

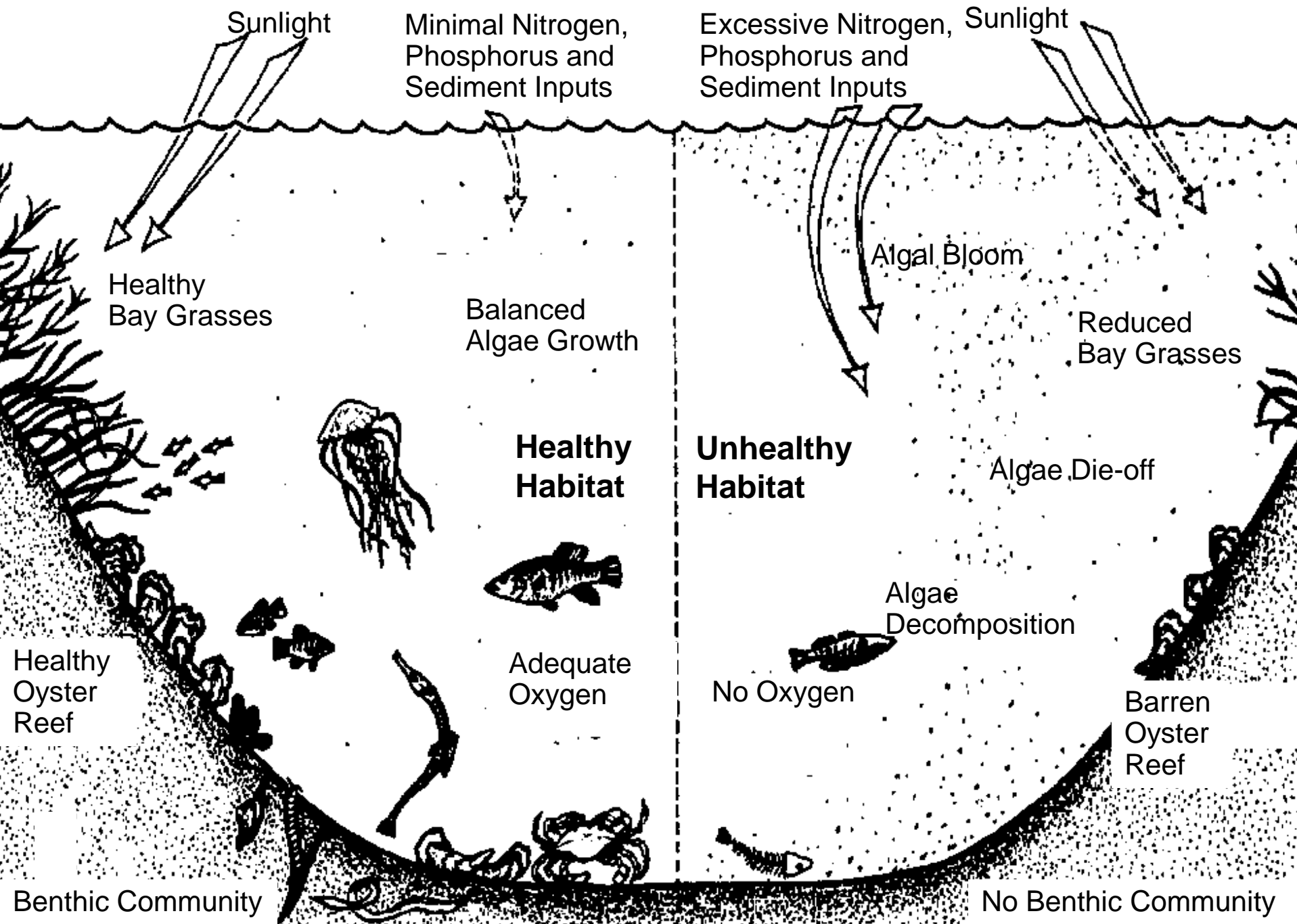
Lessons Learned in Restoring Chesapeake Bay WQ



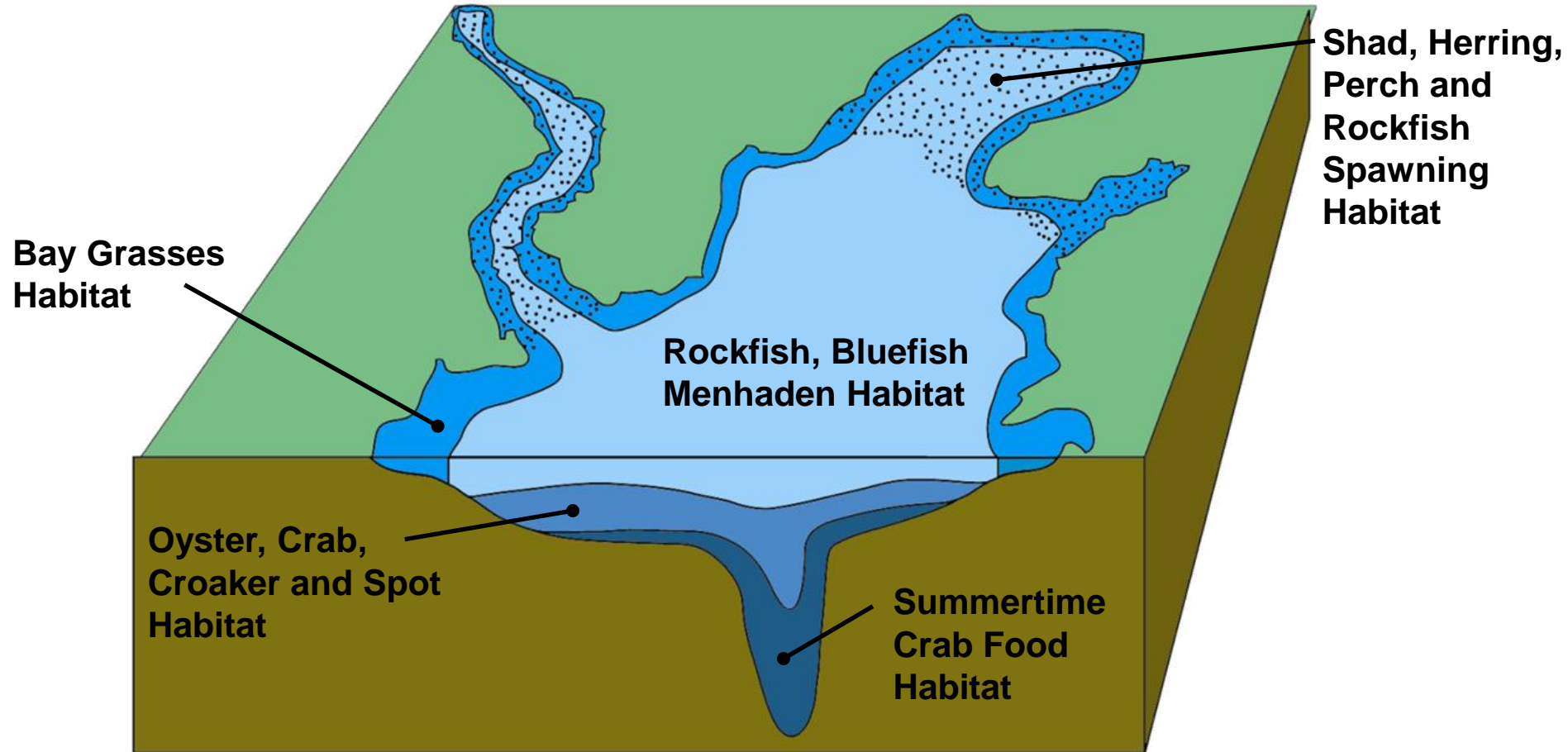
Putting the 17 Million Chesapeake Bay Watershed Residents on a Regulatory Pollution Diet

Rich Batiuk
Associate Director for Science
U.S. EPA Region 3
Chesapeake Bay Program Office

