Chesapeake Bay Watershed Implementation Plan

Agriculture Subcommittee

Who are we and who are our partners?

The Agriculture Subcommittee represents a diverse array of programmatic expertise from active farming operations to environmentally-focused organizations:

- Delaware Department of Natural Resources and Environmental Control (DNREC)
- Delaware Department of Agriculture's (DDA) Nutrient Management Program and Planning Section
- Delaware Department of Transportation
- US Department of Agriculture's Natural Resource Conservation Service (NRCS)
- Farm Service Agency (FSA) and Rural Development
- New Castle, Kent, and Sussex Conservation Districts
- University of Delaware's Cooperative Extension Service
- Delaware Farm Bureau
- Nutrient Management Commission members
- Farmers

What do we do?

Agriculture is the largest land use in the Chesapeake Bay Watershed and, if not properly managed, could contribute significant amounts of nitrogen and phosphorus through field applications of manure and commercial fertilizers to ground and surface waters.

If nutrients are over-applied to ag lands, the excess may be transported to surface or ground water. To date, the agriculture community in Delaware has reduced a significant amount of nonpoint source nitrogen and phosphorus loading, leading the efforts to curtail nonpoint source nutrient loadings.

What are our goals/strategies?

The following practices represent but a small sample of recommendations, both regulatory and voluntary, for the Agriculture Community:

- Continue to support the Delaware's Nutrient Management Commission (DNMC) and nutrient planning.
- By 2025, annually plant 66,400 acres of traditionally planted cover crops and 26,365 acres of early planted cover crops
- Transport an additional 48,757 tons of manure out of the Chesapeake Bay Watershed for 2010-2011 and an additional 4,000 tons annually through 2025.

Cover crops are small grains such as wheat, rye or barley, planted in the fall after the harvest to absorb residual fertilizer that may remain in the soil. Cover crops provide a ground cover that prevents winter soil erosion.

What progress have we made?

- Established the Delaware Rural Irrigation Program (DRIP) Revolving Loan Fund.
- The USDA Natural Resources Conservation Service (NRCS) in Delaware recently awarded $715,000 to the Sussex Conservation District (SCD) through the Cooperative Conservation Partnership Initiative (CCPI) to help farmers increase conservation efforts in the Chesapeake Bay Watershed.
- Establish the Broad Creek High Efficiency Cover Crop Implementation Pilot Project.
- Utilized Strategic Watershed Action Teams (SWATs) in the Chesapeake Bay Watershed to work with producers toward accelerating the use of conservation practices which will improve water quality.
- Adopted confined animal feeding operation (CAFO) requirements, which regulate chicken houses over a specified number in order to address manure and other water quality factors.

What do we still need to do?

<u>Still To Do:</u>

Delaware's strategy to fill gaps within the Agriculture Sector will focus on furthering BMP Implementation on private and publically owned lands.

The single greatest factor preventing additional BMP implementation within the Watershed is limited funding resources available to offset the high cost of implementation.

The Ag Workgroup will continue to seek resources to offset this deficiency. Additionally, new or emerging nutrient reducing BMPs will be evaluated and implemented/adopted provided they achieve greater nutrient or sediment reductions at lower cost, more quickly, and/or more verifiably.

Contact information

Chesapeake Bay Watershed Implementation Plan

Wastewater Subcommittee

Who are we and who are our partners?

DNREC Surface Water Discharges Section

Pollutants are eliminated in surface waters by issuing regulatory permits under the National Pollutant Discharge Elimination System (NDPES) through the Clean Water Act, aimed to:

