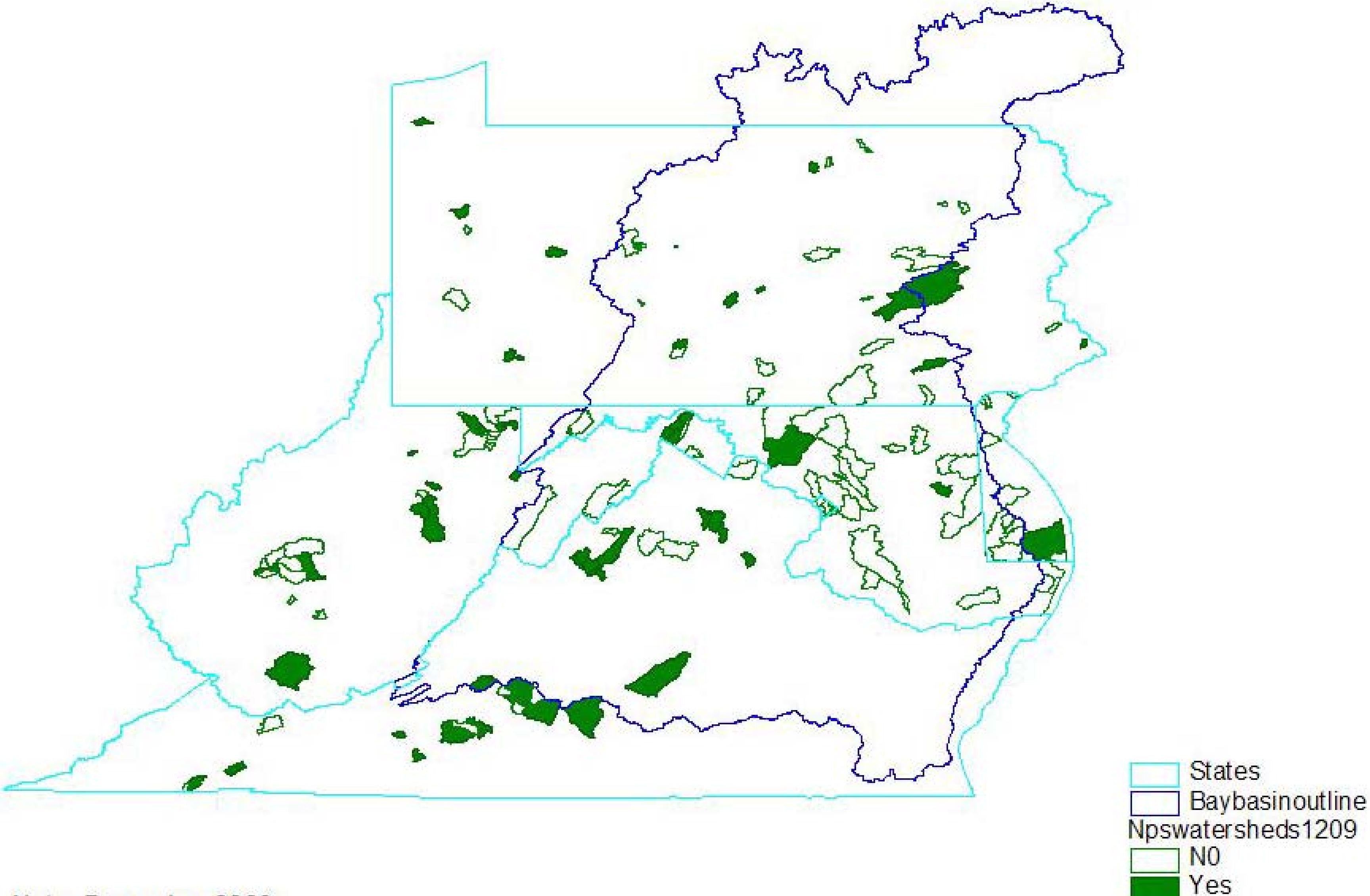
Nonpoint Source Program

Current and Future Expectations

Delaware Annual Meeting 3/18/2010

NPS Watershed Plans and those that meet EPA's National NPS Watershed Criteria (A-I)



Note: December 2009

US EPA http://www.epa.gov/owow/nps/Success319/

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Chesapeake Bay Executive ... | US EPA Section 319 Success Stori... X

Page Tools

U.S. ENVIRONMENTAL PROTECTION AGENCY

Section 319 Nonpoint Source Success Stories

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You are here: EPA Home » Water » Wetlands, Oceans & Watersheds » Polluted Runoff (Nonpoint Source Pollution)   Section 319 Success Stories

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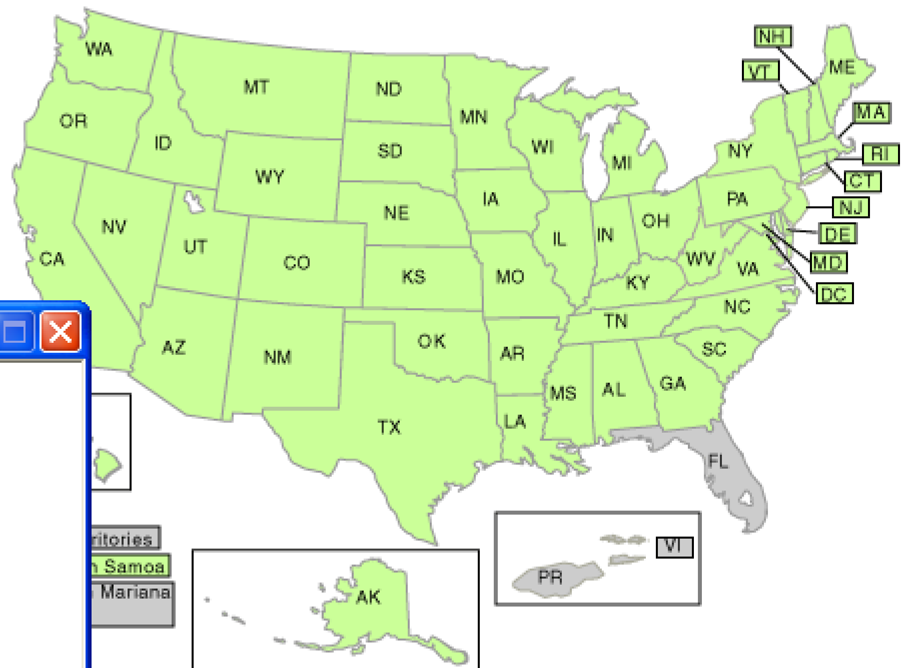
sary

This **Section 319 Nonpoint Source Success Stories** Web site features stories about primarily nonpoint source-impaired waterbodies where restoration efforts have led to documented water quality improvements. **Waterbodies are separated into three categories of stories**, depending on the type of water quality improvement achieved:

- Stories about partially or fully restored waterbodies



Pennsylvania Menu | 319 Success Stories | US ...

