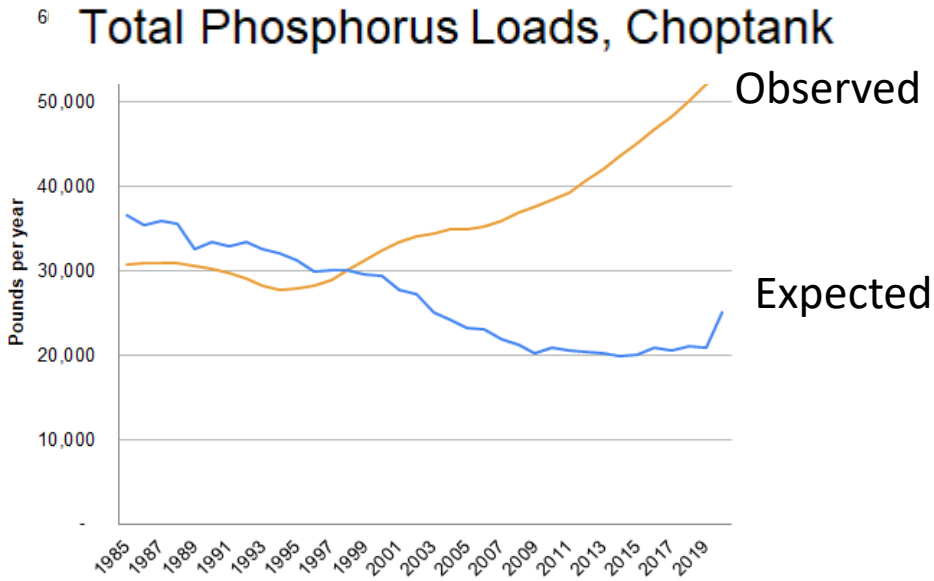
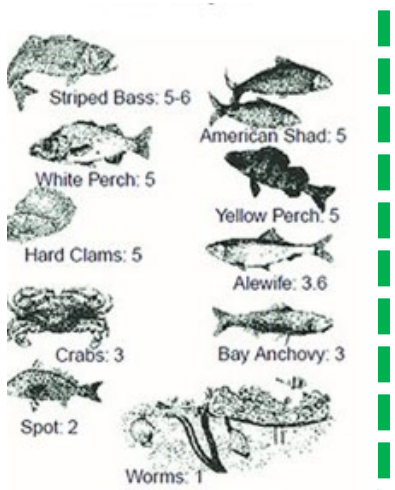


Shifting the Focus of the Journey

Designated Use → **Water Quality Criteria** → **TMDL**

Protect aquatic living resources



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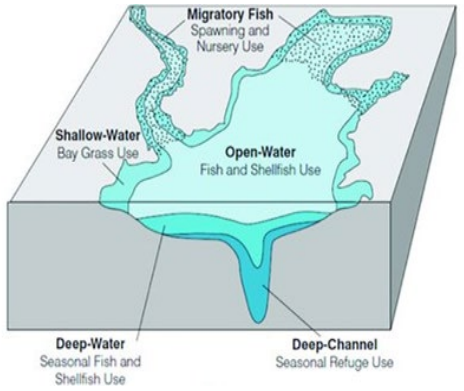
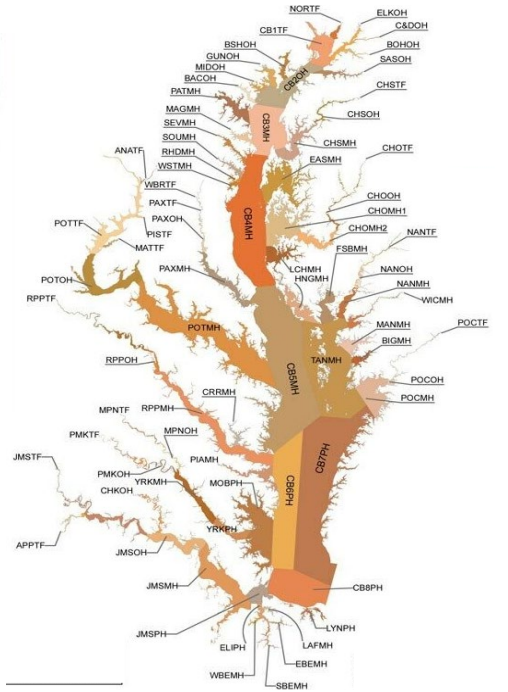




