

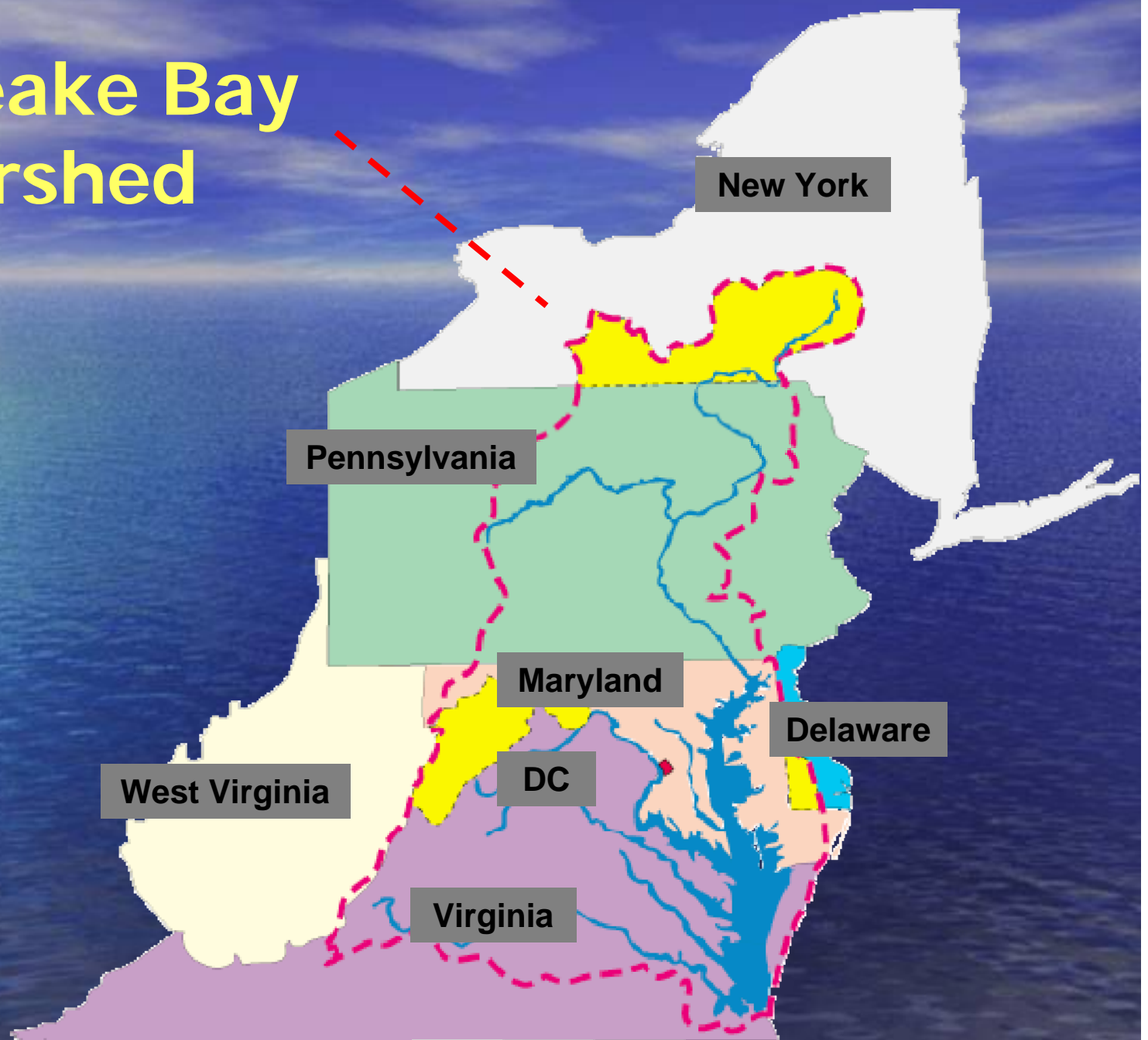
An aerial photograph of the Chesapeake Bay Watershed of Virginia. The image shows the intricate network of the bay and its tributaries, with green land areas and blue water. The land is densely forested, and the water shows varying shades of blue and green, indicating different depths and possibly sediment levels.