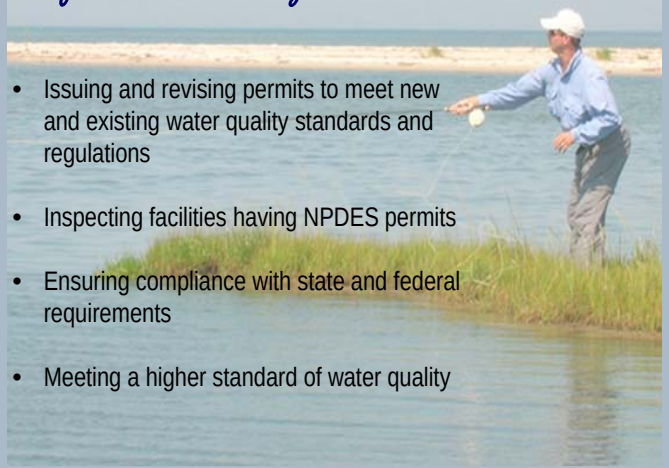
- Limit the discharge of those substances.
- Have no adverse effect on the quality of the receiving waters.
- Have no interference with the designated uses of those waters.

Wastewater treatment facilities are issued NPDES permits, and must comply with specific water quality requirements in order to meet state standards and protect Delaware's water resources.

Onsite wastewater, such as septic systems and spray irrigation, are not regulated through the NPDES program.

What do we do?

Surface Water Discharges Section works toward:



- Issuing and revising permits to meet new and existing water quality standards and regulations
- Inspecting facilities having NPDES permits
- Ensuring compliance with state and federal requirements
- Meeting a higher standard of water quality

What are our goals/strategies?

Cleaner Water for a Promising Future

Goals/Strategies:

Industrial NPDES Permits

- Revise and reissue all individual NPDES permits in the industrial sector within the Chesapeake Bay during FY 2012
- Work towards the reduction of permitted nutrient loads by 60%

Municipal Wastewater NPDES Permits

- Continue to inspect facilities based on permit requirements
- Revise and reissue permits upon expiration based on current standards
- Work towards enhanced nutrient removal for all municipal permits by 2025

What progress have we made?

Progress to Date:

- Efforts toward reissuance of one major industrial facility within the Chesapeake Bay Watershed
- Initiated discussions with municipal facilities on meeting new standards
- Completed scheduled inspections to ensure compliance with current wastewater standards

Collaboration is key!

Since the passing of the Clean Water Act in the early 70s, the Federal government in partnership with State government and the local community have worked together to significantly improve the quality of effluent from wastewater treatment plants.

The Chesapeake Bay Watershed Implementation Plan (WIP) requires a collaborative approach that focuses on improving water quality in the Chesapeake Bay while minimizing the financial impact on the State and local communities.

Contact information

Chesapeake Bay Watershed Implementation Plan

On-site Wastewater Subcommittee

Who are we and who are our partners?

Members of the Onsite Wastewater Subcommittee include representatives from DNREC's Ground Water Discharges Section.

Partners we hope to engage during Phase II include:

- DNREC's Financial Assistance Branch
- Local governments
- Delaware Onsite Wastewater Recycling Association (DOWRA)
- Southeast Rural Community Assistance Project, Inc.
- Delaware Rural Water Association
- First State Community Action
- Delaware State Housing Authority

What do we do?

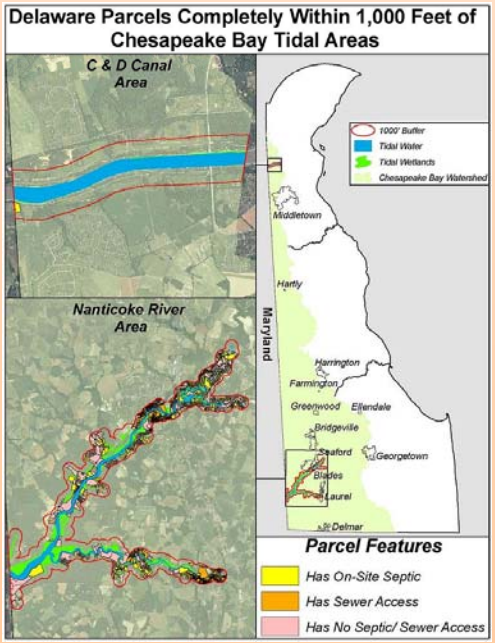
The Ground Water Discharges Section (GWDS) is responsible for overseeing all aspects of the siting, design, and installation of onsite wastewater treatment and disposal systems (OWTDS, septic systems). The section also issues waste transporter permits and licenses to percolation testers, designers, soil scientists, system contractors, liquid waste haulers, and system inspectors.