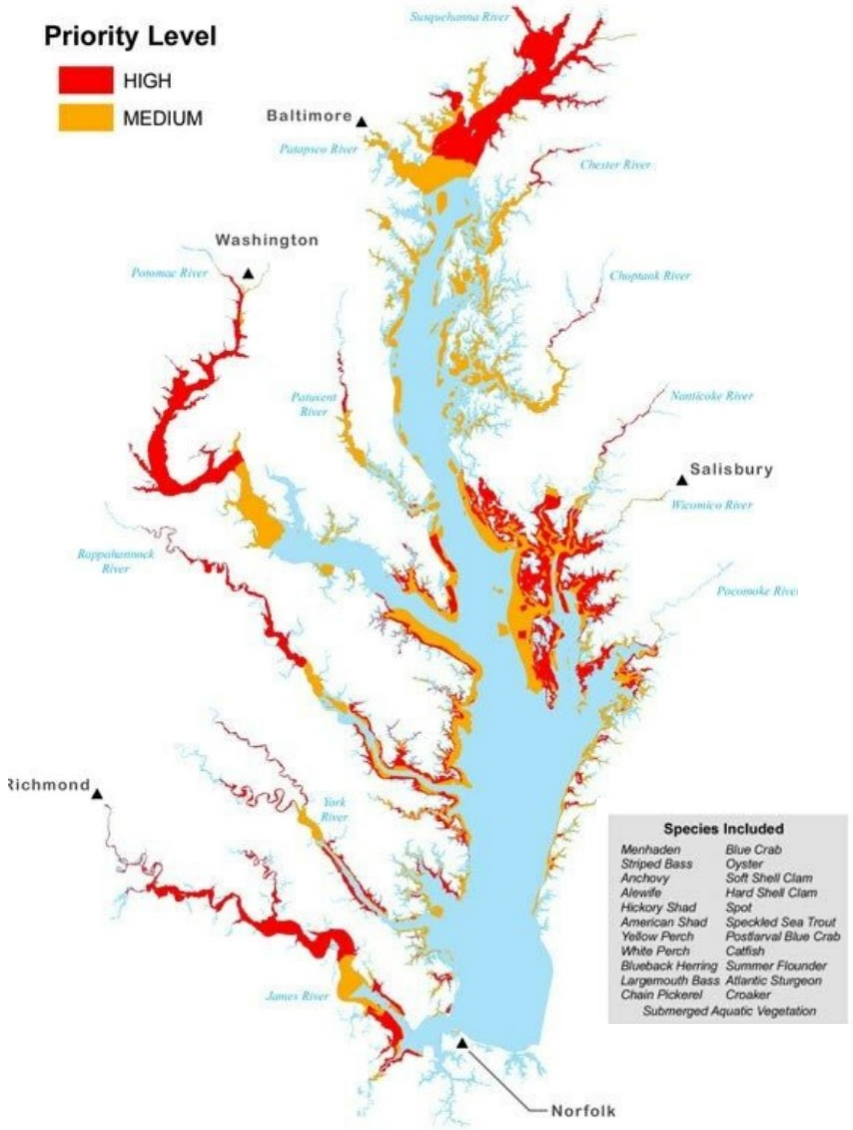
Nitrogen, Phosphorus, & Sediment targets to meet water quality criteria

Summary of the "Why" of Tiered Implementation

Long and arduous journey to the final destination

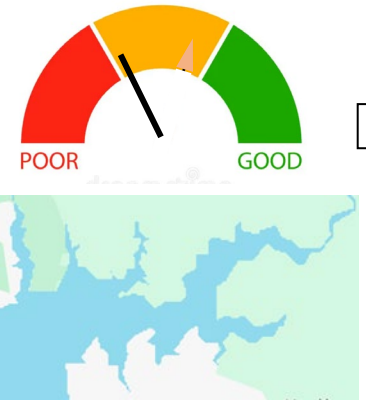
Do more good along the way

The How of Tiered Implementation



Developing intermediate goals to maximize living resource response

Living Resource Habitat Condition in a specific area



Factors influencing habitat of Bay Living Resources

Dissolved Oxygen

Water Clarity

Shoreline Condition

Toxics

Temperature

Salinity

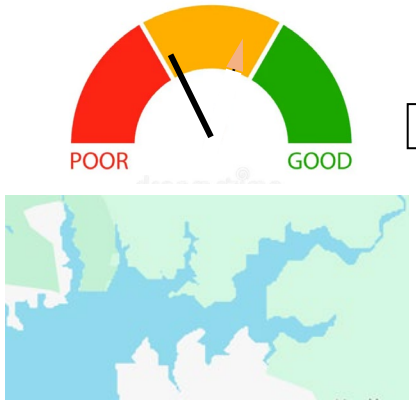
Current

Living resource habitat condition in a specific area

Spatially Focus nutrient reductions
Address Local & Regional influences

Factors influencing habitat of Bay Living Resources

Living Resource Habitat Condition in a specific area



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Thank you