Babb & Pine Creeks

Gumboot Run

Lloydville Run

Manatawny Creek & Tributary

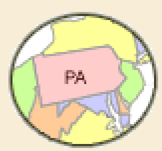
Semiconon Run

Step Run

Stephen Foster Lake

Sterling Run

Northern Swatara Creek



Close

es

eved water quality standards

g been previously included on

Partially or Fully Restored Waterbodies

172

(Click number for details.)

Local intranet   100%

Enhance Local Watershed Efforts

- Multi Pronged Approach
  - Enhance Existing Plans
  - Expand Planning and Implementation to Other Recoverable Areas
  - Accelerate BMP Implementation
  - Track Progress

Enhance Existing Watershed Plans

- A collaborative effort with all key stakeholders.
- What has and what hasn’t been implemented/ecological response
- Capitalize on partnerships & funding
- Maintain & Protect Water Quality

Presidential Executive Order

- On May 12, 2009, Executive Order
  - that recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation's largest estuary and its watershed.
- http://executiveorder.chesapeakebay.net/default.aspx

CB Accountability Framework

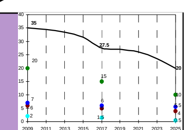
Start Here

Watershed Implementation Plans to identify nutrient and sediment reductions by location and sector to meet water quality standards. Plans include:

1. Evaluation of Program Capacity (programmatic, financial, technical) necessary to fully achieve reductions

2. Identification of Gaps between needed reductions and existing program capacity

3. Schedule to fill gaps and reduce loads based on description of planned enhancements



TMDL: Set Pollution Reduction Goals to Meet Bay Water Quality Standards

- Total maximum nutrient and sediment loads
- Wasteload and load allocations by state/DC, drainage area of tidal segments, and sector

2-Year Milestones with specific controls and program enhancements to maintain schedule. Contingencies by state/DC for not achieving milestones

Model and Monitor to assess actions, load reduction progress and water quality response

Employ Federal Act or Consequences if insufficient commitments in Plans or 2-year milestones, or enhancements and reductions behind schedule

Proposed reauthorization can incorporate new approaches into Clean Water Act

Comparison of Elements:

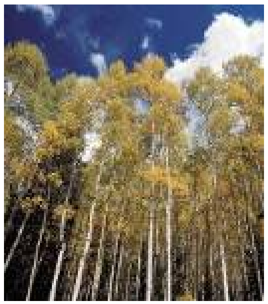
Bay TMDL Watershed Implementation Plans

1. Interim and Final Target Loads
2. Current Program Capacity
3. Mechanisms to Account for Growth
4. Gap Analysis
5. Commitment to Fill Gaps: Policies, Rules, Dates for Key Actions
6. Tracking and Reporting Protocols
7. Contingencies for Failed, Delayed or Incomplete Implementation
8. Appendix with:
   a. Loads divided by 303(d) segment drainage and source sector
   b. 2-year milestone loads by jurisdiction – EPA will use to assess milestones
   c. No later than November 2011: Update to include loads divided by local area and controls to meet 2017 interim target load

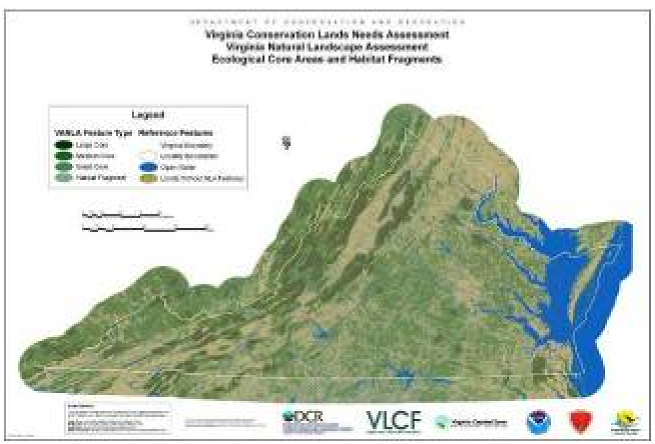
NPS Watershed Plans

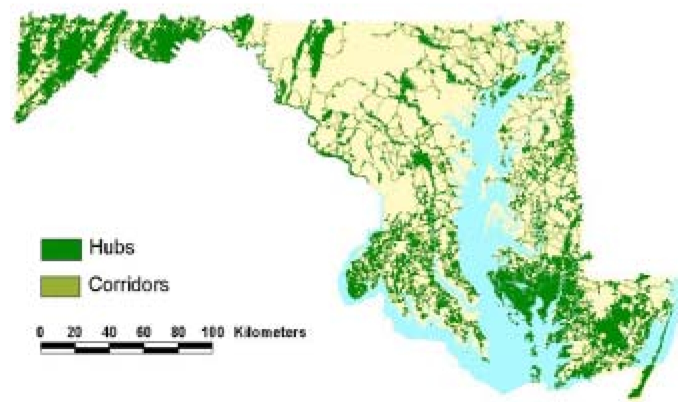
1. Source ID
2. Load Reduction Estimates
3. Management Measures
4. Technical and Financial Assistance
5. Education and Outreach
6. Schedule
7. Milestones
8. Evaluation Criteria
9. Monitoring Component

Natural Infrastructure



"<u>Strategically</u> planned and managed networks of ***natural lands, working landscapes*** *and* ***other open spaces*** *that <u>conserve</u> ecosystem values & functions and <u>provide associated benefits to human populations.</u>*