Get Full Buy-in on What Defines Restored Water Quality



Rethink 'Fishable/Swimmable' in Terms the Public Can Relate to



Local "Zoning" for Bay and Tidal River Fish, Crab and Grasses Habitats

Use Best Available Science to Quantify WQ Conditions Protective of Uses

Bay Dissolved Oxygen Criteria

Migratory Fish Spawning & Nursery Areas

6



Striped Bass: 5-6



American Shad: 5

Shallow and Open Water Areas

5



White Perch:



Yellow Perch: 5

4



5

Hard Clams: 5

Deep Water

3



Crabs: 3



Alewife: 3.6

2



Spot: 2



Bay Anchovy: 3

Deep Channel

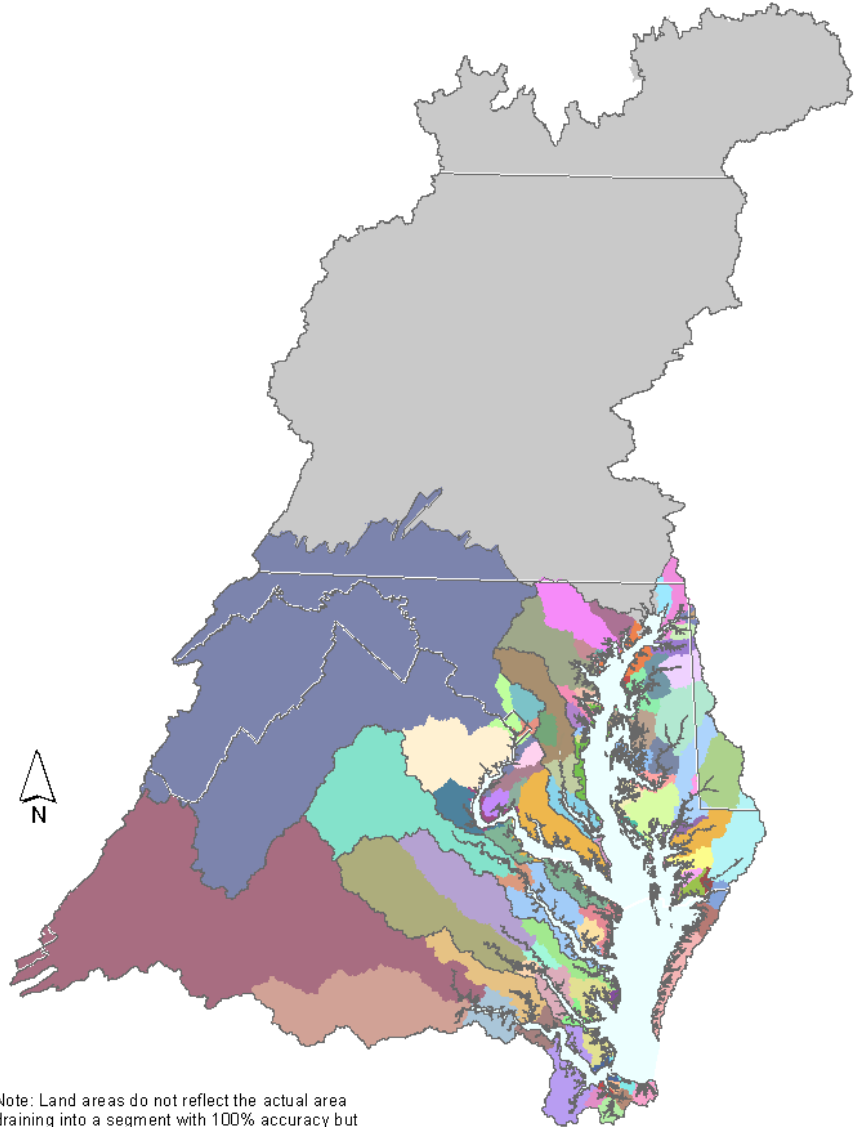
1



Worms: 1

0

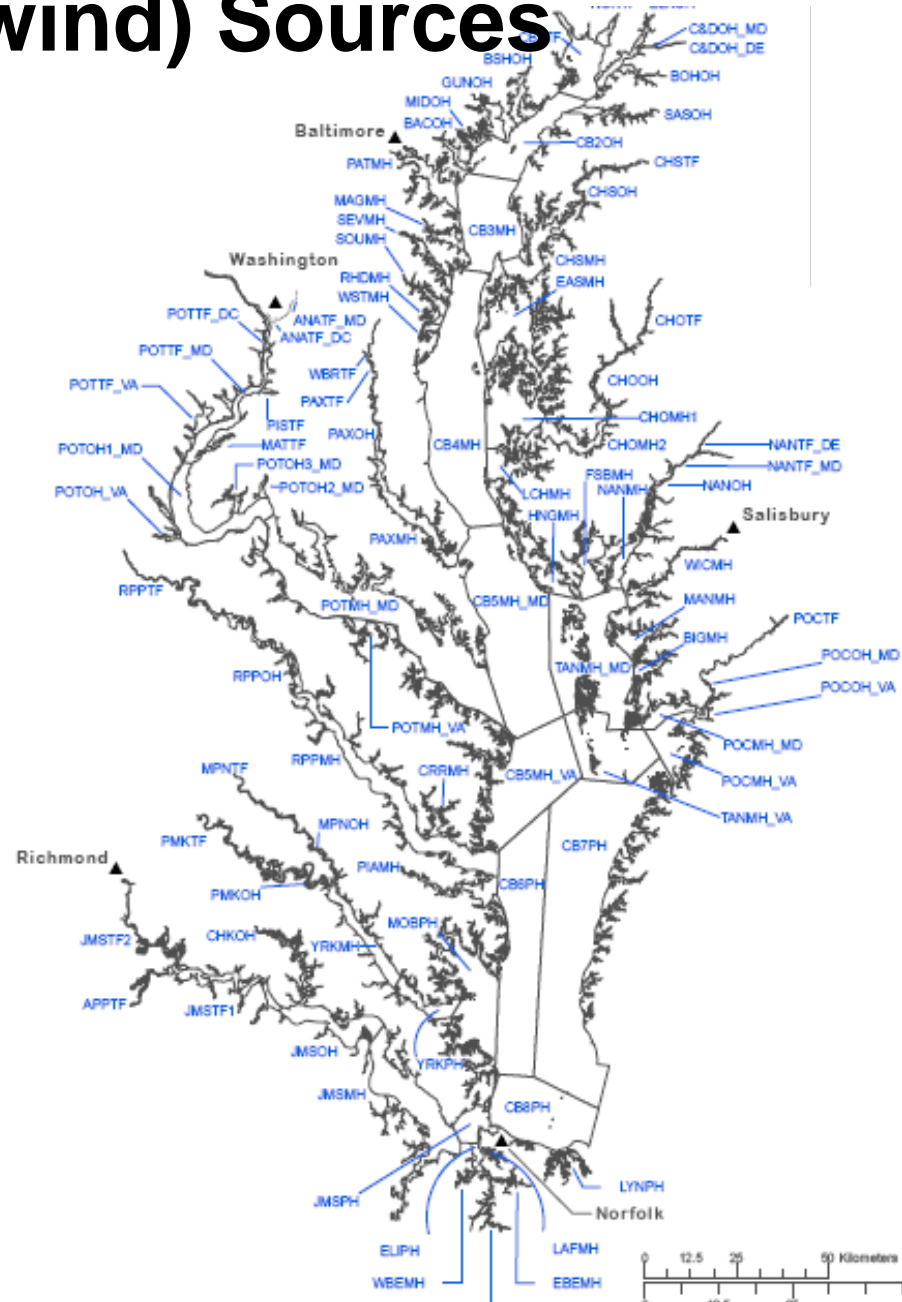
Connect Water Quality Impairments with Upland (and Upwind) Sources



Note: Land areas do not reflect the actual area draining into a segment with 100% accuracy but are basically correct at the map scale.

