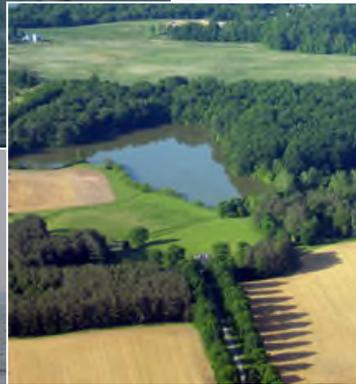


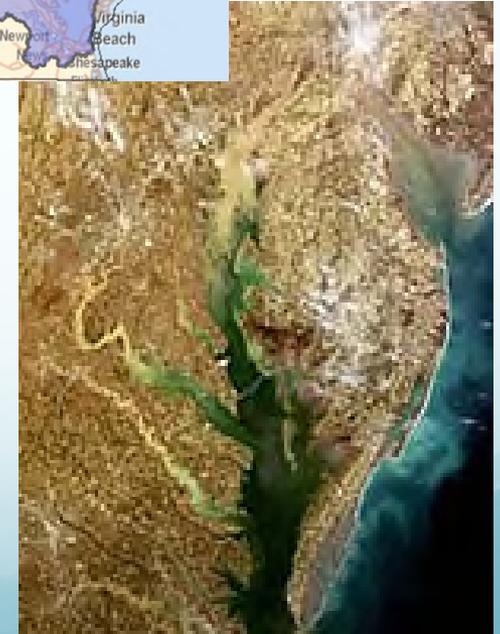
Nutrient Trading: How Farmers and Chesapeake Bay TMDL Efforts Can Find “Value” in Trading Tool Inventories- An Success Story of the Early Use of the Maryland Nutrient Trading Tool