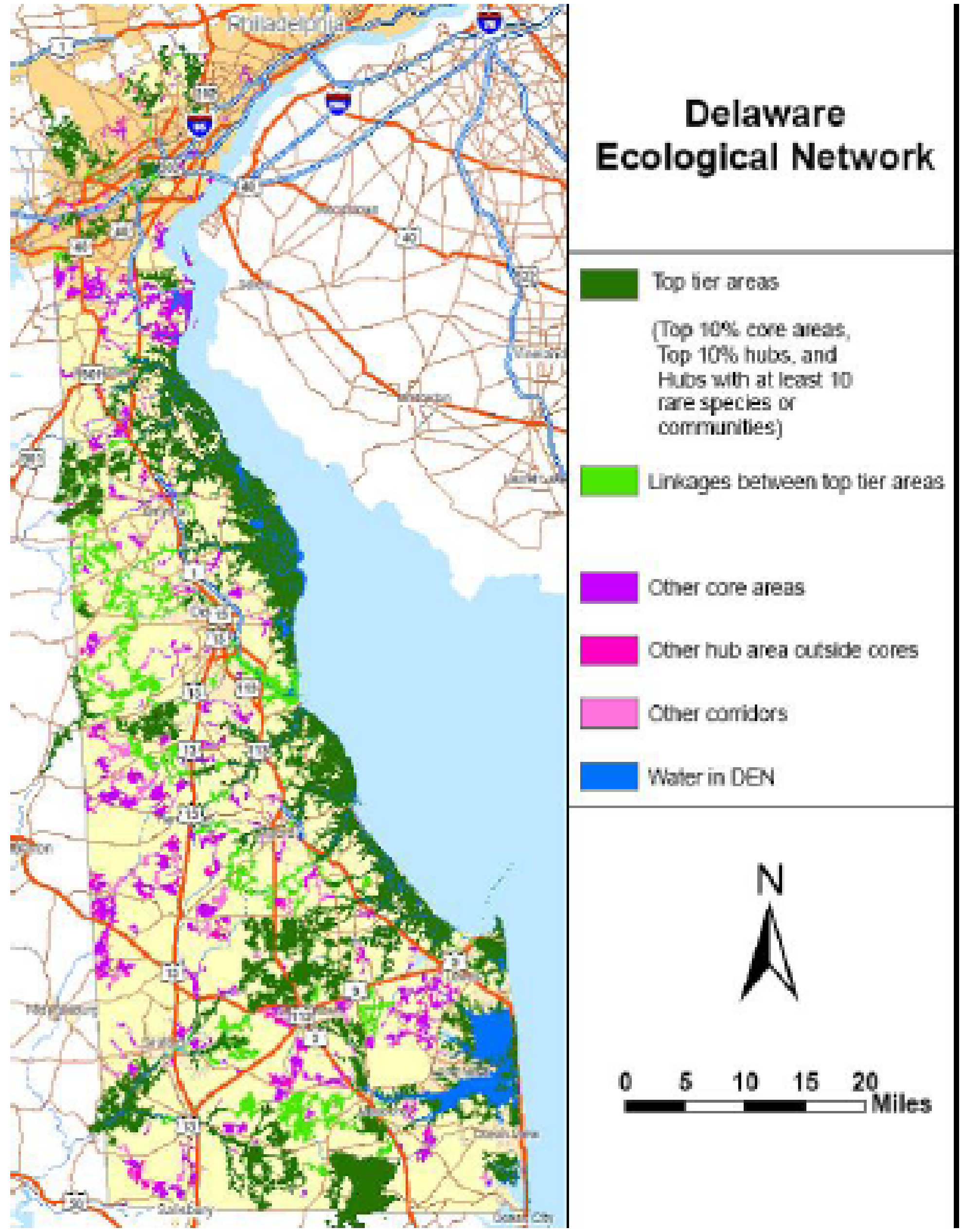


Natural Infrastructure

GOAL:

Identify those landscape features that are critical for maintenance of good water quality, "natural" hydrologic regimes, valuable aquatic habitat, healthy aquatic communities, and ultimately provide important aquatic goods and services to humans

FIGURE 5 Highest Priority Core Areas, Hubs, and Linkages within the DEN.



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Managing Wet Weather with Green Infrastructure

Green infrastructure is an approach to wet weather management that is cost-effective, sustainable, and environmentally friendly. Green Infrastructure management approaches and technologies infiltrate, evapotranspire, capture and reuse stormwater to maintain or restore natural hydrologies. See examples of green infrastructure and design approaches.

At the largest scale, the preservation and restoration of natural landscape features (such as forests, floodplains and wetlands) are critical components of green stormwater infrastructure. By protecting these ecologically sensitive areas, communities can improve water quality while providing wildlife habitat and opportunities for outdoor recreation.

On a smaller scale, green infrastructure practices include rain gardens, porous pavements, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting for non-potable uses such as toilet flushing and landscape irrigation.

Green Jobs Training: A Catalog of Training Opportunities for Green Infrastructure Technologies (PDF) (32 pp, 266K) - February 2009 edition

Green Roofs and Green Jobs Video EXIT Disclaimer with Van Jones, Special Advisor for Green Jobs, The White House's Council on Environmental Quality

WHAT CAN I FIND ON THIS WEBSITE?

Basic Information **Technical**

Hot Topics

Green Jobs Training Catalog (PDF)

Green Infrastructure Training

New Bulletins!

The documents on this site are best viewed with Acrobat 8.0

Healthy Watersheds

Our nation has made significant progress in cleaning up polluted waters. Yet, while we devote substantial resources to restoring impaired waters, we continue to experience the loss of some of our remaining healthy aquatic ecosystems. Some key statistics provide clear evidence of both recent and ongoing declines in our aquatic resources.

EPA's Healthy Watersheds Initiative (PDF) (4 pp, 5.1MB, About PDF)

- Over the last 50 years, coastal and freshwater wetlands have declined; surface water and groundwater withdrawals have increased by 46%; and non-native fish have established themselves in many watersheds (Heinz Center, 2008).
- A recent national water quality survey of the nation's wadeable streams showed that 42% of the nation's stream length is in poor biological condition and 25% is in fair biological condition (U.S. EPA, 2006).
- Nearly 40% of fish in North American freshwater streams, rivers, and lakes are found to be vulnerable, threatened, or endangered; nearly twice as many as were included on the imperiled list from a similar survey conducted in 1989 (Jelks et al., 2008).

The objective of the federal Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." While other EPA programs focus on restoring impaired waters, the Healthy Watersheds Initiative augments the watershed approach with proactive, holistic aquatic ecosystem conservation and protection. The Healthy Watersheds http://www.epa.gov/CRE/

Climate Ready Estuaries | U.S. EPA

Page Tools

CLIMATE READY ESTUARIES EPA

Estuaries and coastal areas are particularly vulnerable to climate variability and change. In order to protect their ecosystems from projected impacts of sea level rise, increasing temperatures, and other effects, coastal managers may need to develop and implement adaptation measures.

The Climate Ready Estuaries program works with the National Estuary Programs and other coastal managers to: 1) assess climate change vulnerabilities, 2) develop and implement adaptation strategies, 3) engage and educate stakeholders, and 4) share the lessons learned with other coastal managers.

The Climate Ready Estuaries website offers information on climate change impacts to different estuary regions, access to tools and resources to monitor changes, and information to help managers develop adaptation plans for estuaries and coastal communities.

Basic Information: What are the potential climate change impacts to coastal systems? What can be done to address the effects of climate change in coastal systems? Why should coastal resource managers focus their climate change efforts on adaptation?

Where You Live: Where are the National Estuary Programs and what efforts are underway in your region regarding climate change impacts assessment and adaptation?

Explore Climate Ready Estuaries: Learn how the program is working with coastal managers to advance coastal adaptation to climate change.

Coastal Toolkit: What tools and information will help you get started? This section provides information and guidance on assessing climate change vulnerabilities, finding data, and developing adaptation plans.

News and Events: What's new with Climate Ready Estuaries? This page provides updates on estuaries in the news, new members, and related events.

Contact Us: Have questions on the program or other information provided on this website? Find out who to contact.