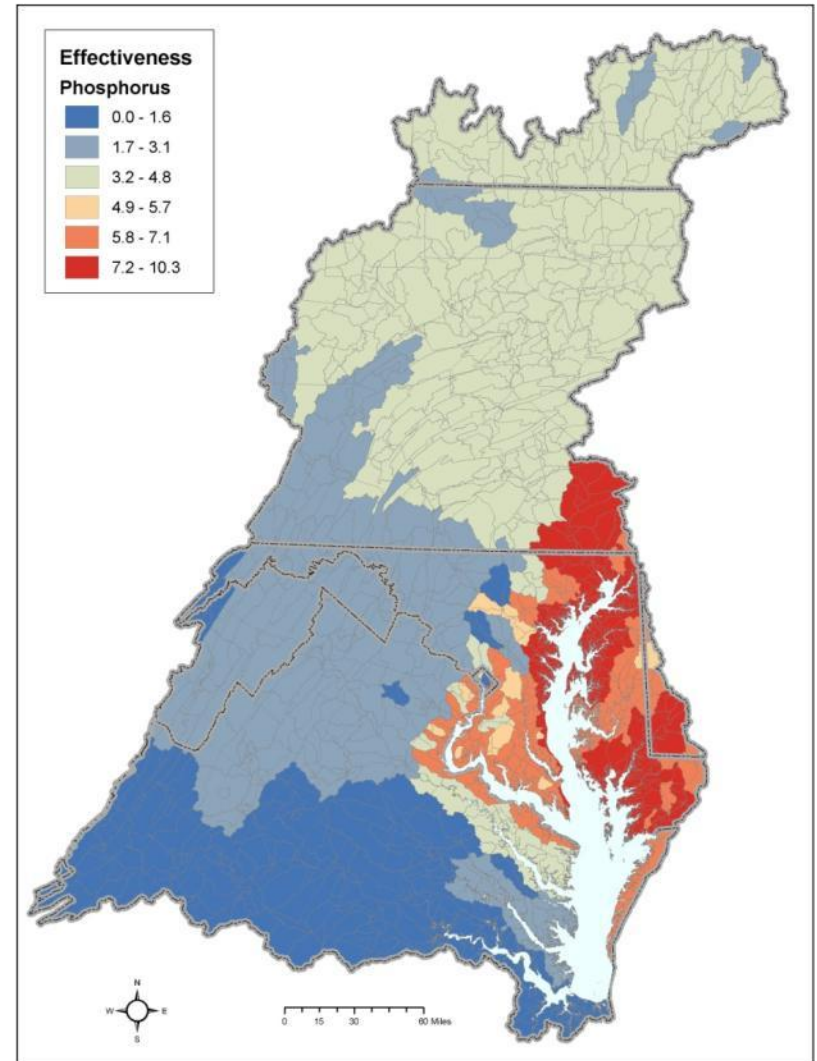
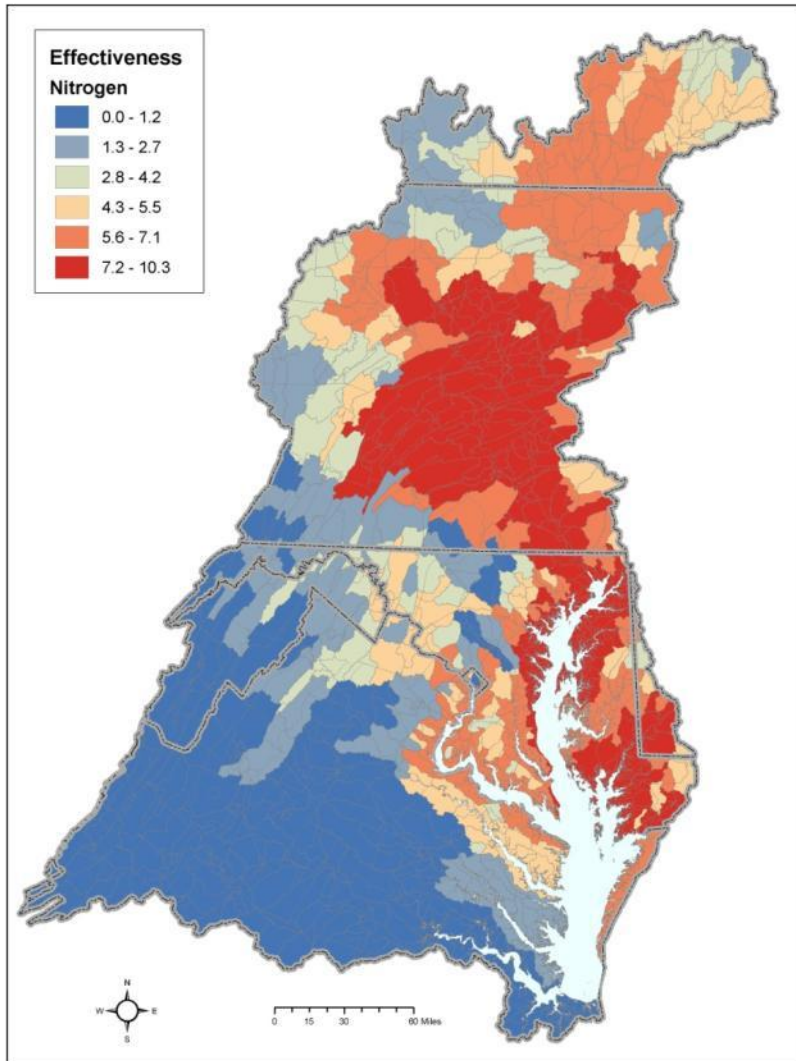
Created 09/24/09 by HW.