**Dana York, President, Green Earth Connection
2014 National Monitoring Conference
May 2014**

The Chesapeake Bay

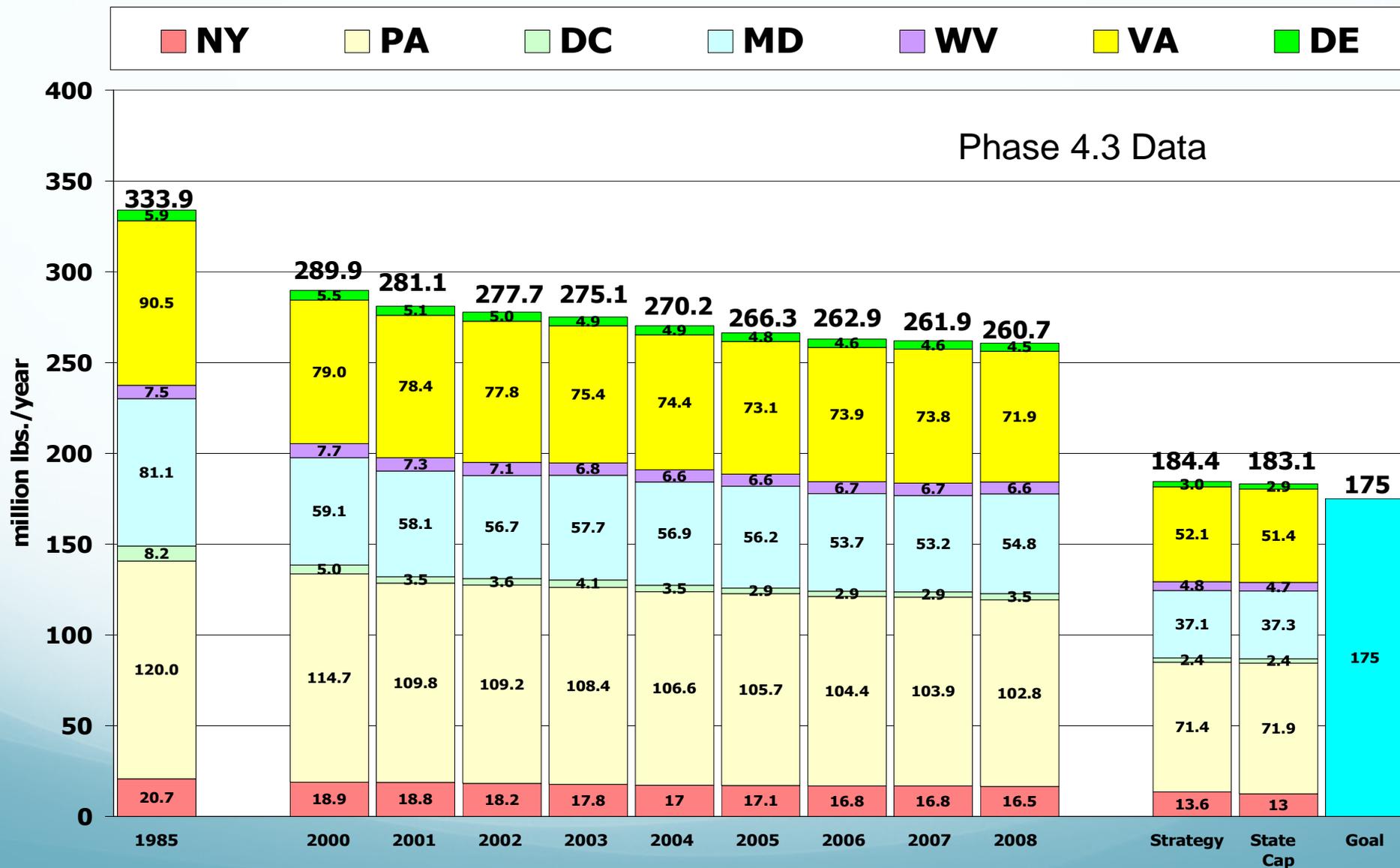
- For more than **300 years**, the Bay and its tributaries have **sustained the region's economy** and defined its traditions and culture.
- It is 64,000 Square Miles and the largest **most biologically diverse estuary** in North America and the third largest in the world.
- **Land-to-water ratio is 14:1**; largest of any coastal water body in the world. **Average depth of 21 feet.**
- Supports more than **3,600 species of plants, fish and animals**
- The Bay watershed is home to almost **17 million people**. **About 150,000 new people** move into the watershed each year.
- **Tens of thousands of streams, creeks, and rivers** are resources for communities throughout the watershed.
- **77,000** principally family farms.



