



# Offsetting New Point Source Nutrient Loads using Non- Point Source BMPs in the Chesapeake Bay Watershed of Virginia

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# Regulatory Timeline in Virginia

- **1983** 1st Chesapeake Bay Agreement
- **1987** 2<sup>nd</sup> CB Agreement – 40% TN,TP reductions - 2000 goal
- **2000** 3<sup>rd</sup> CB Agreement – Basin reduction targets – 2010 goal
- **April 2003** EPA publishes CB Water Quality Criteria Guidance
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- **January 2005** Virginia's Chesapeake Bay Tributary Strategies finalized
- **March 2005** Nutrient Trading Legislation signed by Gov. Warner
- **June 2005** Virginia WQ criteria for the Chesapeake Bay effective
- **November 2005** Tributary Strategy WLAs incorporated into WQMP Reg.
- **November 2005** Virginia's "Technology" Regulation effective
- **January 2007** CB Watershed Nutrient Trading General Permit effective
- **January 2008** Agricultural BMP Trading Manual Published
- **August 2008** First NPS Nutrient Bank approved

**GVPDES WPTNTPDNTCBWV**

**or**

**“Nutrient Trading Regulation”**

**General VPDES Watershed Permit for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820-10)**

# Legislative Findings and Purposes

General Assembly finds and determines that adoption and 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.

# What's the difference between a *credit* and an *offset*?

- *Compliance credits* are exchanged when point sources acquire pounds of nitrogen or phosphorus from other point sources in order to comply with the previous year's annual load limit.
- Allocations must be provided sufficient to *offset* any increase in nutrient loads from new or expanded discharges.



# New and Expanded Facilities

- Any new or expanded discharge > 40,000 gpd after 7/1/05 must acquire waste load allocations sufficient to offset any increase in delivered loads and meet the appropriate technology requirement.
- Allocations shall be acquired by...
  - a. From one or more permitted facilities in the same tributary
  - b. Acquisition of NPS load allocations through the use of BMPs. BMPs must exceed baseline threshold and be included in the individual VPDES permit.
  - c. Allocations purchased from the Water Quality Improvement Fund
  - d. Other means as approved by DEQ on a case-by-case basis

# General Permit Registrations

Nutrient Trading General Permit Effective January 1, 2007

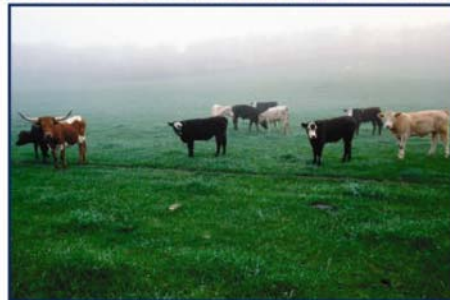
- 125 “Significant” facilities
  - 8 Bubbled “non-significant” facilities
- 25 New or expanding facilities currently registered
- 158 Current registrants
  - 8 Pending registrations for new or expanding facilities
- 15 New or expanding facilities that have not registered

# Agricultural BMP's





## **Trading Nutrient Reductions from Nonpoint Source Best Management Practices in the Chesapeake Bay Watershed: Guidance for Agricultural Landowners and Your Potential Trading Partners**





# Ag Baseline BMP Requirements

Implementation of.....

- Soil Conservation Plan
- Nutrient Management Plans
- Cover Crops
- Livestock Stream Exclusion w/ 35' buffer
- 35' Riparian buffer

# Ag BMP Enhancements to Generate Credits

Implementation of.....

- Soil Conservation Plan – **Continuous No-Till**
- Nutrient Management Plans – **15% N reduction on corn**
- Cover Crops – **Early planting date**
- Livestock Stream Exclusion w/ 35' buffer – **Increase size**
- 35' Riparian buffer – **Increase size**
- Land Conversion

### James Basin BMPs: Single BMP

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Early Planted Cover Crops	0.54	0	0.91	0
15% Nitrogen Reduction on Corn	1.75	0	3.70	0
Continuous No-Till	1.05	0.49	1.13	0.19

### James Basin BMPs: Combination BMPs

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Early Planted Cover Crops & 15% Nitrogen Reduction on Corn	2.14	NA	4.29	0
Early Cover Crop & Continuous No-Till	1.38	0.49	1.66	0.19
15% Nitrogen Reduction on Corn & Continuous No-Till	2.53	0.49	4.46	0.19
Early Cover Crop & 15% Nitrogen Reduction on Corn & Continuous No-Till	2.86	0.49	4.99	0.19

### James Basin Land Conversion

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Cropland to Forest	5.48	1.22	9.34	0.93
Cropland to Hay	4.05	0.60	3.45	0.36
Cropland to Mixed Open (fallow)	3.44	0.33	3.08	0
Hay to Forest	3.28	0.98	13.35	2.16
Hay to Mixed Open (fallow)	1.24	0.09	7.09	0.47
Pasture to Forest	0.67	0.50	13.33	1.74

**It takes a lot of acreage to offset a new point source !**



# Chesapeake Bay Nutrient Land Trust Wildwood Farm - Appomattox County

Approved August 2008

Acreage	Conversion	N Offsets	P Offsets
91	hay to forest	299	89
19	corn to hay	77	12
110	Total	376	101

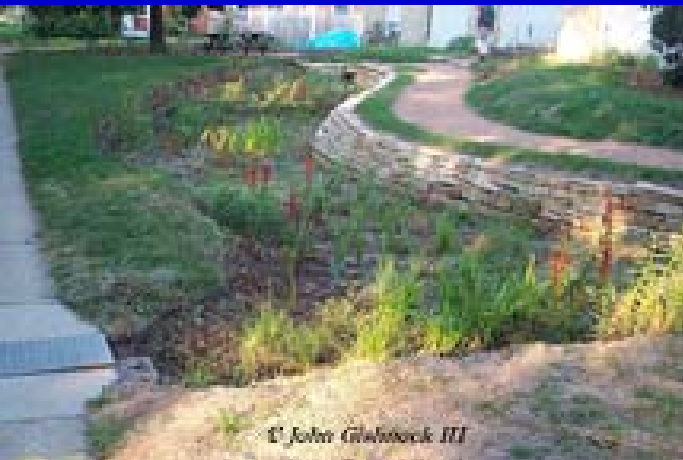
A new 100,000 gpd discharge operating biological nutrient removal (BNR) will discharge 2,436 lbs/yr of TN and 305 lbs/yr of TP. 2:1 trading ratio required for BMP generated offsets.

