

US EPA ARCHIVE DOCUMENT

# Maryland Nonpoint Source Program 2006 Annual Report

Prepared by:



Department of the Environment  
1800 Washington Boulevard, Suite 540  
Baltimore MD 21230-1718

July 07

Published and distributed by the

Section §319(h) Nonpoint Source Program  
Maryland Department of the Environment  
1800 Washington Boulevard, Suite 540  
Baltimore, MD 21230

Phone: 410-537-3906

Fax: 410-537-3873

Richard Eskin  
Director, SSA

Authored by:

Robin Pellicano



Maryland's Nonpoint Source Program is funded in part by a Section §319(h) Clean Water Act Grant from the U.S. EPA. Although this program is funded partly by U.S. EPA, the contents of this report do not necessarily reflect the opinion or position of the EPA.

Table of Contents

I. Mission and Goals of the NPS Program..... 1  
 II. Executive Summary ..... 1  
     Highlighted Effort..... 2  
 III. Overview..... 5  
 IV. Major Accomplishments and Successes..... 8  
     Implementation Projects ..... 8  
 V. Areas of Concern/Recommendations/Future Actions..... 22

Appendix A: Financial and Contact Information

Appendix B: 2005 BMP Progress Implementation on Maryland from the FFY06 Analyzing and Tracking Nonpoint Source Data Project

Appendix C: General Approach and Schedule to Implement Applicable Management Measures

Appendix D: Projected §319(h) funding projects for FFY07

Appendix E: FY 2006 Project Status as Reported in GRTS through 1/30/07

Appendix F: 2006 Annual Report on the Restoration of the Corsica River

List of Figures

Figure 1: Map showing the locations of the WRAS watersheds ..... 4  
 Figure 2: Chart showing the distribution of sources of nitrogen in Maryland..... 6  
 Figure 3: Chart showing the distribution of sources of phosphorus in Maryland ..... 6  
 Figure 4: Map showing the locations of the FFY2006 Implementation projects (Funding for these projects came from FFY2006 and FFY2004 reprogrammed funds) ..... 10  
 Figure 5: Chart showing distribution of Maryland’s FFY 2006 §319(h) funding between the Corsica Targeted Watershed Project and Remaining Projects ..... 12  
 Figure 6: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Agriculture Capacity Development Demonstration ..... 13  
 Figure 7: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Town of Centreville Demonstration ..... 14  
 Figure 8: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Maryland Department of the Environment’s Implementation Monitoring ..... 15  
 Figure 9: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Maryland Department of Natural Resources Monitoring for Interim and Post Project Water Quality ..... 16

Page left blank

## **I. Mission and Goals of the NPS Program**

Maryland's mission is to implement effective nonpoint source pollution control programs. These programs are designed to achieve and maintain beneficial uses of water, improve and protect habitat for living resources, and protect public health through a mixture of water quality and/or technology based programs including: regulatory and/or non-regulatory programs; and financial, technical, and educational assistance programs.

Through leadership and financial support Maryland's Section §319(h) Nonpoint Source (NPS) Program plays a lead role in helping to achieve protection and improvement of Maryland's water quality. The Program promotes and funds state and local watershed planning efforts, water quality monitoring, stream and wetland restoration, education and outreach, and other measures to reduce, prevent and track nonpoint source pollution loads. The NPS Program plays a key role in promoting partnerships and inter- and intra-governmental coordination to reduce nonpoint sources of pollution, and helps bring the necessary technical and financial resources to local watershed management planning, best management practices, and restoration of streams and wetland habitats. Program partners include State and local government, Soil Conservation Districts, private landowners and watershed associations.

The NPS Program's three priority goals are:

- Reducing nonpoint source pollution;
- Restoring and protecting habitat (e.g., streams, riparian buffers and wetlands); and,
- Removing waters from the State's list of impaired waters (e.g. the 303(d))

## **II. Executive Summary**

This report documents the activities and accomplishments of the State of Maryland in general and the Maryland Department of Environment's Water Quality Restoration and Protection Program, in particular the administration of the State's §319(h) Program. Maryland Department of Environment (MDE) plays a lead role in helping to achieve protection and improvement of Maryland's water quality by promoting and funding state and local efforts, water quality monitoring, stream and wetland restoration, education and outreach, and other measures to reduce and track nonpoint source pollution loads.

MDE is the lead agency responsible for coordination of policies, funds, and cooperative agreements with state agencies and local governments. Several other state agencies have key responsibilities, including the Departments of Natural Resources (DNR), Agriculture (MDA), Planning (MDP), and State Highway Administration (SHA). The NPS Program is housed within MDE's Science Services Administration (SSA).