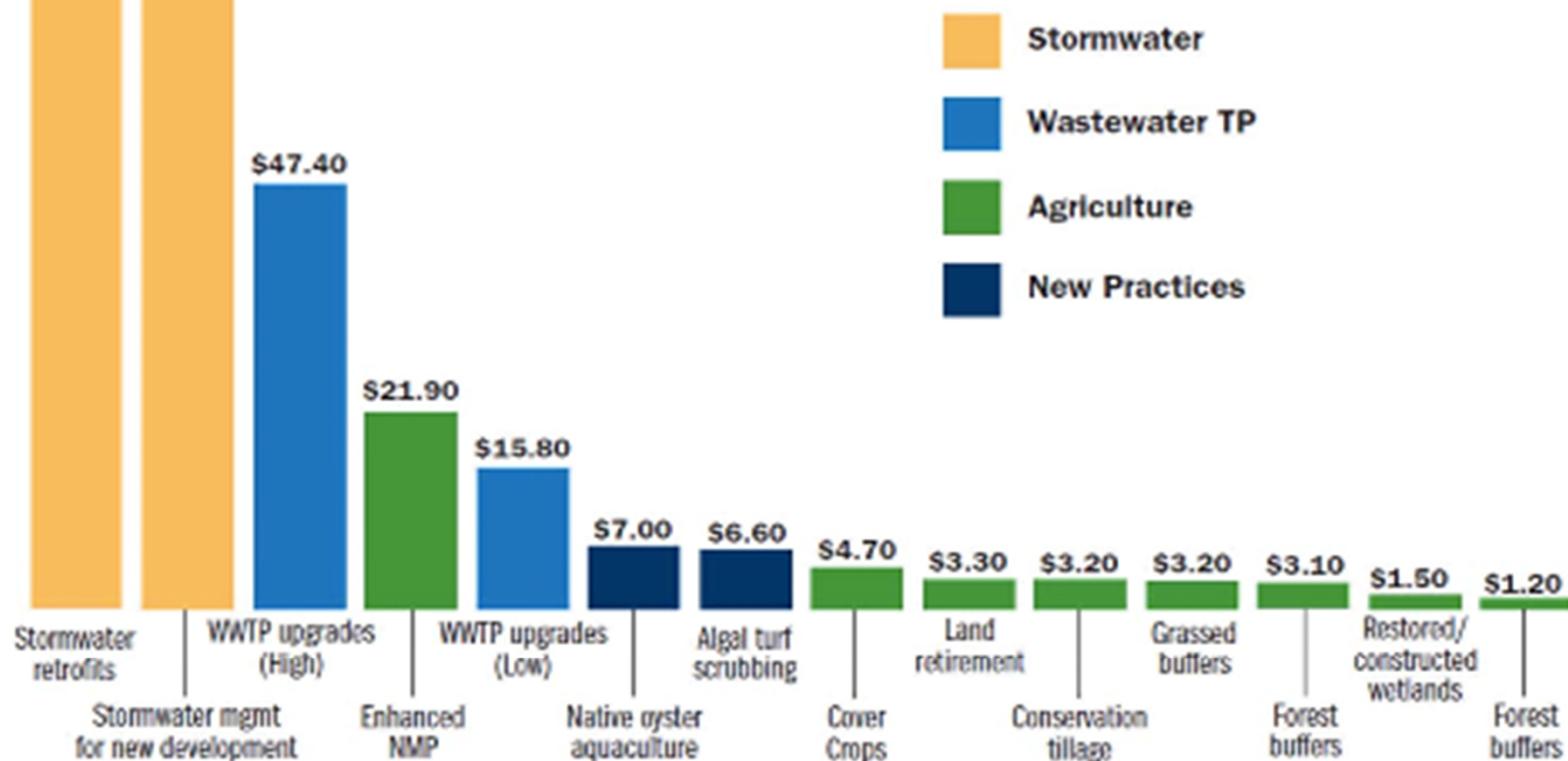


Nitrogen Loads Delivered to the Chesapeake Bay By Jurisdiction

Point source loads reflect measured discharges while nonpoint source loads are based on an average-hydrology year



Relative Per-Pound Costs of Reducing Nitrogen Pollution in the Chesapeake Bay Region