0 20 40 60 Miles



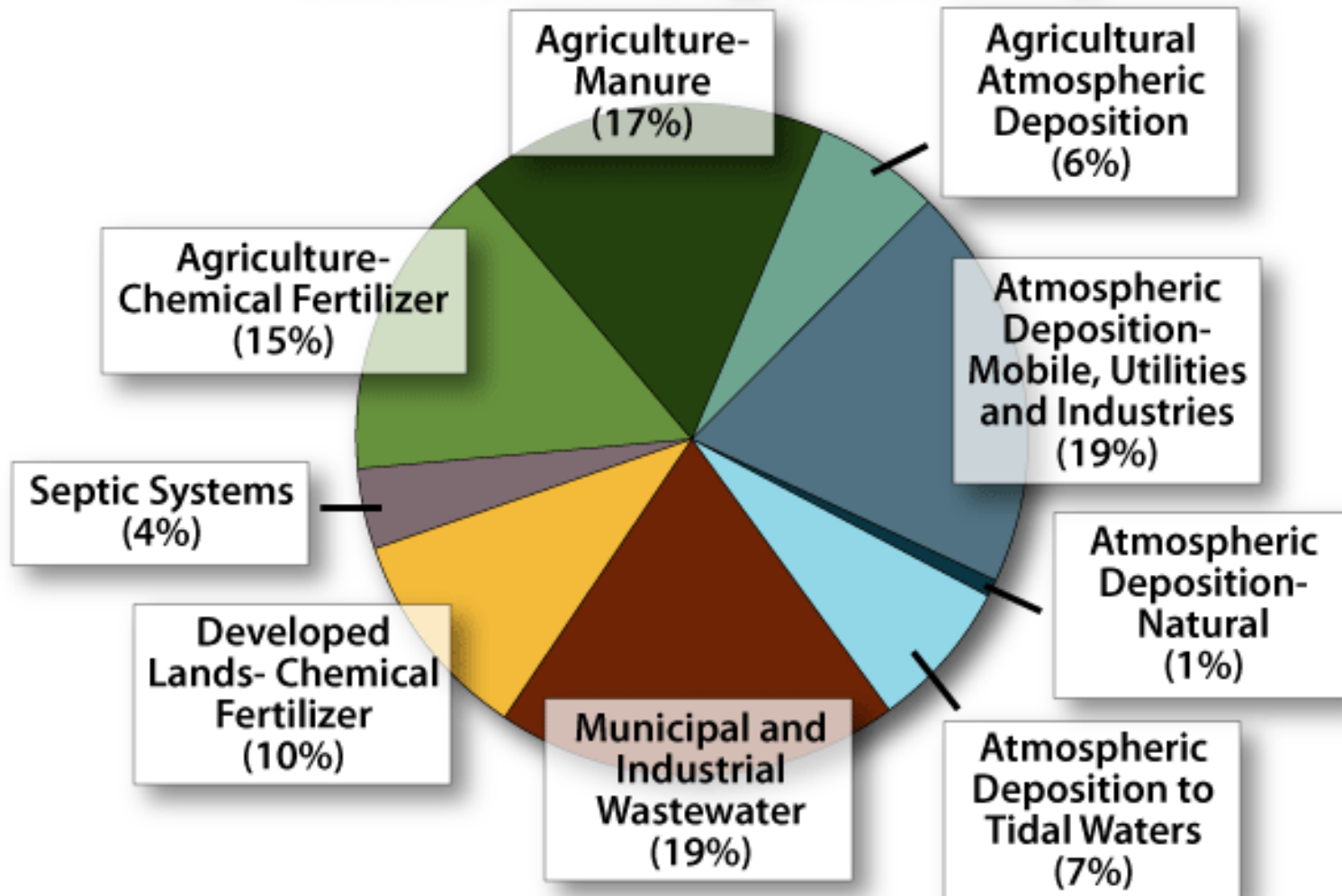
0 12.5 25 50 Kilometers

Do What is Needed to Reach Agreement on Equitable Distribution of Responsibility

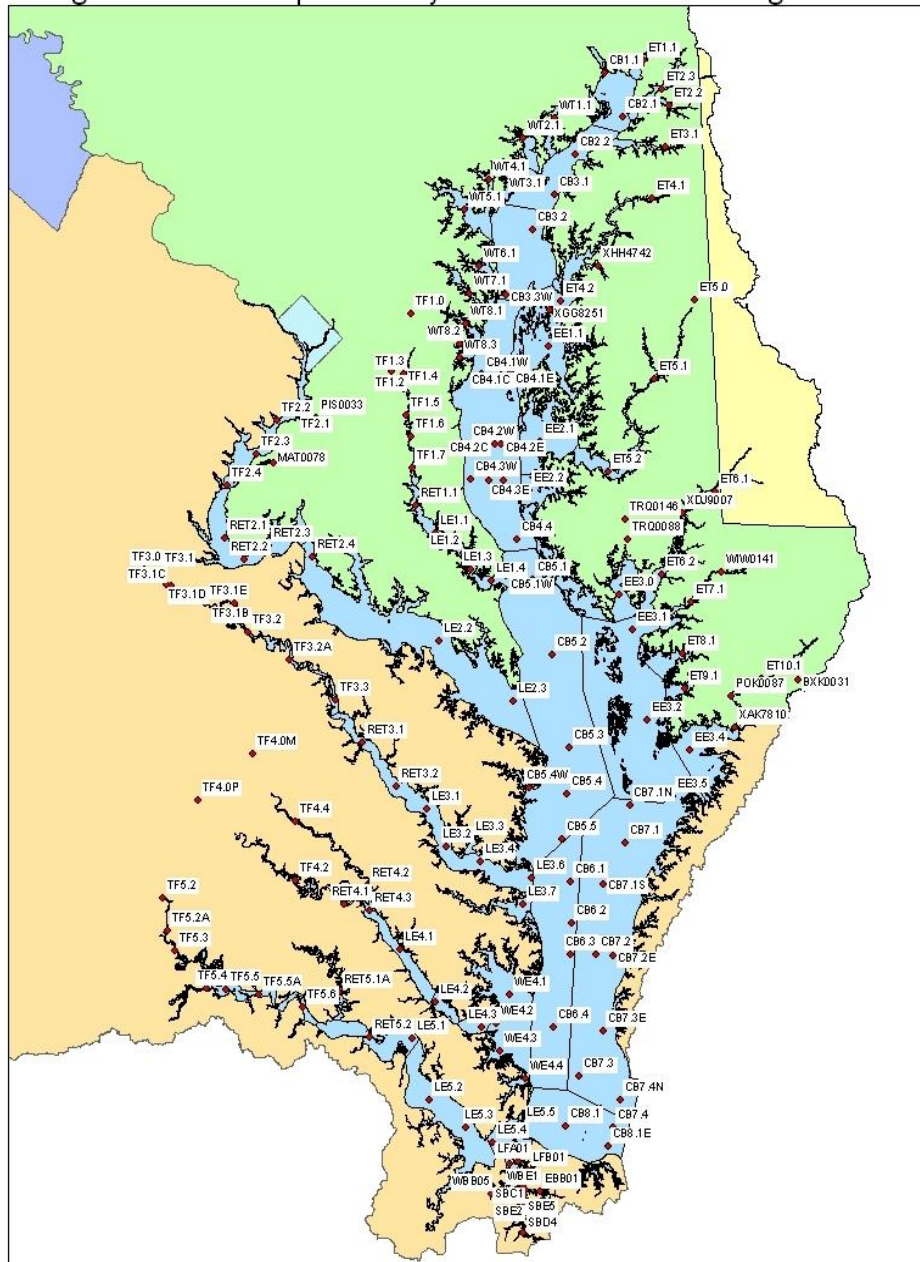


Address All Pollutant Sources Equitably

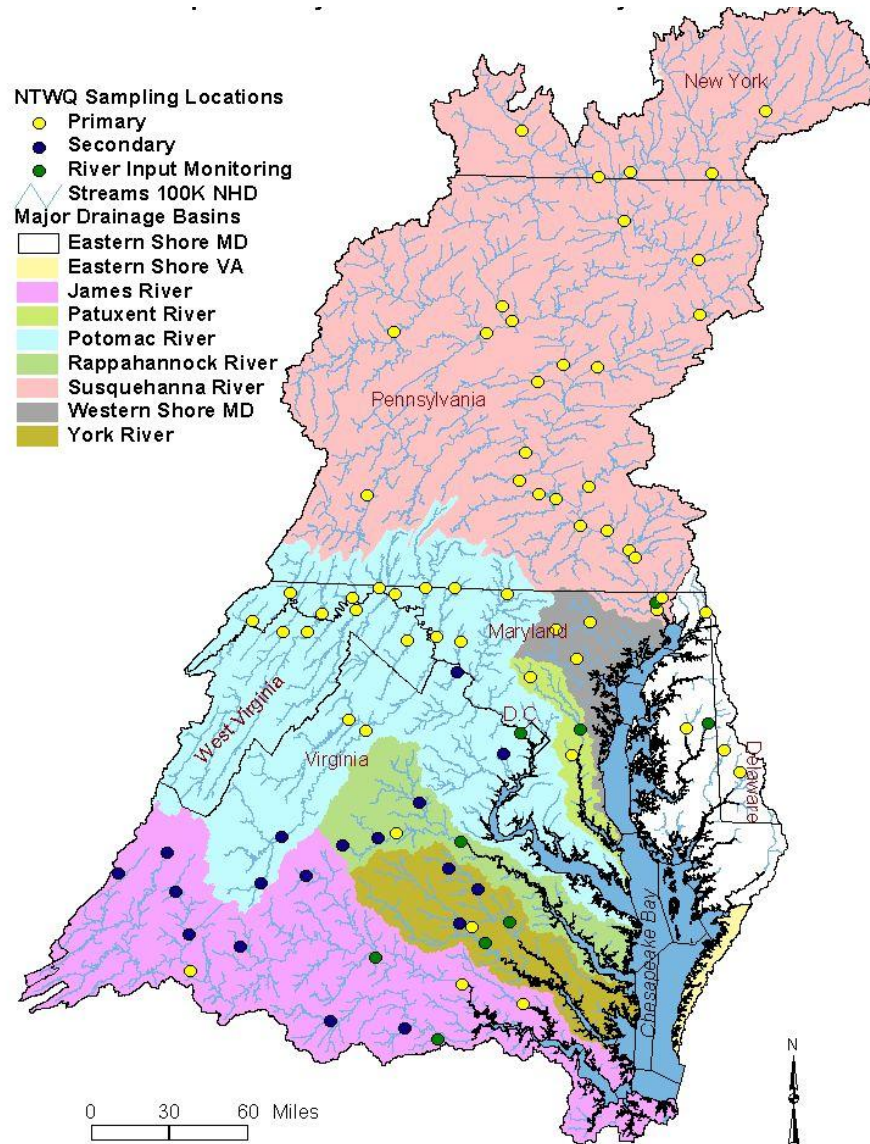
Sources of Nitrogen to the Bay



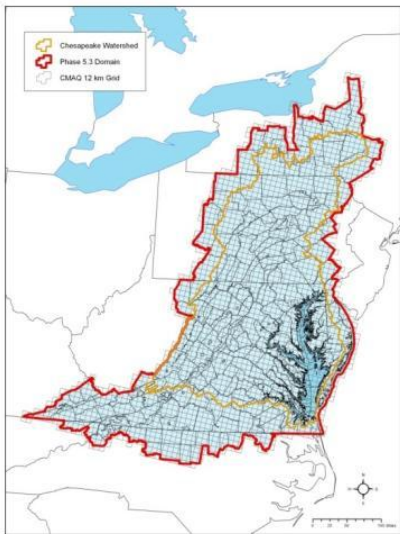
Build/Maintain Long Term Monitoring Networks