Progress Report on Nutrient Trading in the Chesapeake Bay Watershed of Virginia

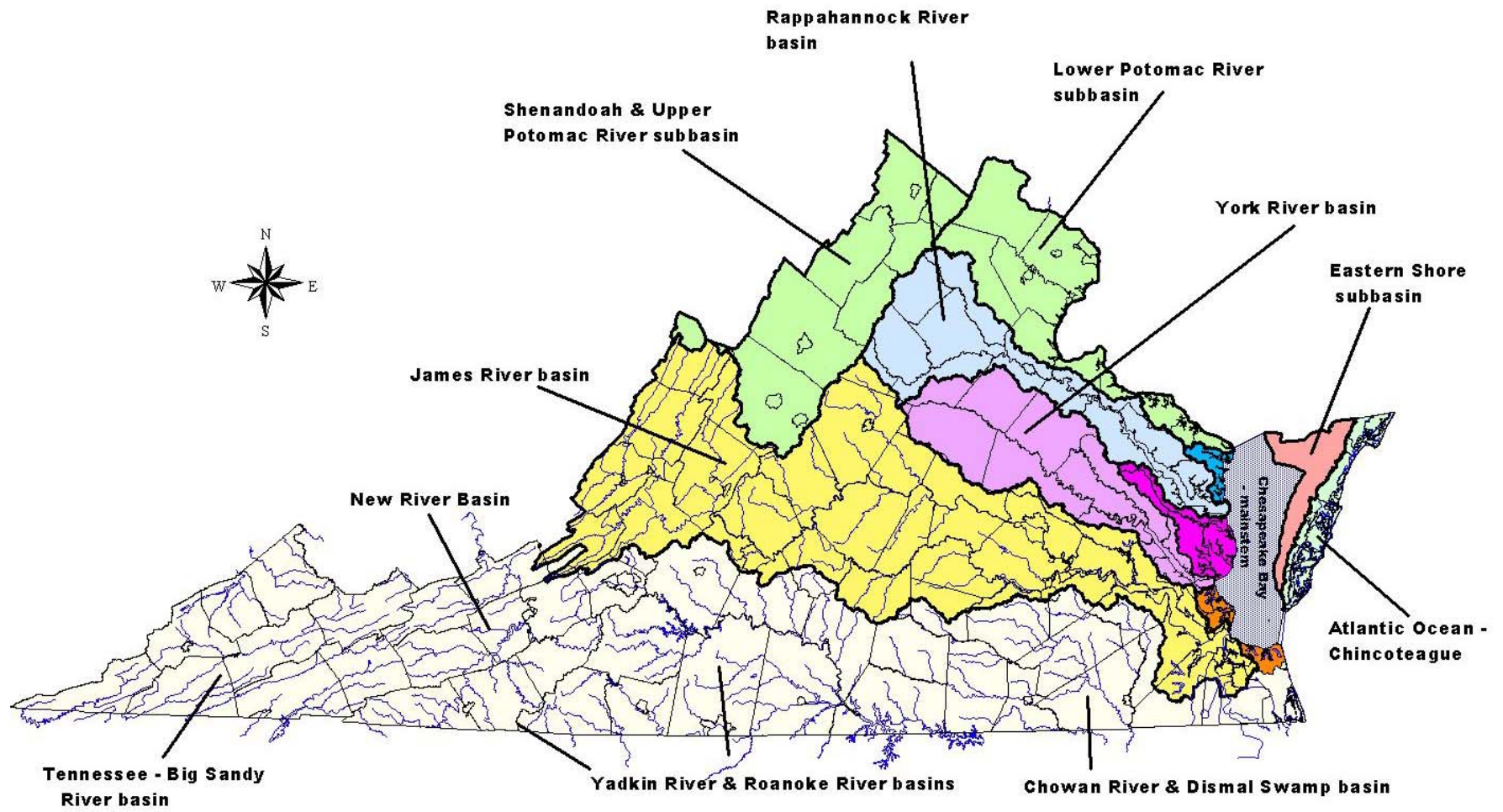
**Chesapeake Bay Watershed Nutrient
Credit Exchange Program adopted by
VA General Assembly in 2005**



Chesapeake Bay Watershed



Virginia's Chesapeake Bay Watershed River Basins



Chesapeake 2000 Agreement : **A Watershed Partnership**



Improving water quality is the most critical element in the overall protection and restoration of Chesapeake Bay and its tributaries.

Goal for Nutrients: ***By 2010, correct the nutrient-related problems in the Bay and its tributaries sufficiently to remove them from the Federal “Impaired Waters” list***

Tributary Strategies

- Cleanup Plans for each major river basin in Bay watershed
- Focus is on reducing loads of Nitrogen, Phosphorus, and Sediment
- Need actions by both point and non-point sources
- VA Strategies issued by SNR in January 2005
- May need to be amended after EPA approval of Bay TMDL [Total Maximum Daily Load]

Point Sources: Wastewater Treatment Plants



Non-Point Sources



Virginia Nitrogen Loads

Working Towards Basin Allocation Caps

[Million Pounds/Yr]