Source: World Resources Institute

January 2010

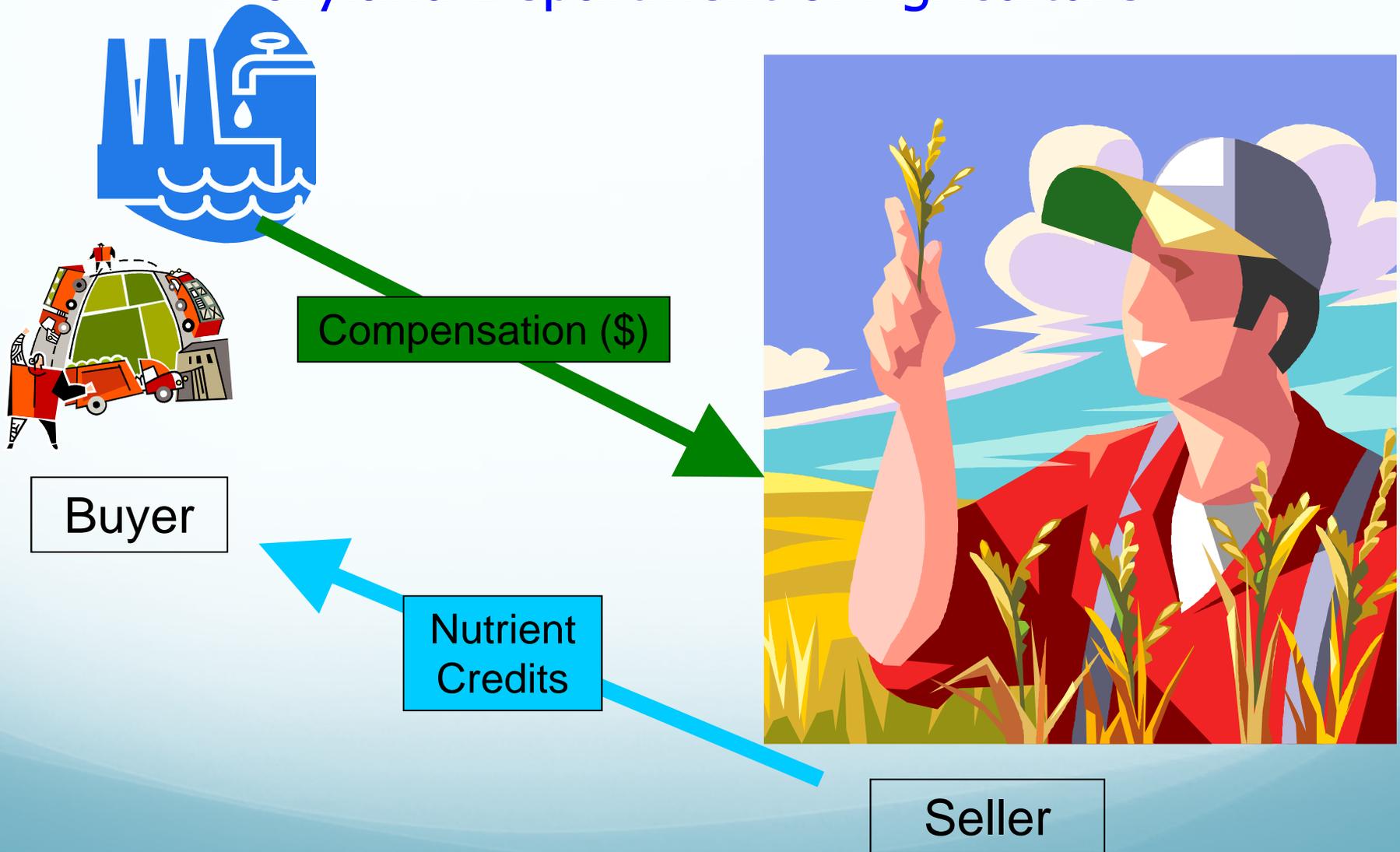
For more information on nutrient trading and an updated version of this cost-curve, please visit the World Resources Institute Website at: <http://www.wri.org/publication/how-nutrient-trading-could-help-restore-the-chesapeake-bay>



**How do we clean up our rivers
without cleaning out our wallets?**

There is a way!

Agricultural Nutrient Trading in Maryland is under the Maryland Department of Agriculture



MDA uses the MDNutrient Trading Tool for Agricultural Nutrient Trading Assessments

- The MDNTT was developed by the World Resources Institute. It is used to complete the baseline and future trading scenarios.
- The MDA program was created to provide Maryland farmers payments for conservation practices on their farms.
- These practices provide offsets to address new or increased loads associated with a growing population.

Assessing Credit Generation Potential

Who May Sell Agricultural Credits?

- Any generator of agricultural non-point source loads:
 - Farm owners, landowners
 - Renter or lessee that can demonstrate permission by the owner to Sell credits
- Aggregators
- Maryland state entities
- Parties who remove agricultural nutrients from the environment

Eligibility of Agricultural Generators to Sell Credits

In order to sell nutrient credits as part of this program, agricultural credit generators must meet the following requirements:

- A current nutrient management plan,
- An updated Soil and Water Conservation Plan
- Including, if applicable, a Waste Management System Plan for the entire farm operation



6 Key Trading Principles

Key Principle #1: Must meet Baseline first.