- NTWQ Sampling Locations**
- Primary
 - Secondary
 - River Input Monitoring
- Streams 100K NHD**
- Major Drainage Basins**
- Eastern Shore MD
 - Eastern Shore VA
 - James River
 - Patuxent River
 - Potomac River
 - Rappahannock River
 - Susquehanna River
 - Western Shore MD
 - York River



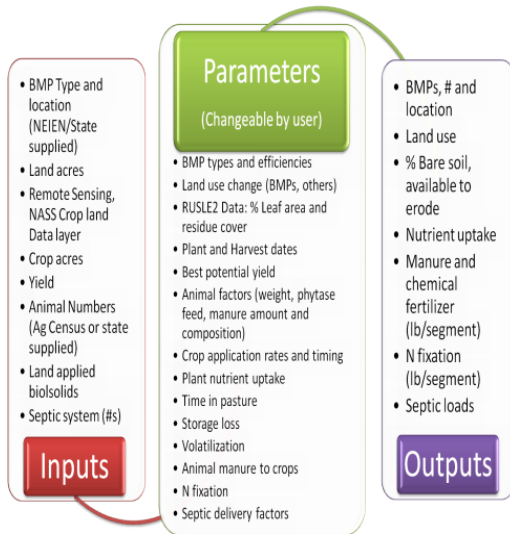
Apply a Suite of Models and Tools to Connect Sources-Management Actions-WQ Responses



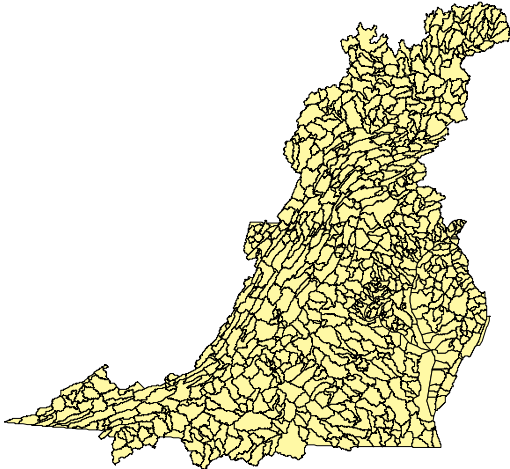
Chesapeake Bay Airshed Model



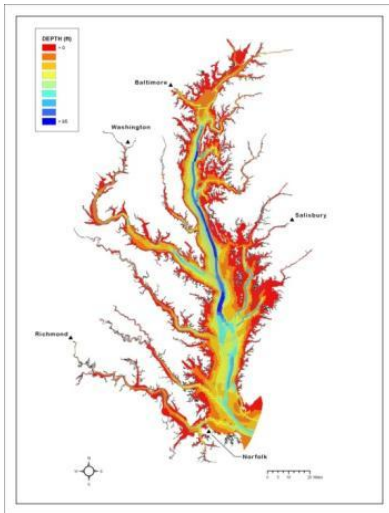
Chesapeake Bay Land Change Model



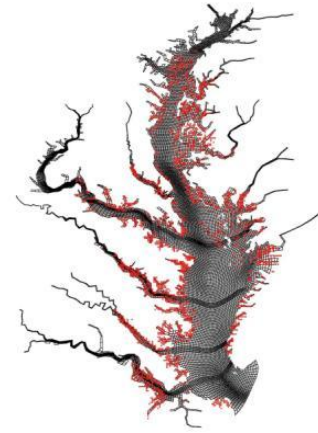
Chesapeake Bay Scenario Builder



Chesapeake Bay Watershed Model

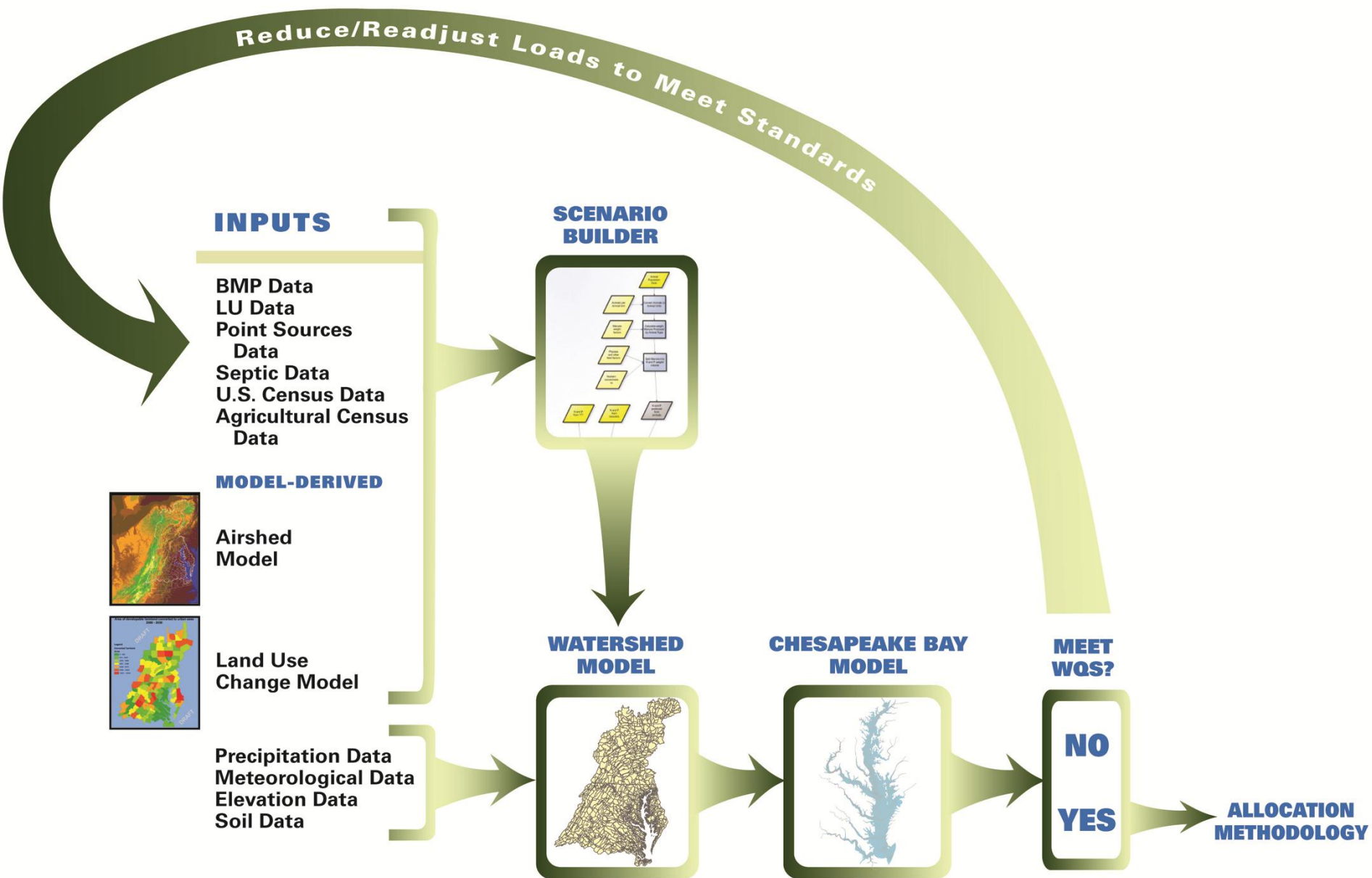


Chesapeake Bay Water Quality and Sediment Transport Model



Chesapeake Bay Filter Feeder Model

Reach Agreement with Partners/Stakeholders on an Equitable Allocation Methodology