The GWDS is broken down into two branches: the Small Systems Branch and Large Systems Branch. The Small Systems Branch reviews and approves site evaluations, permit applications, and conducts installation and compliance inspections of systems with daily flows equal to and less than 2,500 gallons per day (gpd). The Large Systems Branch reviews and approves spray irrigation wastewater systems and on-site wastewater treatment and disposal systems with daily flows greater than 2,500 gpd, Innovative/Alternative Technologies, Advanced Treatment Units, underground injection wells, and other means associated with land application of treated wastewater.

What are our goals/strategies?

The on-site wastewater section of the WIP relies heavily on revising the statewide on-site regulations, which propose:

- Eliminating all cesspools and seepage pits
- Requiring properties served by on-site systems to be inspected by a Class H inspector and the tank pumped by a Class F liquid waste hauler prior to the transfer of a property. Unsatisfactory systems would need to be repaired, replaced, or upgraded, depending on location and date.
- Requiring Class F liquid wastes haulers submit quarterly reports
- Requiring large systems (>2,500 gallons/day) to have:
  - Performance standards (nutrient limits)
  - Monitoring requirements
  - Licensed operators
  - Systems serving 50+ units operated by public utilities
- Installation of nutrient reducing systems for any innovative and alternative (IA) technologies
  - Mandatory operation and maintenance on IA systems
- All new and replacement systems within 1,000 feet of tidal waters and associated tidal wetlands in the Chesapeake must meet Performance Standards for Nitrogen and Phosphorus.



What progress have we made?

The regulatory review process has been underway for several years and is anticipated to be completed by the end of 2011.

For the first time in 2010, data on septic Best Management Practices (BMPs) were submitted to the Chesapeake Bay Program and Delaware received credit for septic connections, advanced treatment systems, and pumpouts. We are continuing to work on improving and populating our databases.

What do we still need to do?

We need to finalize and promulgate our statewide regulations and begin implementation. This will require outreach to educate regulated communities on the new requirements and we will work with our partner groups to identify funding mechanisms to help support septic upgrades and connections.

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Chesapeake Bay Watershed Implementation Plan

Stormwater Subcommittee

Who are we and who are our partners?

The Delaware Department of Natural Resources and Environmental Control's (DNREC) Sediment and Stormwater Program has partnered with DNREC Surface Water Discharges Section and the Delaware Department of Transportation to address stormwater issues within the Chesapeake Bay Watershed through development of the Chesapeake Bay Watershed Implementation Plan (WIP).

What do we do?

Partners within the Stormwater Subcommittee are all considered to be stormwater specialists by protecting water quality and managing water quantity to reduce flooding.

Collectively, they have experience in:

- Developing regulations
- Providing technical guidance to the permitted community
- Constructing water quality improvement projects
- Guide the development of the WIP

Best Management Practices (BMPs) are used to mimic the natural flow of water. These are engineered facilities that have been scientifically proven to remove pollutants from stormwater. Pollutant removal rates vary greatly from one type of practice to another. Below is an example of a rain garden.

Managing stormwater responsibly will assure good water quality for an improved quality of life.

Such improvements in water quality will also ensure that our natural resources are sustained, for a healthier environmental and culturally rich future.

What are our goals/strategies?

Goals/Strategies:

- Develop revised Sediment & Stormwater Regulations to better address hydrologic and water quality impacts from new development
- Adopt new stormwater management practices that emphasize runoff and pollutant reduction
- Look for retrofit opportunities as they arise
- Develop Best Management Practice (BMP) database to track benefits of existing stormwater management practices
- Develop database of permitted stormwater discharges to identify existing point sources
- Work with Chesapeake Bay modeling team to ensure stormwater management practices are given proper credit
- Update existing stormwater discharge permits to reflect the goals of the Chesapeake WIP
- Explore alternative fertilizer formulations for the consumer market

What progress have we made?