Key Principle #2: Must comply with all laws and regs.

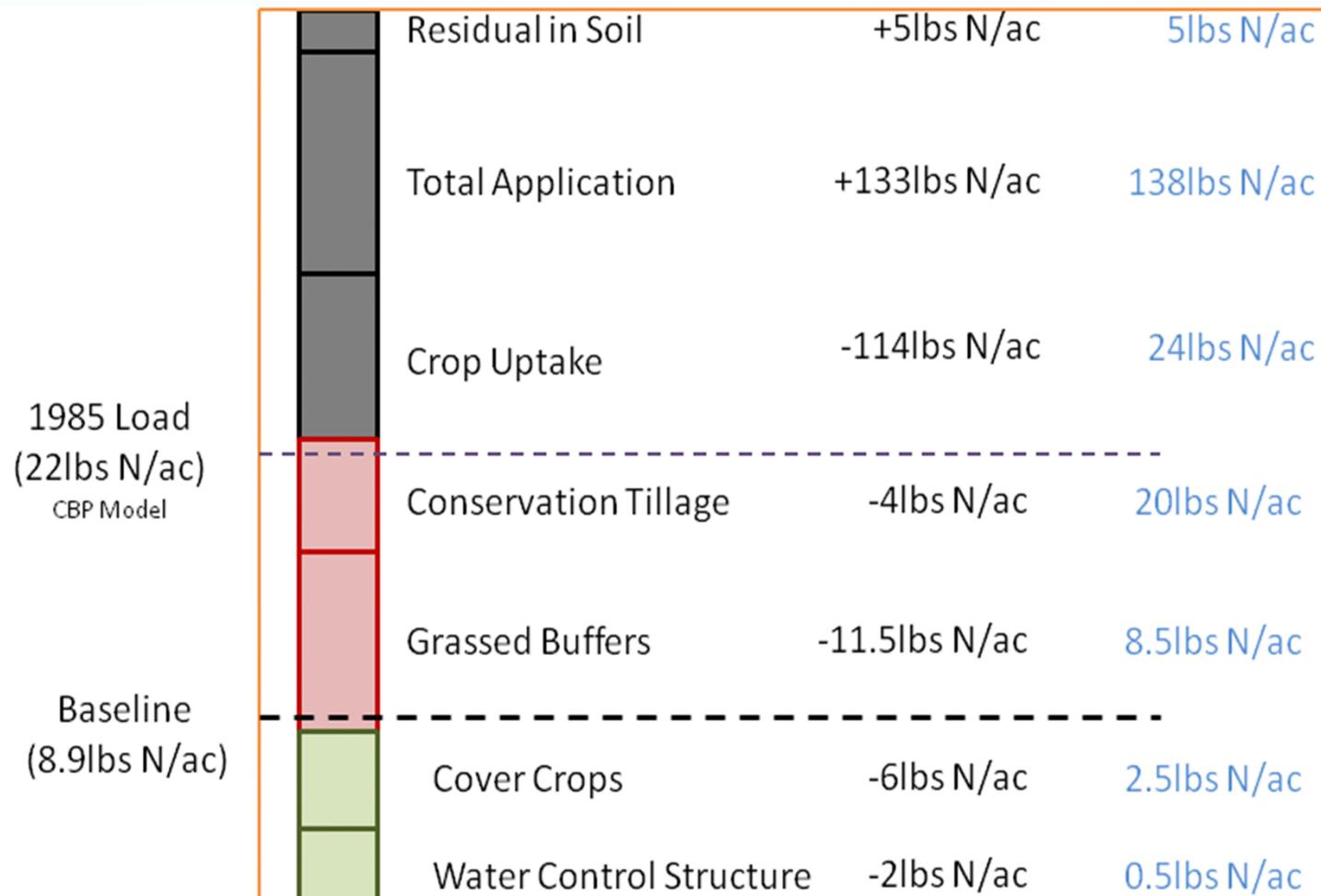
Key Principle #3: BMP's funded by federal or state cost-share can not be used to generate credits during their contract life.