Assign Pollutant Load Responsibility Closest to the Actual Source as Possible

Land Areas of the Chesapeake Bay Basin Draining into the 92 303d Segments

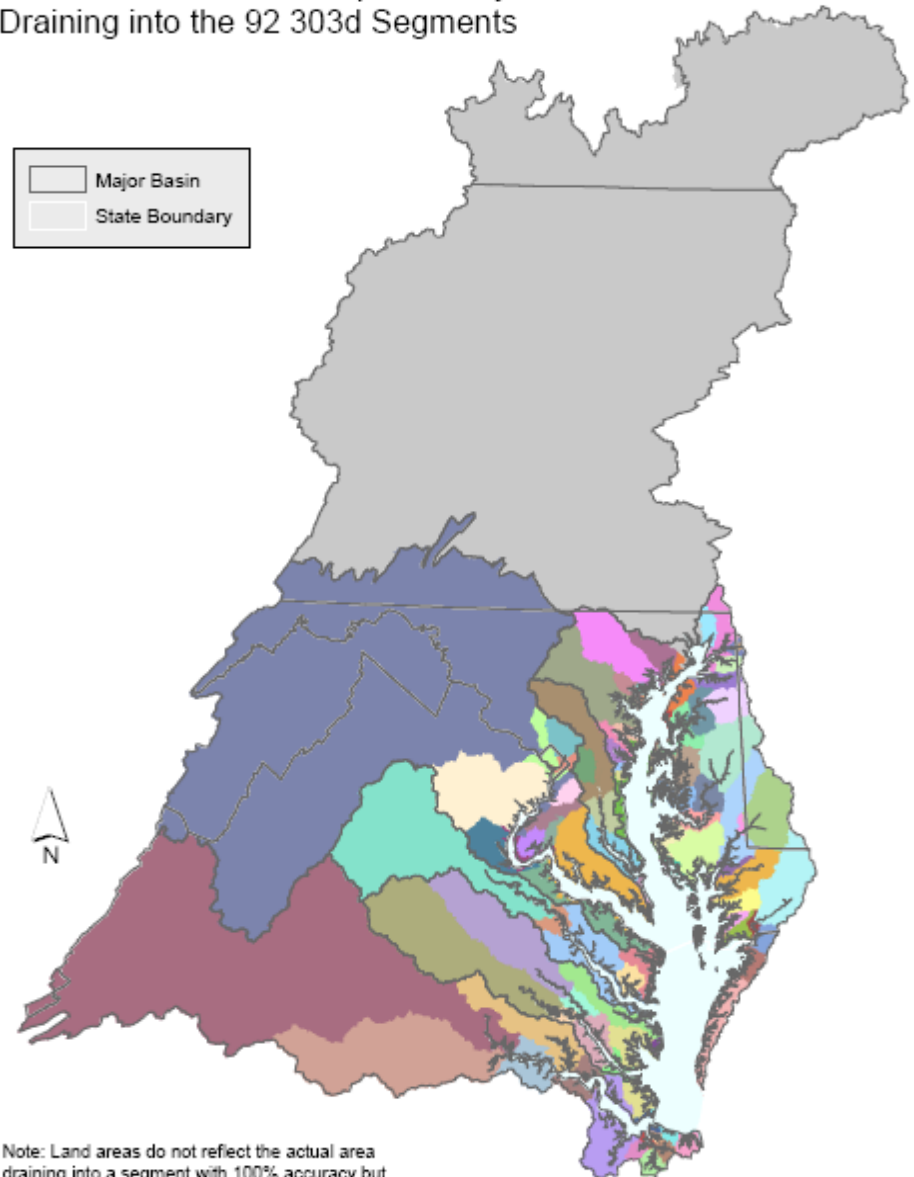


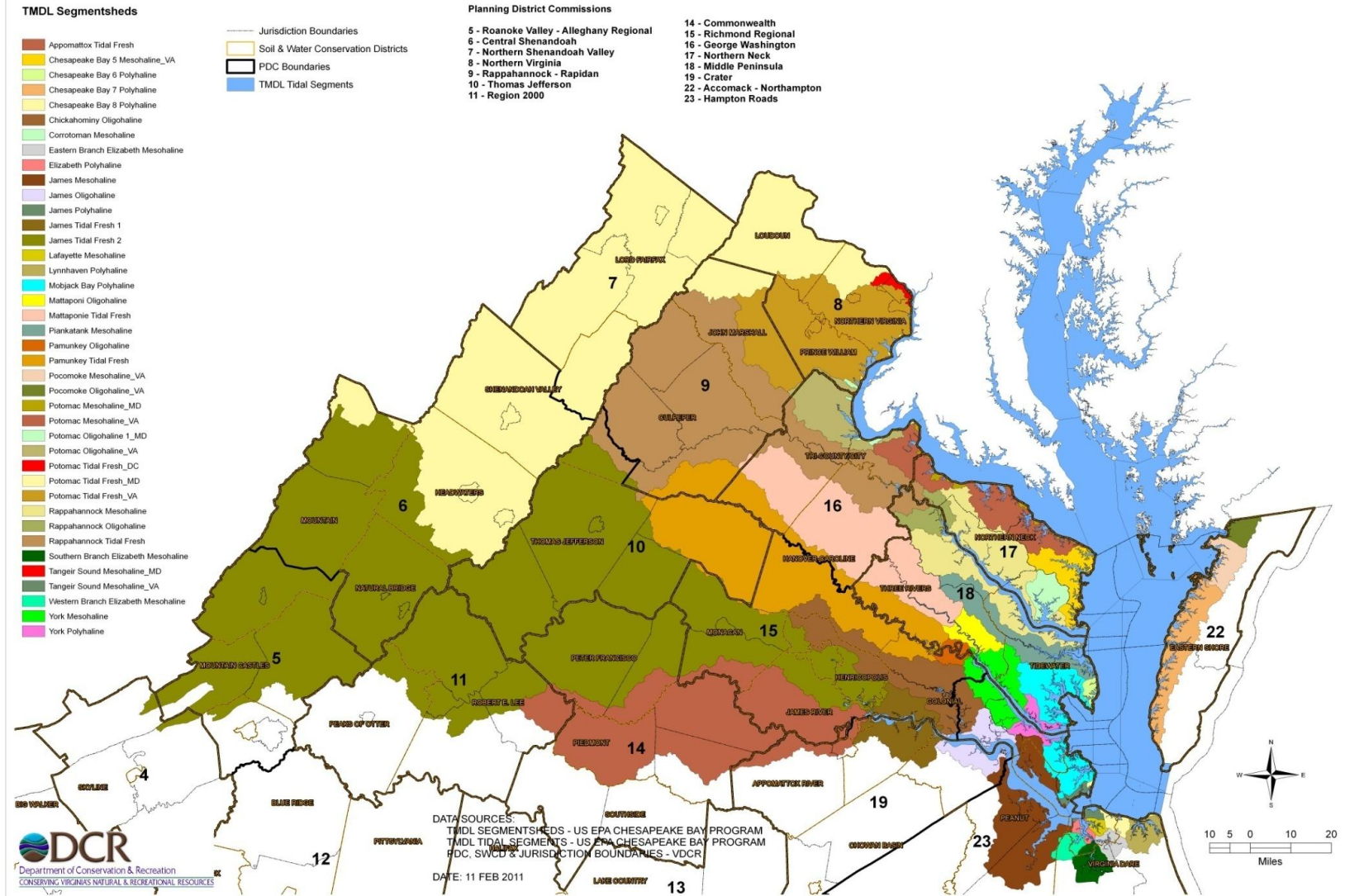
Table B2. Format for Submitting Phase I Watershed Implementation Plan Outputs