Progress to Date:

- Website has been created for Industrial Stormwater Program.
- Revisions to Delaware Sediment & Stormwater Regulations are underway with scheduled implementation expected in early 2012.
- Revisions to Industrial Stormwater Regulations are underway, with working draft and BMP manual expected in mid-2012.
- Databases have been developed for existing stormwater BMPs and point source discharges. A QA/QC process is currently in progress.
- Stormwater improvement project funded for Town of Seaford which includes retrofitting Green Technology practices.
- Updated stormwater discharge permits for the municipal sector have gone through several drafts and nearing finalization.
- Documentation is being collected on the use of low phosphorus fertilizers in the State.

What do we still need to do?

- Finalize Sediment and Stormwater Program regulations for development and redevelopment
- Complete draft industrial stormwater regulations
- Update stormwater discharge permit for the construction industry
- Support CBP Stormwater Workgroup's efforts to improve model results
- Continue public education & outreach efforts to emphasize importance of everyone's contribution to improving the health of all Delaware's waters

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Chesapeake Bay Watershed Implementation Plan

Planning and Land Use Subcommittee

Who are we and who are our partners?

- DNREC
- Office of State Planning Coordination
- Department of Agriculture
- University of Delaware Sustainable Coastal Communities
- Homebuilders Association of Delaware
- Kent County
- New Castle County
- Sussex County
- Town of Middletown
- Town of Hartly
- Town of Harrington
- Town of Farmington
- Town of Delmar
- Town of Greenwood
- Town of Ellendale
- Town of Bridgeville
- Town of Georgetown
- Town of Seaford
- Town of Laurel
- Town of Blades

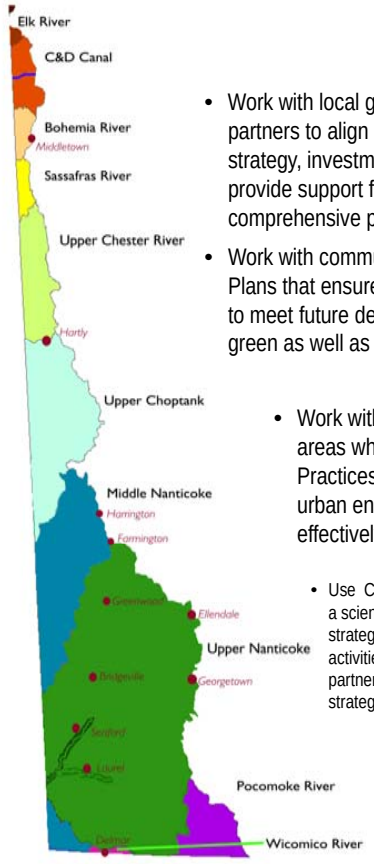
What do we do?

The Planning and Land Use Subcommittee was formed to:

- Address elements of the Watershed Implementation Plan related to future growth;
- Communicate with and engage local governments within the Chesapeake Bay Watershed about the TMDL, opportunities, tools, and their potential roles and responsibilities;
- Work with our partners to investigate the potential for a nutrient credit and/or offset program for Delaware.

What are our goals/strategies?

- By 2012 develop a voluntary Residential and Commercial Lawn Care and Fertilizer Program to include homeowner education and commercial lawn-care certification.
- Develop a "build-out" analysis of the Chesapeake Bay Watershed through 2025.
- Develop a nutrient off-set and trading program to mitigate future growth within the Watershed.
- Provide tools for local communities to implement off-set and trading programs.
  - Assess the potential of new technologies to generate nutrient credits as part of an overall nutrient trading and offset program.
  - Work with local governments and other partners to align Delaware's growth strategy, investment and TMDL actions, and provide support for more proactive comprehensive planning.
  - Work with communities to develop Master Plans that ensure infrastructure is available to meet future demands and that focuses on green as well as gray infrastructure.
  - Work with communities to identify areas where Best Management Practices can be implemented in the urban environment in a cost – effectively and efficiently manner.
  - Use Conservation Opportunity Areas, a science and watershed based strategy for prioritizing conservation activities, to target resources and build partnerships for implementation of strategies.