News

- December 2009: Climate Ready Estuaries Publishes its First Progress Report (PDF) (21 pp, 4.1 MB)
- August 2009: Read the Summer Climate Ready Estuaries Newsletter (PDF) (4 pp, 1.5MB)
- June 2009: Climate Ready Estuaries Announces 2009 Grants and Technical Assistance Awardees. More Information and a News Brief
- May 2009: Adaptation Planning for the National Estuary Program (PDF) (19 pp, 477K)
- February 2009: New Brochure Describes Climate Ready Estuaries Program (PDF) (2 pp, 456K)
- January 2009: New Report Available: Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region
- January 2009: The Climate Ready Estuaries Synthesis of Adaptation Options for Coastal Areas (PDF) (32 pp, 1.2MB) is now available.

Local intranet 100%

Green Highways Partnership (GHP) Mission

The GHP serves as a voluntary public-private collaborative that advances *environmental stewardship* and *sustainability* in transportation planning, design, construction, operations and maintenance while *balancing economic* and *social objectives*!

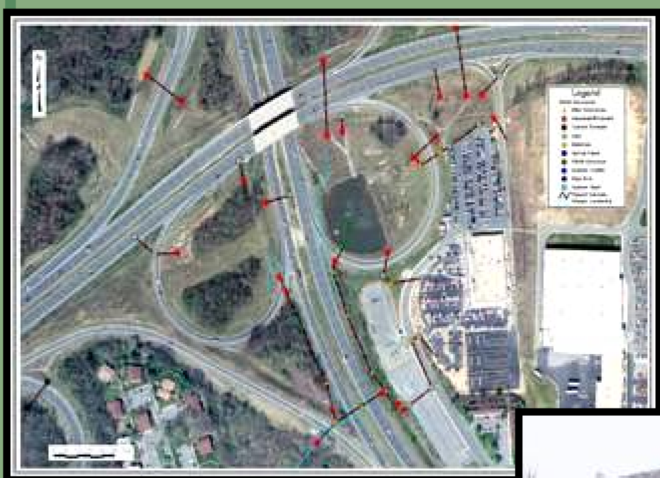
GHP Watershed-Driven Stormwater Pilot:

Development of a DOT Linear-Based Model NPDES Stormwater Permit

- **Using Green Infrastructure Strategies**
  - Partners: EPA Region 3, DNREC, DelDOT, FHWA
- **Purpose**
  - Develop a model watershed-driven stormwater permit that utilizes greener stormwater management controls and cost/effective O&M for DOT facilities and operations.
- **Why?**
  - Supports GHP objective to collaboratively develop and evaluate innovative solutions that achieve "better than before" results - tailored for the linear transportation environment.

GHP "Theme Teams"

Innovative Watershed-Driven Storm water Management



Chesapeake Bay Trust Urban Greening Grant

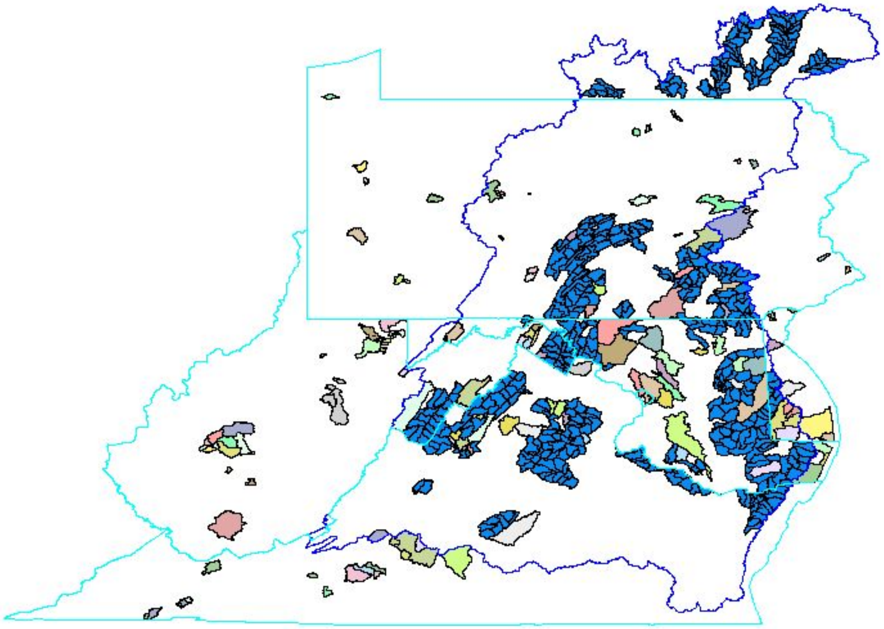
Edmonston, Maryland:
A Great Green Town

Source: Low Impact Development Center, Inc.

Community revitalization through the use of low impact development, attraction of green businesses, and attention to health by encouraging biking and walking.