Key Principle #4: No loss of productive farmland through conversion.

Key Principle #5: Trades must result in a net decrease in loads (10% retirement factor).

Key Principle #6: Practices only count once installed & verified.

Baseline and Credit Calculation Example



Annual Verification and Inspection

- Trading contracts will require annual verification and reporting.
- Credits generated by annual practices, such as cover crops, will require inspection twice during the annual life.
- Structural BMP's inspections are required once a year.
- The Maryland Department of Agriculture (or its designee) will perform annual spot checks on a minimum of 10% of all traded Agricultural credits.

Agricultural Non Point Source Credit Potential

<u>BMP's Approved Load Reductions</u>	<u>(N Lb/Ac/Yr)</u>
Continuous No-Till	4.61
Riparian Forest Buffers	27.28
Riparian Grass Buffers	16.92
Wetland Restoration	27.28
Tree Planting	13.57
Cover Crops	9.48
Off – Stream Watering w/Fencing	6.79
Off – Stream Watering w/o Fencing	3.40
Animal Waste M.S.: Livestock	531.0
Animal Waste M.S.: Poultry	210.0
Barnyard Runoff Control/Loafing Lot Management	69.0

Howard County Project Background

- **Highly urbanizing** eastern half of county, **Columbia and Ellicott City**
- **High participation in agricultural land preservation** programs in western half of county. **335 total farms, 230 in preservation program.**
- **County government realizes benefits** of preserving good quality ag land including the environmental benefits, opportunities for trading between sectors.
- **County under gun to meet TMDL goals for all sectors.**
- **Howard SCD proposed project** to determine farmer funded BMP's on farms, how many ag pres farms meet TMDL using MD NTT and Bay watershed **baseline numbers and determine opportunities for credits.**
- **County allocated funding for the first year** of project for assessments. **HSCD used trained private contractors** to collect information.

Objectives of the HSCD Project

- Three (3) separate and distinct objectives.
 1. To determine if the **agricultural sector has practices already installed to meet Ag's TMDL goal.**
 2. To determine if an **individual farm meets the TMDL baseline, or what more needs to be done** to meet the baseline.
 3. See if there are **tradable credits** for nitrogen and phosphorus over and above the baseline, or if there could be **additional practices installed that will produce credits.**

Howard County MDNTT Results After Recalibration to the TMDL

Farm No.	New Baseline Met?	New N EOS	New Bay N Credits		New P reduction EOS	New Bay P Credits Generated
1	Yes	49.4	37		0.2	0
2	Yes	604.7	10.5		58.7	1
3	No					
4	Yes	316.8	35		9.7	3
5	Yes	88.1	10		8.5	3
6	No					
7	No					
8	Yes	79.6	0		24.6	0
9	Yes	163.4	0		17.5	0
10	No					
11	No					
12	Yes	169.6	8		14.8	1
13	Yes	2.7	0		-7	0
14	Yes	0	0		0	0
15	Yes	6.4	0		1	0
16	Yes	125.3	88.9		58.7	43
17	Yes	2.9	0		0	0
18	Yes	72.3	0		20.3	0
19	Yes	20.2	0		2.8	0
20	Yes	7	0		6.6	0
21	Yes	0	0		0	0
22	Yes	1399.6	4		156.4	0
23	No					
24	Yes	2.7	2		0	0

If Maryland Counties are going to Meet the Requirements of the TMDL and allow Continued Growth—Agricultural Offsets can Be the Answer!

- Trading will give **developers** hope that if they can meet part of the need (80-90%)-- then through purchase of Agricultural offsets they will be able to complete the project (**State Implementation Strategy TBD by 2014?**)
- Agricultural offsets can provide funding to help farmers continue to **keep conservation practices** on the ground to meet the TMDL and potentially help **install additional conservation practices** on their land.

QUESTIONS ?



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