What progress have we made?

- Developed a model build-out analysis of the Chesapeake Bay Watershed with the University of Delaware Sustainable Coastal Communities Program.
- Working with contractor to finalize tools such as the Nutrient Load Assessment Protocol and others that local governments and partners can use to evaluate implementation of urban best management practices at the local level.
- Working with partners to evaluate nutrient offset and trading programs in Delaware. An offset program for Sediment and Storm Water loads will be included in revised Sediment and Storm Water Regulations.
- Engaging local governments and partners through comprehensive land use process, permitting processes, and direct communication to provide guidance and technical assistance.
- Master Plan for Town of Georgetown.

What do we still need to do?

- Fully develop and implement a nutrient offset and trading program in Delaware with our partners.
- Develop voluntary lawn care and fertilizer program for homeowners and commercial users.
- Work with communities through the Comprehensive Land Use Planning process (long tern program).
- Finalize Conservation Opportunity Areas
- Develop master plans.
- Develop two year milestones for urban best management practices.
- Implement urban best management practices in line with two year milestones.
- Ask our partners for their commitment to achieving our water quality goals in an efficient and cost-effective way.

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Chesapeake Bay Watershed Implementation Plan

Public Lands Subcommittee

Who are we and who are our partners?

The Public Lands Subcommittee includes staff from:

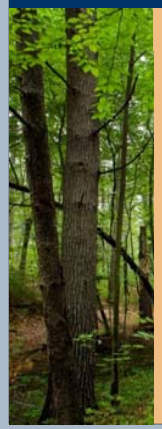
DNREC
- Land Preservation Office
- Wildlife Regional Managers
- Environmental Stewardship Program
- Watershed Assessment Section

Department of Agriculture
- Delaware Forest Service

DelDOT
- NPDES Program

As the Watershed Implementation Plan is implemented, the Subcommittee will reach out to other public land owners and nonprofit land managing organizations.

What do we do?



The Subcommittee is focused on analyzing the over 38,700 acres of state-owned land in the Chesapeake Bay Watershed in relation to our stated goals/strategies. We are creating databases to track BMPs, researching funding sources for implementation of suggested actions and assisting in prioritizing acquisition of conservation lands in the watershed.

What are our goals/strategies?

Public land management should lead by example in the area of water quality protection and enhancement in the watershed. In order to achieve this, the Subcommittee will work with public land managers to:

- Review existing best management practices (BMPs) on public lands
- Determine potential for increased/new BMPs
- Verify compliance with authorized BMPs
- Analyze reforestation/aforestation opportunities
- Review tax ditch management
- Review effectiveness of stormwater facilities
- Review Tributary Action Teams recommendations for consistency
- Continue to acquire priority conservation lands

What progress have we made?

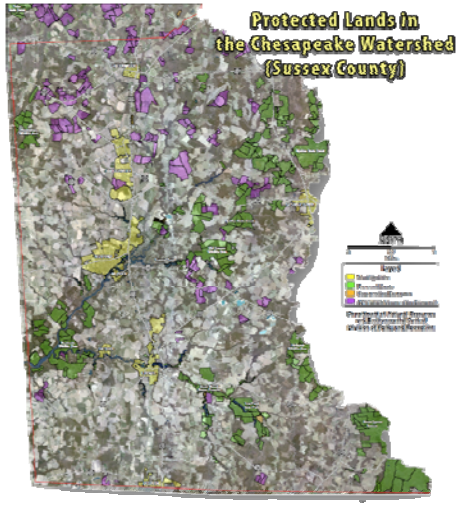
The Subcommittee started developing a BMP tracking database for leased agricultural lands of the Division of Fish and Wildlife, the Division of Parks and Recreation, and the Delaware Forest Service.

In Fiscal Year 2011, four conservation land acquisition projects were completed adding 657 acres to public ownership at a cost of over $4,636,000.

What do we still need to do?