Expand Planning and Implementation to Other Recoverable Areas

NPS Watershed Plan Areas
and High Nutrient Loading CB Watersheds

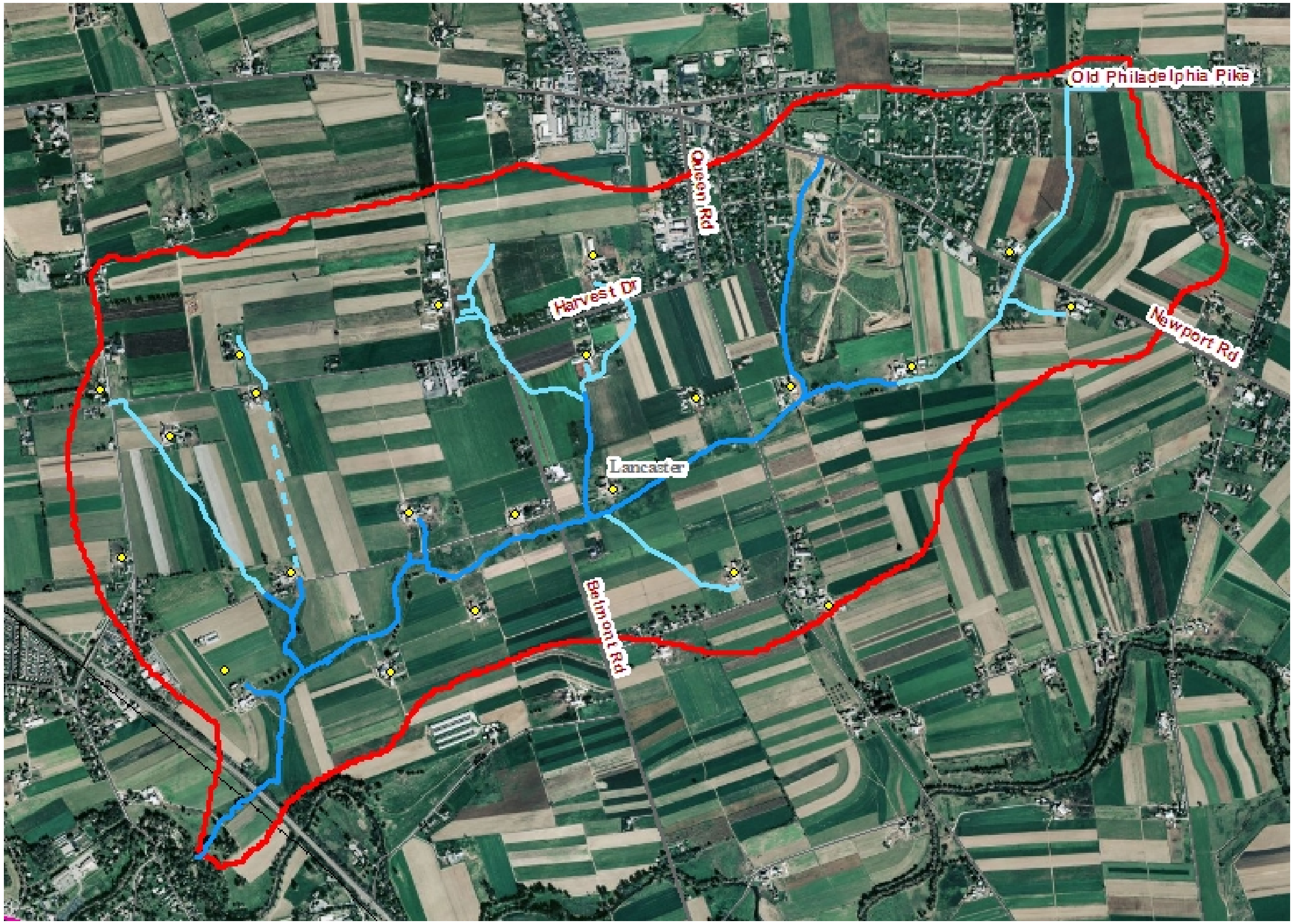


Note: 12/09

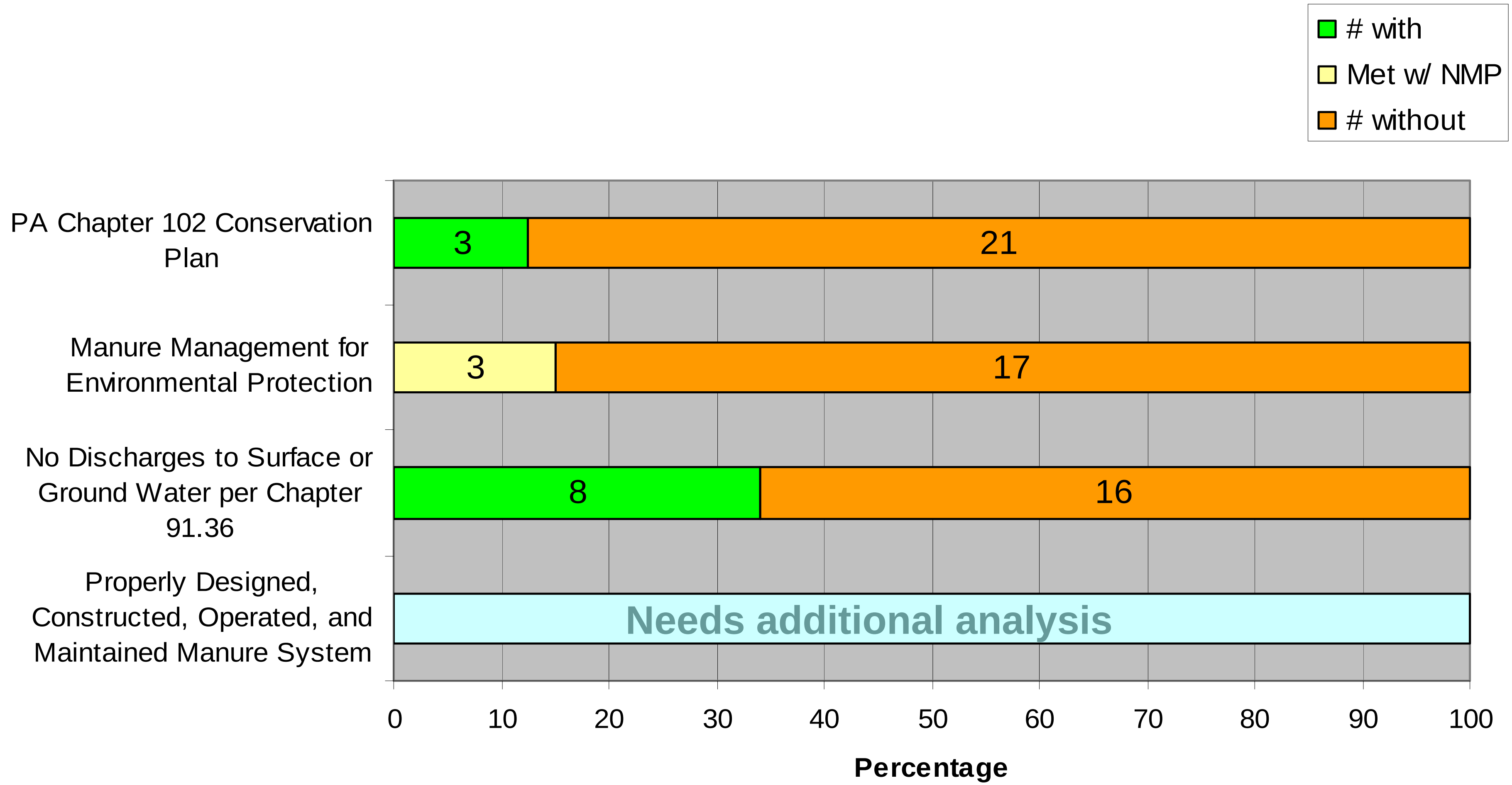
Expand Planning and Implementation to Other Recoverable Areas

- Socially, Technically, Financially
- Provide assistance to develop additional WBPs that meet EPA's National Programs Guidance A-I
- The planning scale should not exceed the smaller of either the local TMDL or federal 12 digit HUC. Multiple small scale sub-watersheds planning area can be combined into one plan.