St.	Maj. Basin	Impaired Segment Drainage	Unique Code	Source Sector ^b	Type ^c	NPDES Permit
MD	W. Shore	PAXTF	MWPTF	Agriculture-CAFO	Agg. WLA	
				Agriculture-CAFO	Ind. WLA	MD356913
				Agriculture	LA	
				Subtotal: Agriculture		
				Wastewater: POTW#1	Ind. WLA	MD012452
				Wastewater: POTW#2	Ind. WLA	MD013943
				Wastewater: Indus #1	Ind. WLA	MD821672
				Wastewater: Indus #2	Ind. WLA	MD853653
				Subtotal: Wastewater		
				Onsite	LA	
				Urb/Suburb Runoff: MS4	Agg. WLA	MD546195
				Urb/Suburb Runoff: Non-MS4	LA	
				Urb/Suburb Runoff: MS4	Ind. WLA	MD892645
				Industrial Stormwater	Agg. WLA	
				Industrial Stormwater	Ind. WLA	MD246139
				Construction	Agg. WLA	
				Subtotal: Urb/Suburb		
				Forest	LA	
MD	W. Shore	SEVMH	MWSeM	Agriculture-CAFO	Agg. WLA	MD382614
				Agriculture	LA	
				Subtotal: Agriculture		
				Wastewater: POTW#1	Ind. WLA	MD083699
				Wastewater: POTW#2	Ind. WLA	MD054732
				Wastewater: Indus #1	Ind. WLA	MD836679
				Wastewater: Indus #2	Ind. WLA	MD854469
				Subtotal: Wastewater		
				Onsite	LA	
				Urb/Suburb Runoff: MS4	Agg. WLA	MD588578
				Urb/Suburb Runoff: Non-MS4	LA	
				Subtotal: Urb/Suburb		
				Forest	LA	
	...					
MD	W. Shore			Reserve for Growth	WLA/LA	
MD	W. Shore		MW	Total		

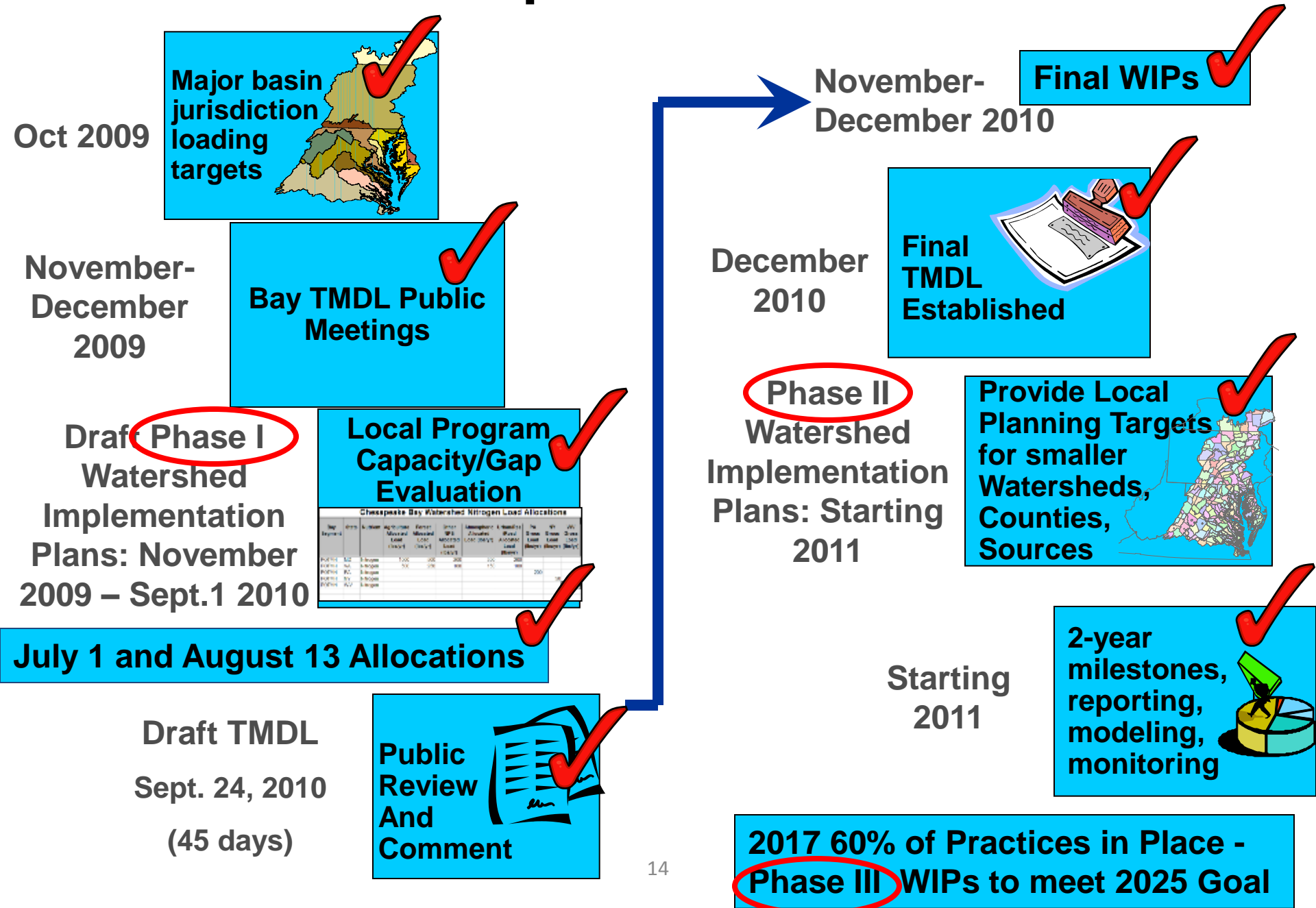
Note: Land areas do not reflect the actual area draining into a segment with 100% accuracy but are basically correct at the map scale.

Go as Local with Your Allocations as Your Scientific Understanding Enables You to