VA Cap Load Allocation – 51.4 MPY

Sources	1985	2000	2007*	Tributary Strategy
Agriculture	29.89	22.97	21.39	8.82
Point Source	34.19	25.55	21.82	19.38
Urban	11.23	12.10	12.41	8.02
Mixed Open	5.25	5.06	5.62	3.63
Septic	2.55	3.33	3.51	3.30
Forest	8.19	8.13	8.14	8.11
Non-Tidal Water Deposition	0.94	0.97	0.96	0.81
All Sources	92.24	78.10	73.84	52.07

*Draft estimates

Nutrient Credit Exchange Legislation

(Adopted in 2005)

- Authorizes Chesapeake Bay Watershed Nutrient Credit Exchange Program
- Directs DEQ to issue a watershed general permit for point source discharges of nutrients (Nitrogen and Phosphorus) to the Chesapeake Bay and its tributaries – nutrient loads are capped
- Authorizes the creation of the (non-profit) Virginia Nutrient Credit Exchange Association to assist the regulated community in complying with the watershed general permit

Legislative Findings and Purposes

Utilization of a watershed general permit and market-based point source nutrient credit trading program will assist in:

- a) meeting the nutrient cap load allocations cost-effectively and as soon as possible in keeping with the 2010 timeline and objectives of the Chesapeake 2000 agreement,
- b) accommodating continued growth and economic development in the Chesapeake Bay watershed, and
- c) providing a foundation for establishing market-based incentives to help achieve the Chesapeake Bay Program's nonpoint source reduction goals.

CB Watershed Nutrient General Permit Highlights

- Effective January 1, 2007
- Covers 124 significant and 23 non-significant discharges
- Includes calendar year annual TN and TP load limits – each discharger's individual permit covers all other limits
- Compliance date is January 1, 2011
- Initial compliance plans submitted by September 30, 2007 – must be updated by February 1 each year
- ***Dischargers expect to meet compliance date for both phosphorus and nitrogen in each of the five river basins***

Point Source Nutrient Loads 2007 vs. Nutrient Load Caps

[Million Pounds/Year]

River Basin	Number of Significant Dischargers	Total Nitrogen Delivered Load		Total Phosphorus Delivered Load	
		2007	CAP	2007	CAP
Shenandoah- Potomac*	44	3.62	3.41	0.269	0.188
Rappahannock	25	0.52	0.50	0.057	0.042
York	11	1.41	0.96	0.140	0.162
James	39	14.13	13.90	1.115	1.352
Eastern Shore	5	0.18	0.03	0.004	0.002
TOTALS =	124	19.87	18.80	1.585	1.745

*Note: figures do not include VA Portion of Blue Plains.

How Does a Wastewater Treatment Facility Grow Under Nutrient Caps?

- Upgrade to more advanced treatment
- Purchase additional point source allocations from other plants
- Reclamation and Reuse
 - Irrigation and industrial uses
- Acquire Non-Point Source Offsets
 - Agricultural and urban storm water BMPs
- Other reductions as approved by DEQ on a case-by-case basis
 - Taking septic systems off line
 - Aquaculture
 - Algal production and harvesting
 - Others
- Acquire allocations by payment into Water Quality Improvement Fund

Reclamation and Reuse



Single largest opportunity to accommodate growth!

Point Source Nutrient Load Caps and Urban Development Areas

- Nutrient loads discharged from treatment plants are capped – Growth is not
- Lots of creative possibilities provided through Nutrient Credit Exchange Program
- Challenge is to not increase nutrient pollution as Virginia communities and industry grow

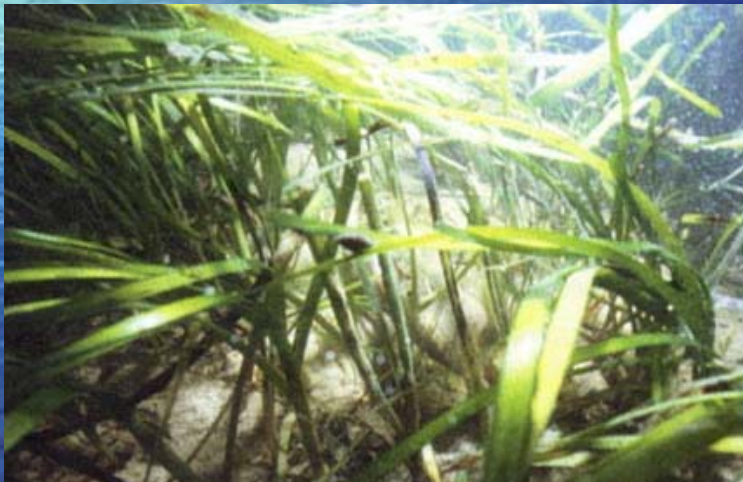
Benefits of Restored Bay



Fewer algae blooms



Healthier Fish Populations



**Clearer waters more SAV
Better habitat**



Fishing (recreation / commercial)