Accelerating Agricultural Implementation - Watson Run

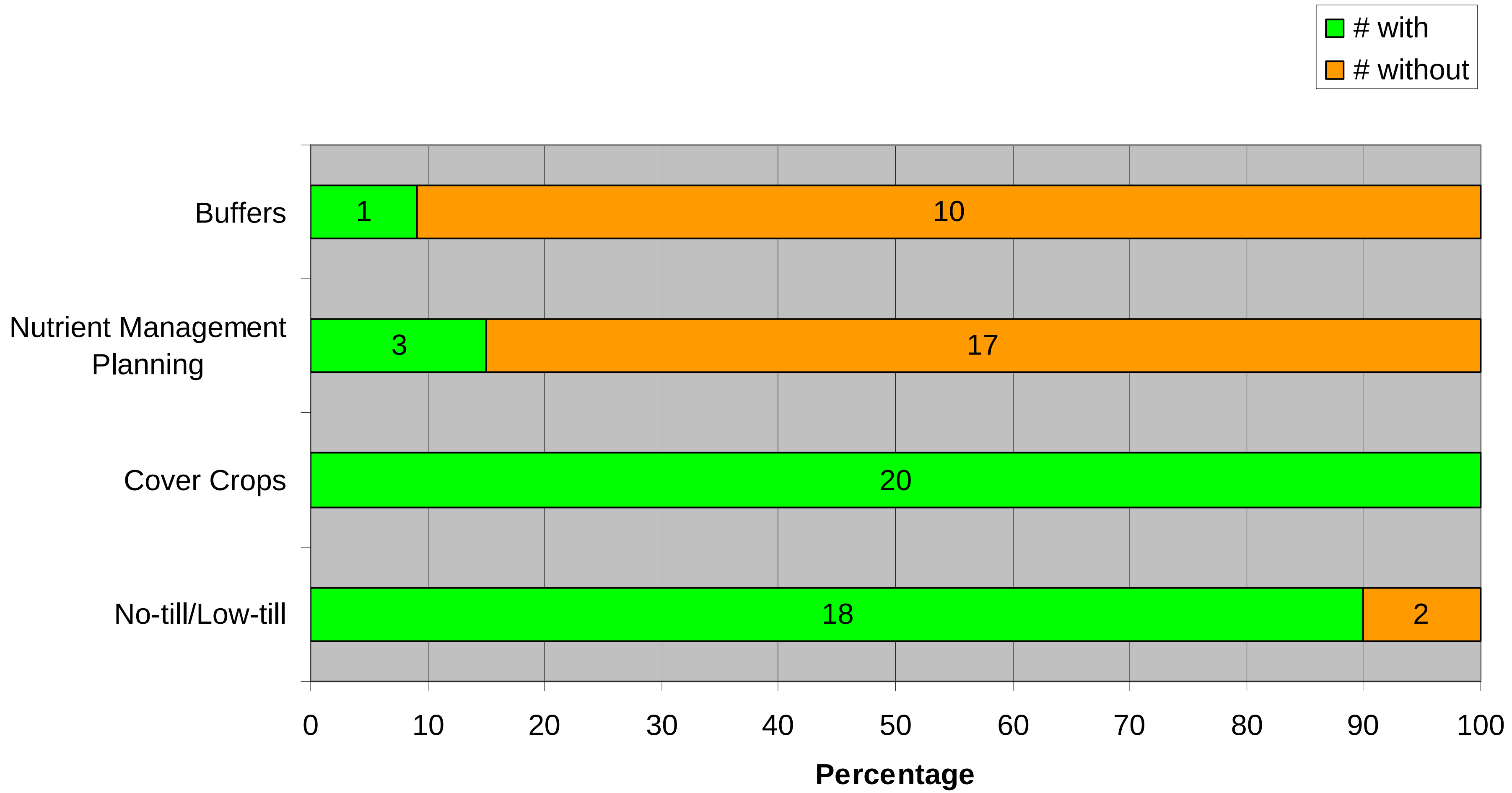


State of PA Regulatory Compliance*

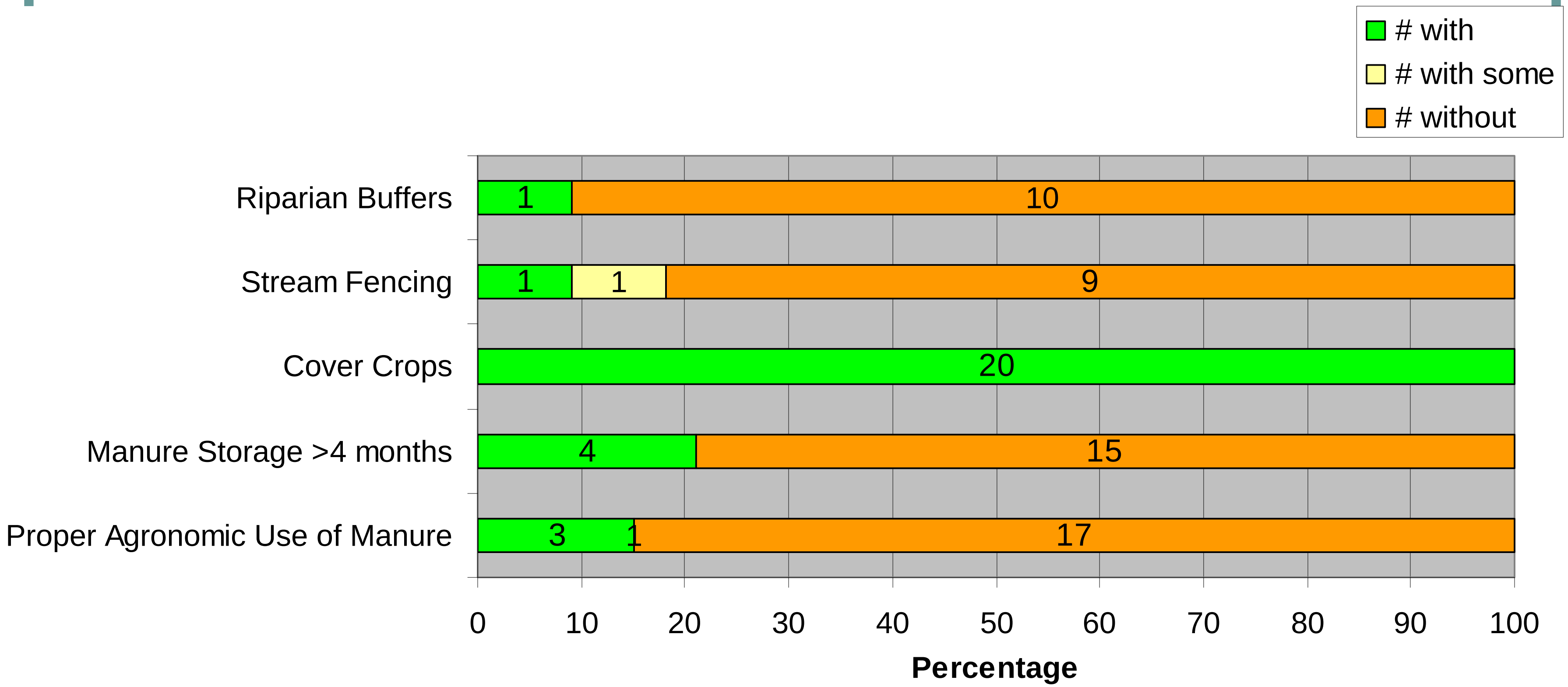


*Based on Pennsylvania Clean Streams Law, Title 25, Chapter 91.36, Chapter 102 and related guidance including PADEP's Manure Management Manual and PA Technical Guide

PA "Core Four" BMPs



Chesapeake Bay BMPs



What Were the Drinking Water Sampling Results?