The Subcommittee will focus on:

- finalizing the BMP tracking database working with public land managers to improve/change BMPs
- securing funding for BMP retrofits
- expanding outreach to other public and private partners
- coordinating with Federal land managers to attain required water quality standards



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Chesapeake Bay Watershed Implementation Plan

Restoration Subcommittee

Who are we and who are our partners?

The Restoration Subcommittee represents a diverse array of programmatic expertise from both federal and state agencies that are actively involved in ecological restoration in the State of Delaware. In addition to members from Delaware Department of Natural Resources and Environmental Control (Watershed Assessment Section, Drainage Program, 319 Nonpoint Source Program, and Division of Fish and Wildlife), our partners are representatives from Delaware Department of Agriculture, Forestry Service, Delaware Department of Transportation subcommittee. During the subcommittee meetings, we added The Nature Conservancy, Nanticoke Watershed Alliance, the Sassafras River Association, as our partners.

What do we do?

As a subcommittee, we focus on:

- Identifying existing ecological restoration projects within the Chesapeake Basin of Delaware
- Developing an ecological restoration database that will be used to track and identify potential restoration projects
- Devising recommendations and ecological restoration goals to help achieve the Chesapeake Bay TMDLs.

What are our goals/strategies?

We based our restoration activities upon the Nanticoke Restoration Plan. The Plan identified that the conservation targets with the highest priority for restoration within the Chesapeake Bay region of Delaware were:

1. Headwater forests
2. Large forest tracts
3. Channelized streams
4. Corridor and riparian buffers
5. Tidal wetland buffers

Thus, the proposed WIP ecological restoration goals reflect these priorities.

Proposed restoration goals for the Chesapeake Basin of Delaware

Conservation Target	Interim WIP Goal	Goal by 2025	Total Goal (includes existing acres on the ground and goals from the Agriculture Subcommittee)
Headwater forests (Wetland Restoration)	125 acres per year	1,875 acres	5,725 acres
Large forest tracts (Wetland Restoration)	173 acres per year	2,595 acres	
Channelized streams (Stream Restoration)	0.8 miles per year	12 miles (63,202 feet)	63,202 feet
Corridor and riparian buffers (Forest Buffers)	82 acres per year	1,230 acres	7,020 acres
Tidal Wetland Buffers (Grass Buffers)	35 acre per year	525 acres	8,297 acres
Reforestation of Erodible Crop and Pastureland	450 acre per year	6,750 acres	NA
Afforestation (Tree Planting)	35 acres per year	525 acres	930 acres

What progress have we made?

The Restoration Subcommittee applied for National Fish and Wildlife Foundation's Chesapeake Bay Stewardship Fund grant. Our Innovative Nutrient and Sediment Reduction Grant was funded. As part of that grant, we partnered with The Center for Watershed Protection and offered a two-day training on stormwater retrofitting in June 2011 and had 25 participants from Bridgeville, Newark, Middletown, representatives from county conservation districts, local engineering firms, and DNREC. The Center has developed stormwater retrofitting presentations and training materials based on their Retrofit Reconnaissance Inventory methods with Delaware's development characteristics and regulatory context in mind.

What do we still need to do?

- Tracking and assessment of restoration Best Management Practice implementation data is necessary to fully reflect impacts from on-the-ground activities that reduce nutrient and sediment pollution. Work is underway to modify the existing database to be more complete and comprehensive. We are presently transferring implementation data into the new database.

- Two contractors through the Kent Conservation District have been making contacts with landowners to determine eligible restoration and conservation projects. Numerous projects on state lands and some on private lands have been identified.

- And, we are working with Ducks Unlimited to identify some more potential restorations sites. Once a site has been identified, staff from the US Fish & Wildlife Service will work with the property owner to fund and implement the restoration project. We are still finalizing the agreements that will formalize these arrangements.

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Chesapeake Bay Watershed Implementation Plan

Information and Technology Subcommittee

Who are we and who are our partners?

The Information and Technology Subcommittee includes representatives from numerous groups that maintain best management practice (BMP) implementation data. Best management practices (BMPs) to reduce nonpoint source (NPS) pollution are funded and installed by numerous federal, state, local, and private agencies.