# Urban Storm Water BMP's



porous asphalt

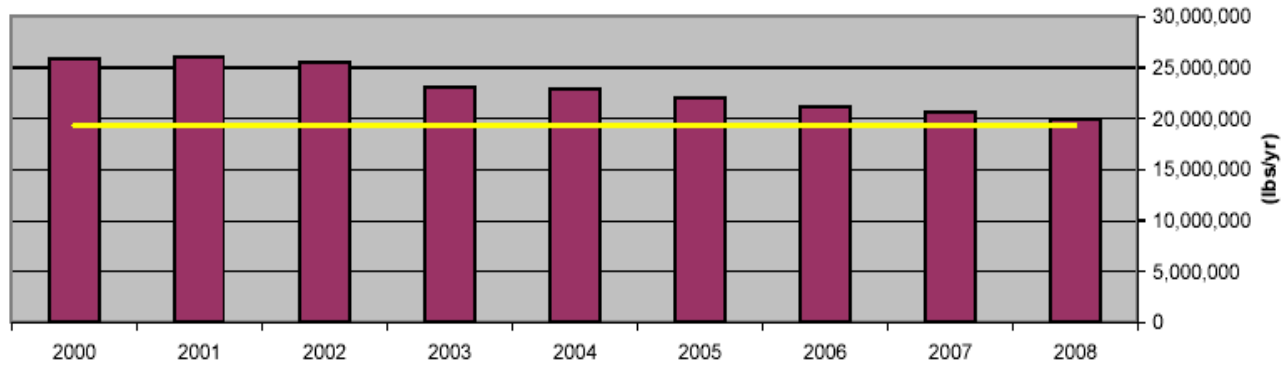
standard asphalt



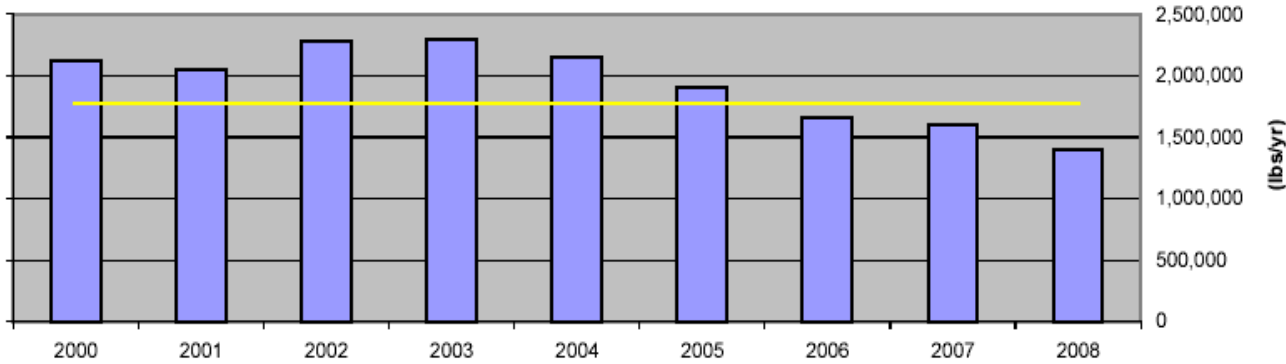
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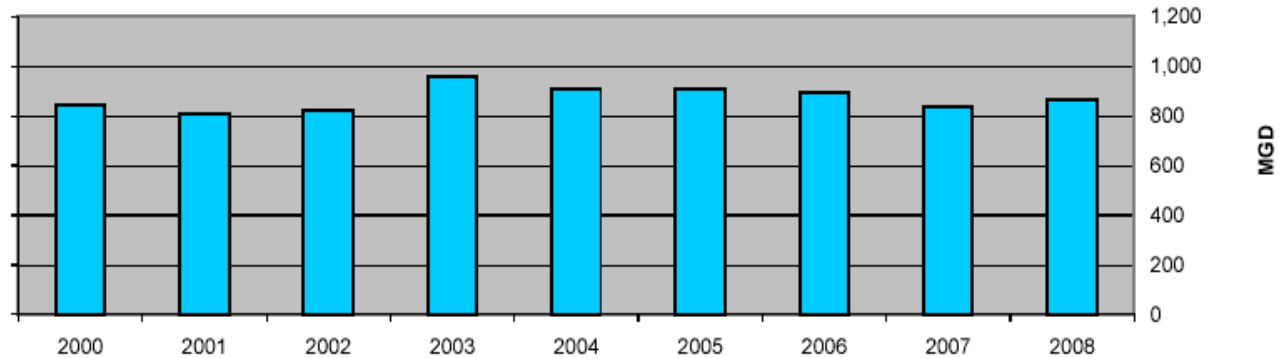
Total Virginia Point Source Delivered TN (lbs/yr)



Total Virginia Point Source Delivered TP (lbs/yr)



Total Virginia Point Source Flows



**Thanks for your time! If you have any additional questions/comments after this meeting, contact:**

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