- Sampled 19 out of 24 farm wells
- 9 out of 19 contained Total coliform bacteria
- 6 out of 19 contained E. coli bacteria
- 16 out of 19 exceeded the MCL for nitrate

Watershed Plan Tracker

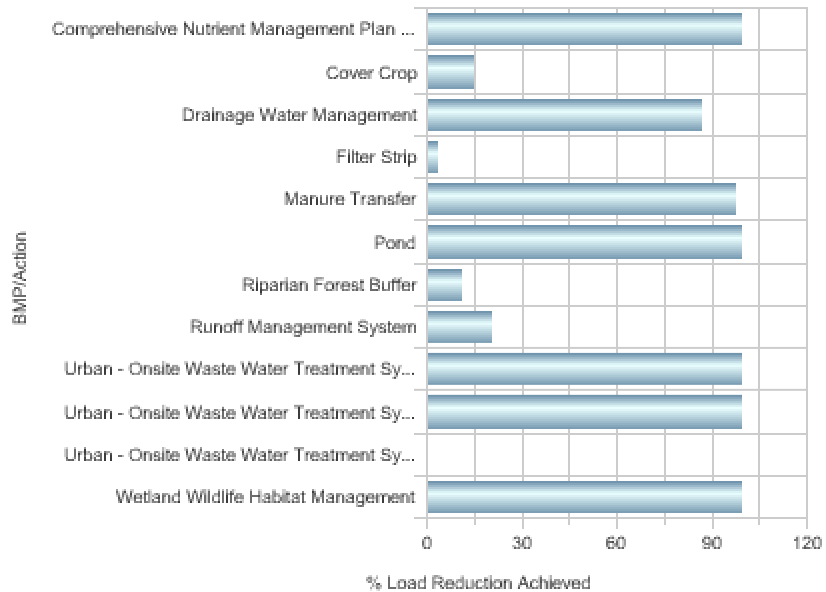
A	C	F	G	H	I	J	K	L	M	N	O	P	Q	R
tate	Watershed Name	Sub Watershed	1st Pollutant Sediment	1st Pollutant G Sediment	2nd Pollutant Nitrogen	d Pollutant Ge Nitrogen	3rd Pollutant Phosphorus	rd Pollutant Ge Phosphorus	4th Pollutant Iron	4th Pollutant Gen Iron	5th Pollutant Manganese	5th Pollutant Gen Manganese	6th Pollutant Aluminum	Pollutan Aluminu
PA	Conewago Creek	Conewago A	sediment lb/yr	965,069			phosphorus lb/yr	1,416						
		Conewago B	sediment lb/yr	701,365			phosphorus lb/yr	1,351						
PA	Upper Kishacoquillas		sediment lb	1,898,867	nitrogen lb	12,371	phosphorus lb	1,568						
			sediment lb	5,267,088	nitrogen lb	34,459	phosphorus lb	4,313						
PA	Buffalo Creek	Beaver Run	sediment lb	441,599	nitrogen lb	58,951	phosphorus lb	2,121						
		Coal Run	sediment lb	218,504	nitrogen lb	46,264	phosphorus lb	1,123						
		E. Buffalo Creek	sediment lb	1,219,654	nitrogen lb	165,299	phosphorus lb	5,375						
		Little Buffalo Ck.	sediment lb	803,723	nitrogen lb	99,766	phosphorus lb	2,597						
		Muddy Run	sediment lb	245,966	nitrogen lb	29,406	phosphorus lb	839						
		NB Buffalo Creek	sediment lb	443,963	nitrogen lb	30,377	phosphorus lb	1,414						
		Rapid Run	sediment lb	643,635	nitrogen lb	35,482	phosphorus lb	1,449						
		Spruce/Black Run	sediment lb	1,166,137	nitrogen lb	68,105	phosphorus lb	2,223						
		Stony Run	sediment lb	26,467	nitrogen lb	5,254	phosphorus lb	199						
		Upper Buffalo Ck.	sediment lb	143,096	nitrogen lb	12,133	phosphorus lb	489						
		W. Buffalo Creek	sediment lb	1,150,073	nitrogen lb	132,742	phosphorus lb	3,361						
PA	Codorus Creek	SBCC-1 TMDL	sediment lb	5,306,782	nitrogen lb	358,292	phosphorus lb	14,732						
		SBCC-2 TMDL	sediment lb	2,859,904	nitrogen lb	375,639	phosphorus lb	20,366						
		NON-TMDL	sediment lb	41,356,218	nitrogen lb	1,272,496	phosphorus lb	57,811						
		Oil Creek - TMDL	sediment lb	689,240	nitrogen lb	25,044	phosphorus lb	1,174						
		Oil Ck Non-TMDL	sediment lb	5,105,181	nitrogen lb	112,886	phosphorus lb	4,373						
PA	Mill Creek Lancaster	Muddy Run (1998)	sediment lb/yr	8,229,877	nitrogen lb/yr	211,330	phosphorus lb/yr	17,698						
		Muddy Run (2011)	sediment lb/yr	3,070,398	nitrogen lb/yr	1,972,740	phosphorus lb/yr	7,221						
		UNT (2006)	sediment lb/yr	1,130,528	nitrogen lb/yr	44,980	phosphorus lb/yr	1,667						
		UNT (2011)	sediment lb/yr	410,000	nitrogen lb/yr	38,887	phosphorus lb/yr	852						
		Mill Remain (2006)	sediment lb/yr	28,663,708	nitrogen lb/yr	1,417,521	phosphorus lb/yr	57,562						
		Mill Remain (2011)	sediment lb/yr	2,069,600	nitrogen lb/yr	41,855	phosphorus lb/yr	1,307,270						
PA	Harveys Lake	Sum of All Sub-Ws					phosphorus lb/yr	230						
PA	Conowingo Creek	after install of 126 BMI	sediment lb/yr	19,551,210	nitrogen lb/yr	450,290	phosphorus lb/yr	30,265						
PA	Mill CK/Stephen Foste	TMDL	sediment lb/yr	4,483			phosphorus lb/yr	9,961						
PA	Hungry Run	all 26 farms after BMP	sediment lb	780,514	nitrogen lb	27,724	phosphorus lb	1						
PA	W. Branch Antietam C	after install of 173 BMI	sediment lb/yr	18,747,072	nitrogen lb/yr	265,449	phosphorus lb/yr	14,492						
PA	Johnson Creek	John 1							Iron lb/day	33.8	Manganese lb/day	37	Aluminum lb/day	5
		UNT 5.0							Iron lb/day	2.6	Manganese lb/day	1.9	Aluminum lb/day	
		John 2							Iron lb/day	20.2	Manganese lb/day	21.3	Aluminum lb/day	
		UNT 7.0							Iron lb/day	13.3	Manganese lb/day	11.5	Aluminum lb/day	
		John 3							Iron lb/day	5.2	Manganese lb/day	6.7	Aluminum lb/day	
PA	Shoup Run	HR-1							Iron lb/day	1.9	Manganese lb/day	0.6	Aluminum lb/day	
		Dudley							Iron lb/day	10.5	Manganese lb/day	16	Aluminum lb/day	
		MR-1							Iron lb/day	0.4	Manganese lb/day	3	Aluminum lb/day	
		SR-1							Iron lb/day	NA	Manganese lb/day	NA	Aluminum lb/day	3
PA	Anderson Creek	Little Anderson CK. a/s							Iron lb/day	144.6	Manganese lb/day	51.38	Aluminum lb/day	11
		Anderson CK. a/s							Iron lb/day	21.2	Manganese lb/day	1.66	Aluminum lb/day	2
		Bilger Run a/s							Iron lb/day	25.5	Manganese lb/day	26.37	Aluminum lb/day	1
		Kratzer Run a/s							Iron lb/day	8.1	Manganese lb/day	2.59	Aluminum lb/day	1
		a/s-sum of all sources												
PA	Hubler Run	Hubler 1							Iron lb/day	0	Manganese lb/day	15.1	Aluminum lb/day	
		Hubler 2							Iron lb/day	1	Manganese lb/day		Aluminum lb/day	
		Hubler 3							Iron lb/day	4.8	Manganese lb/day	10.4	Aluminum lb/day	