DNREC's Watershed Assessment Section in collaboration with the Office of Information Technology (OIT) obtains nonpoint source BMP tracking data from both internal and external sources, which are then reported to the EPA Chesapeake Bay Program Office (CBPO) for inclusion in model scenario runs.

What do we do?

Data on implementation from multiple groups is tracked and reported to the Chesapeake Bay Program. Each December 31st, data for projects that were implemented between July 1 and June 30 is submitted to the Program in order to receive credit toward progress in reaching water quality goals.

As the Information and Technology Subcommittee, we are:

- working to ensure that our data tracking and reporting systems are up-to-date, accurate, and in a format that can facilitate efficient data transfer
- identifying other data sources that have not previously been reported and working to incorporate those sources in our reporting system.

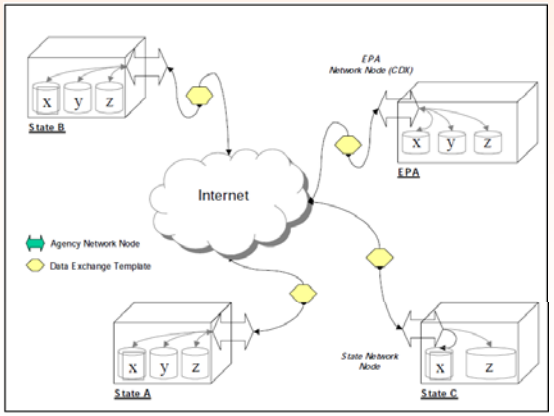
What are our goals/strategies?

In an attempt to standardize, streamline, and document data manipulations, the Chesapeake Bay Program and the jurisdictions in the bay watershed agreed to transfer data exclusively through the National Environmental Information Exchange Network (NEIEN).

The Exchange Network is a partnership between the Bay jurisdictions and the CBPO for the secure, real time exchange of environmental information. Existing data management systems are able to remain in place and through the Network, data is delivered based on pre-described methods, or a schema. The CBP NPS BMP schema was developed by PA, VA, and MD. Delaware began mapping data from state sources into the schema. The schema in use contains fields such as jurisdiction, data source, contact information, name of practice, practice components, location, unit of measure, quantity, status, and funding source.

In Delaware, data from each implementing organization is supplied to DNREC's OIT for conversion into an XML document. Once all data sources have been received, data is transmitted through DNREC's network node. Once data is submitted as XML documents through NEIEN, it is entered into the Nutrient and Sediment Scenario Builder which creates input scenarios for the Watershed Model.

The transition to the NEIEN reporting system will streamline the reporting process and will result in use of agreed upon data entry fields to minimize data entry errors, standardize data input and management procedures, and unify reporting from multiple agencies.



Blueprint for NEIEN

What progress have we made?

The 2010 data submission was the first done with NEIEN. Since the transition to NEIEN, more data on practices that have routinely been implemented within the State can finally be reported and credited within the Bay Program model. Improvements in data tracking and reporting systems have resulted in the reporting of more practices that receive credit in the watershed model and the capture of data fields that were previously missing or unpopulated.

Additionally, in 2010, an agreement was reached to have federal agencies, such as the USDA's NRCS and FSA, report practices directly to the USGS for CBP modeling rather than have jurisdictions report on their behalf. While the intricacies of this agreement are being worked out, Delaware worked with Tetra Tech to map NRCS data to the schema for the 2010 data submission.

What do we still need to do?

There are still sources of data that have not been reported and we need to work on incorporating them into our reporting system. Sources that have already been identified include the Farm Service Agency (FSA), the city of Middletown stormwater data, water control structure data from 3 conservation districts, and data from local governments on tree planting and street sweeping. DNREC staff will assist with obtaining data in appropriate spreadsheet formats so that Tetra Tech staff can focus on XML development. Additionally, we need to work with the agriculture community to determine the extent of any voluntary implementation of BMPs and identify methods to incorporate that information into regular reporting systems.

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