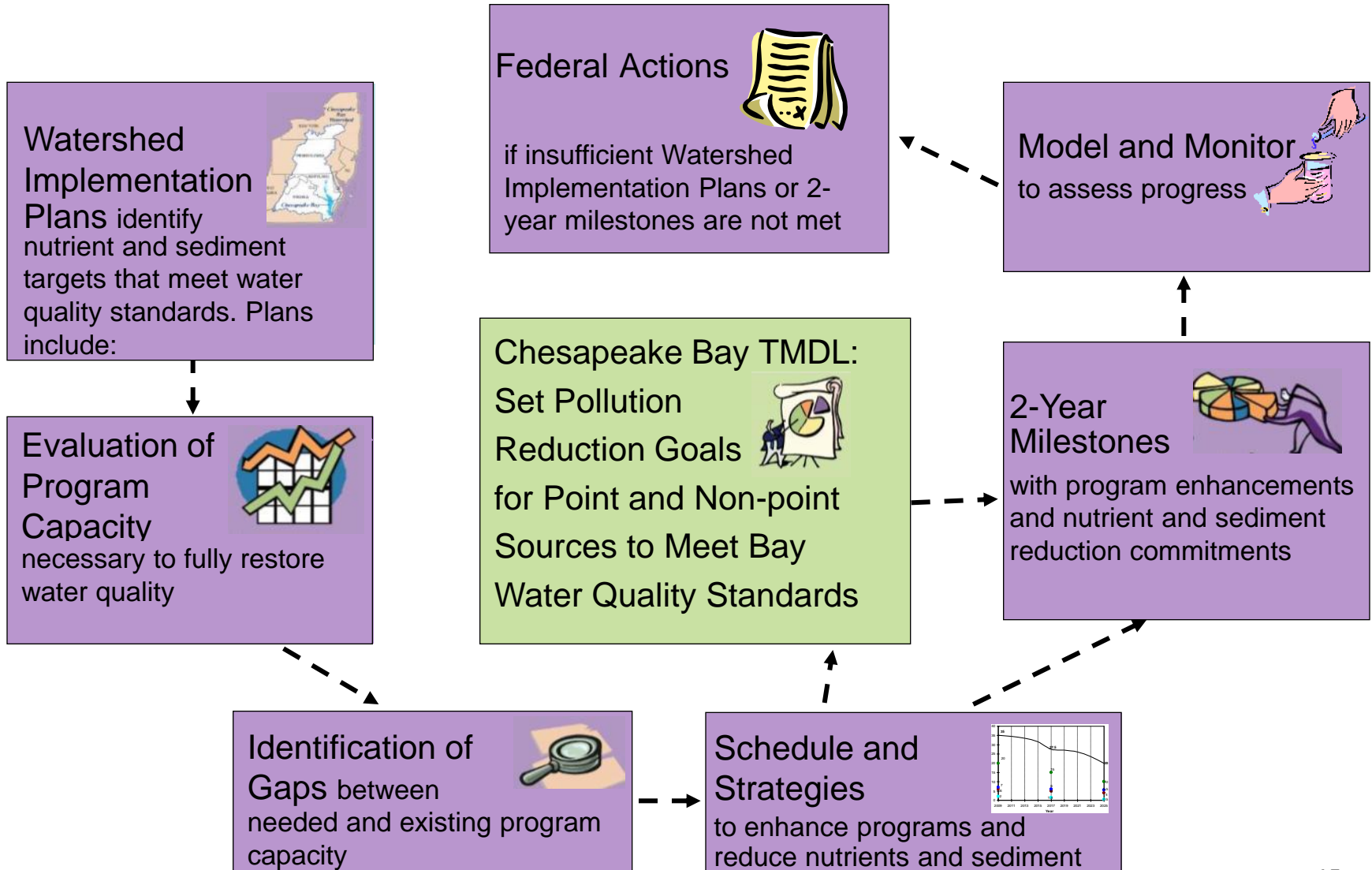
Virginia Bay TMDL Segmentsheds



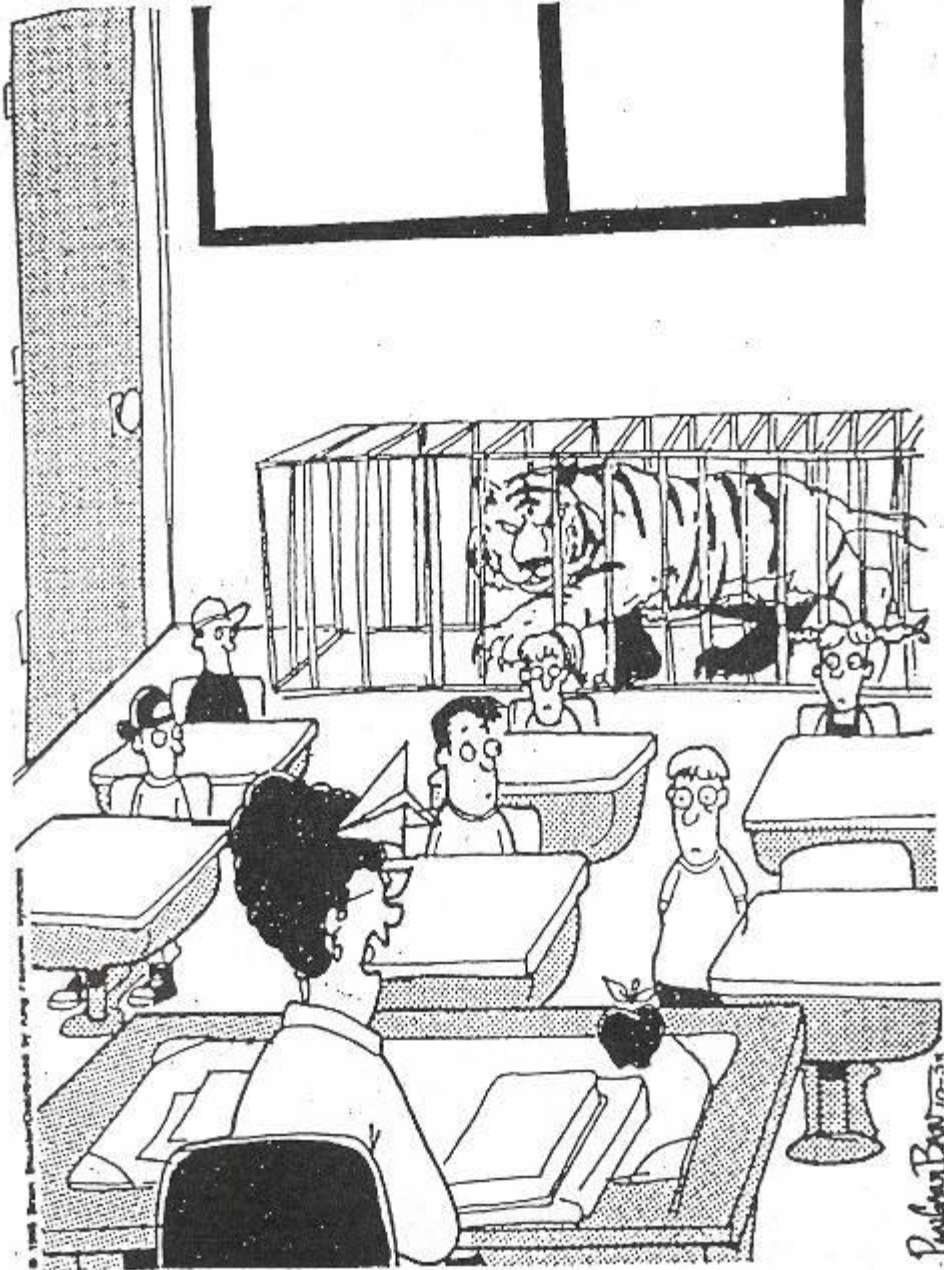
Build in Adaptation From the Start



Build and Institutionalize an Accountability System



**Recognize
There is a Need
for Basic
Behavior
Changes and
Act on this
Need**

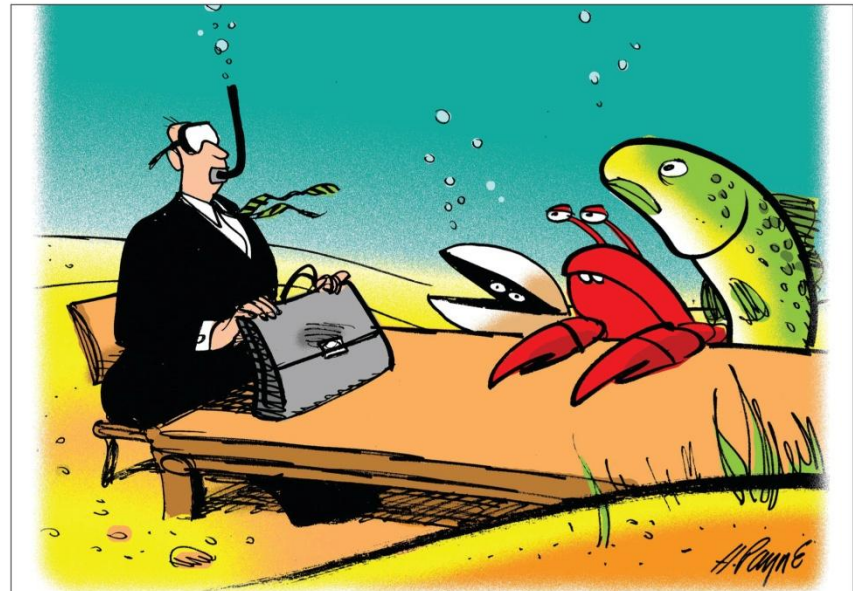


**"Well, Timmy, it looks like you've just earned yourself
10 minutes in the cage with Mr. Whiskers."**

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**Never, Ever Forget
Who You Need to
Work with and Who
You are Really
Working For**



**Pollutant Loads in the Chesapeake
— It's All in the Stakeholder Process**

Knee Capping
*Protecting Public
Participation*

Warming Trends
*Strict Implementation
of Existing Statutes?*

EPA HAPs Rule
*Standards Would
Place Strict Limits*



Questions



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