Load Reduction by Polllutant and BMP

Plan Name: Inland Bays

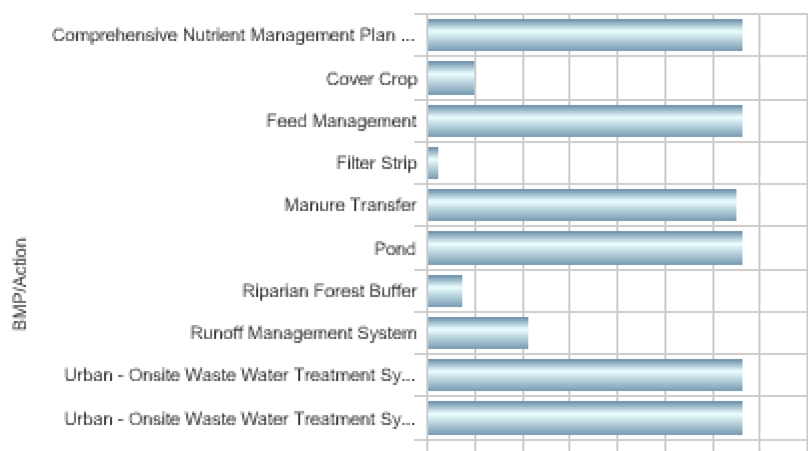
Nitrogen

BMP/Action	% Load Reduction Achieved
omprehensive Nutrient Management Plan (CNMP)	100
over Crop	15
rainage Water Management	87
ilter Strip	4
anure Transfer	98
ond	100
iparian Forest Buffer	12
unoff Management System	21
rban - Onsite Waste Water Treatment System (New/E	100
rban - Onsite Waste Water Treatment System (centr	100
rban - Onsite Waste Water Treatment System (pumpo	
Vetland Wildlife Habitat Management	100

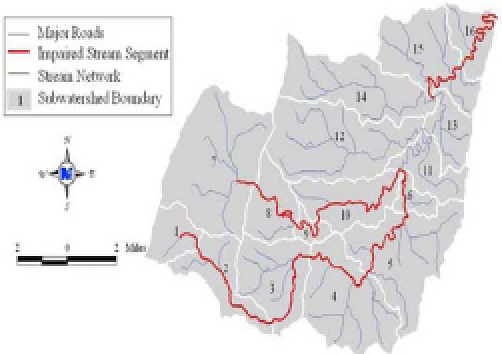


Phosphorus

BMP/Action	% Load Reduction Achieved
omprehensive Nutrient Management Plan (CNMP)	100
over Crop	15
eed Management	100
ilter Strip	4
anure Transfer	98
ond	100
iparian Forest Buffer	12
unoff Management System	32
rban - Onsite Waste Water Treatment System (New/E	100
rban - Onsite Waste Water Treatment System (centr	100



Catoctin Creek TMDL Implementation Project 2004-2008 (On-going)



Project Location

The project area focuses on a portion of the Catoctin Creek Watershed (HUC# 02700008), located in Loudoun County, Virginia and just north of Purcellville and approximately five miles northwest of Leesburg. Catoctin Creek is part of the Potomac River Basin. The area contains four watersheds – Upper South Fork Catoctin Creek, Lower South Fork Catoctin Creek, North Fork Catoctin Creek and Catoctin Creek Mainstem. The entire project area consists of 59,000 acres and the predominant land uses are forestry and agriculture. The estimated population within Catoctin Creek was 9,757 in 2001.

Implementation Highlights

The Loudoun Soil & Water Conservation District began administering the agricultural component of the Catoctin Creek TMDL Implementation Project in September 2004. During 2008 the District completed 18 best management practices, including 5 agricultural BMPs, all stream exclusion practices. The completed practice resulted in 3,623 feet of stream exclusion fencing and the exclusion of 46 livestock from the stream and the establishment of 1.5 acres of buffer. The Loudoun County Health Department began administering the residential septic system component in 2005. During 2008 the following were completed: two septic pumpouts, four septic repairs, 1 alternative waste treatment system and six septic systems installations.

BMP Summary for the Catoctin Creek TMDL Project (July 2004-December 31, 2007)

Control Measure	Unit	Units Needed	# Installed	# Goal
Agricultural Program:				
Stream exclusion fencing, SL-6, WP-2T	Feet	168,960	23,671	14%
Full Exclusion System	Systems	126	15	
Hardened Crossings	Systems	76		
Residential Program:				
Septic System Pump Out, RB-1	Systems		10	
Sewer Connection, RB-2	Systems		1	
Septic System Repair, RB-3	Systems		13	
Septic System Installation, RB-4	Systems	10	12	120%
Alternative Waste Treatment Systems, RB-5	Systems	10	7	70%
TOTAL SEPTIC PROGRAM		20	33	165%

Since the beginning of the project (through 2008) a total of 47 best management practices have been installed. These practices have produced 23,671 feet of stream exclusion fencing, 18 acres of buffer, excluding of approximately 527 animals from streams. In the residential program a total of 43 residential BMPs, including

Track Progress

July 1 2002-December 31, 2008					
Project Title	**Calendar Year**	**Pathogens (Coliform) CFU**	**Nitrogen lbs/yr**	**Phosphorus lbs/yr**	**Sedimentation-Siltation tons/yr**
Catoctin Creek TMDL Project	2005	3.15E+13	225.90	43.20	27.70
	2006	1.07E+14	84.48	1.71	0.59
	2007	5.40E+14	50.72	4.65	1.64
	2008	7.19E+13	255.38	11.05	6.26
	Sub-Total	**7.50E+14**	**616.49**	**60.62**	**36.20**

Track Progress