In the past year, there have been notable program changes and successes. Progress was made in implementing best management practices in all nonpoint source areas through the provision of technical assistance, and project funding.

This year's projects have included the restoration of approximately 4000 feet of stream, 20 acres of forested wetland creation, restoration of wetlands associated with stormwater management, acid mine drainage remediation, along with the technical assistance with the installation of Agricultural BMPs as shown in Table 3.

The program faces several challenges and concerns. Because of increasing development, there has been an increase in the urban/suburban component of nonpoint source pollution. Also because federal and state budgets are steadily decreasing there is an ever-tightening restraint on the amount of help, either technical or financial, that a state can provide. There is also the need to show effectiveness or environmental results in an area that may take years or decades to do so.

### **Highlighted Effort**

*Watershed Restoration Action Strategies (WRAS):* Beginning in 2001, and with the support of DNR's Coastal Zone Division, and DNR's Non Point Source Program, the Watershed Restoration Action Strategy Program (WRAS) coordinated the steady development of five new WRASs each year. The WRAS Program provided local governments with extensive watershed technical assessment, support, and restoration services. The goal of WRAS-sponsored watershed planning was to protect and restore water quality and habitats. WRASs helped local governments assess and prioritize environmental needs, and implement restoration and protection projects by providing a wealth of local-scale data to assist with priority setting. In addition, the WRAS program helped ensure all entities (MDE, DNR and MDA, SHA, etc.), were coordinating, targeting and leveraging their efforts in priority watersheds.

During each two year WRAS process the State provided technical and assessment services to local governments in order to assess the attributes of a watershed's landscape and streams. The services provided were:

- The Watershed Characterization Report, is a summary of all, readily available, natural resources and other data for a given watershed. Typically this is data that the State of Maryland has at a broad-based, state scale, but the Characterization Report could have included local data as well. The Characterization Report includes information on water quality, land use and cover, living resources, and habitat.
- The Synoptic Survey Report is a water chemistry analysis (nutrients, temperature, conductivity, pH), and in some watersheds, there was a biological survey (macro invertebrates, fishes, habitat) on between 30 and 80 sites along stream corridors in the watershed.
- The Stream Corridor Assessment Report, summarizes results from a 100-mile stream corridor assessment survey using DNR's Stream Corridor Assessment Methodology. The local government chose the streams that they wanted walked and assessed for such problems as pipe outfalls, erosion sites, lack of buffers, fish passage blockages, sewer outfalls, or unusual conditions. Each site was rated for accessibility, severity, and correctability. Local governments were given the geographically referenced information.

All of these support documents can be found on the Department of Natural Resources' web site: <http://www.dnr.state.md.us/watersheds/surf/proj/wras.html>.

Some local governments established a core Working Group made up of interested parties and then would have a larger Steering Committee made up of an even broader cross section of stakeholders. Working Groups made regular presentations to the Steering Committees regarding progress, data, and decisions. The Steering Committees could raise concerns or provide recommendations, and consensus would develop regarding the direction and focus of the WRAS. Pre-existing groups who were representative of the watershed's stakeholders would be invited to fill the role of the Steering Committee.

Each Strategy included a well-stated, overarching goal aimed at protecting, preserving, and restoring habitat and water quality, a description of the stakeholder process, opportunities, concerns, and challenges, and finally a very detailed, prioritized, description of natural resource management objectives. All Strategies can be found at the above web site.

One of the major requirements of receiving WRAS awards was showing a high degree of meaningful collaboration with citizens and stakeholders in their targeted watershed. Local government information, local knowledge, and stakeholder concerns were considered in the analysis that led to subsequent management decisions articulated in the final WRAS document. It was the responsibility of the local governments that developed a WRAS to champion local public involvement and ensure strong stakeholder participation. Without local participation and involvement there would have been no sense of "ownership" of the WRAS and therefore less likely that after the WRAS process was finalized a continuation of the process, such as implementation, would occur.

Even though 2006 marked the end of the formal WRAS program there is a continued effort to provide local governments with the assistance to finish developing their local watershed plans. With the completion of the WRAS projects, Maryland brings to a close a highly successful and comprehensive keystone program designed to support local governments with watershed planning. This program significantly contributed to the State's Chesapeake Bay Program of having 2/3 of the Bay Watershed addressed with comprehensive watershed plans. The State will look to local governments, NGOs and others to help the state in future watershed planning work.

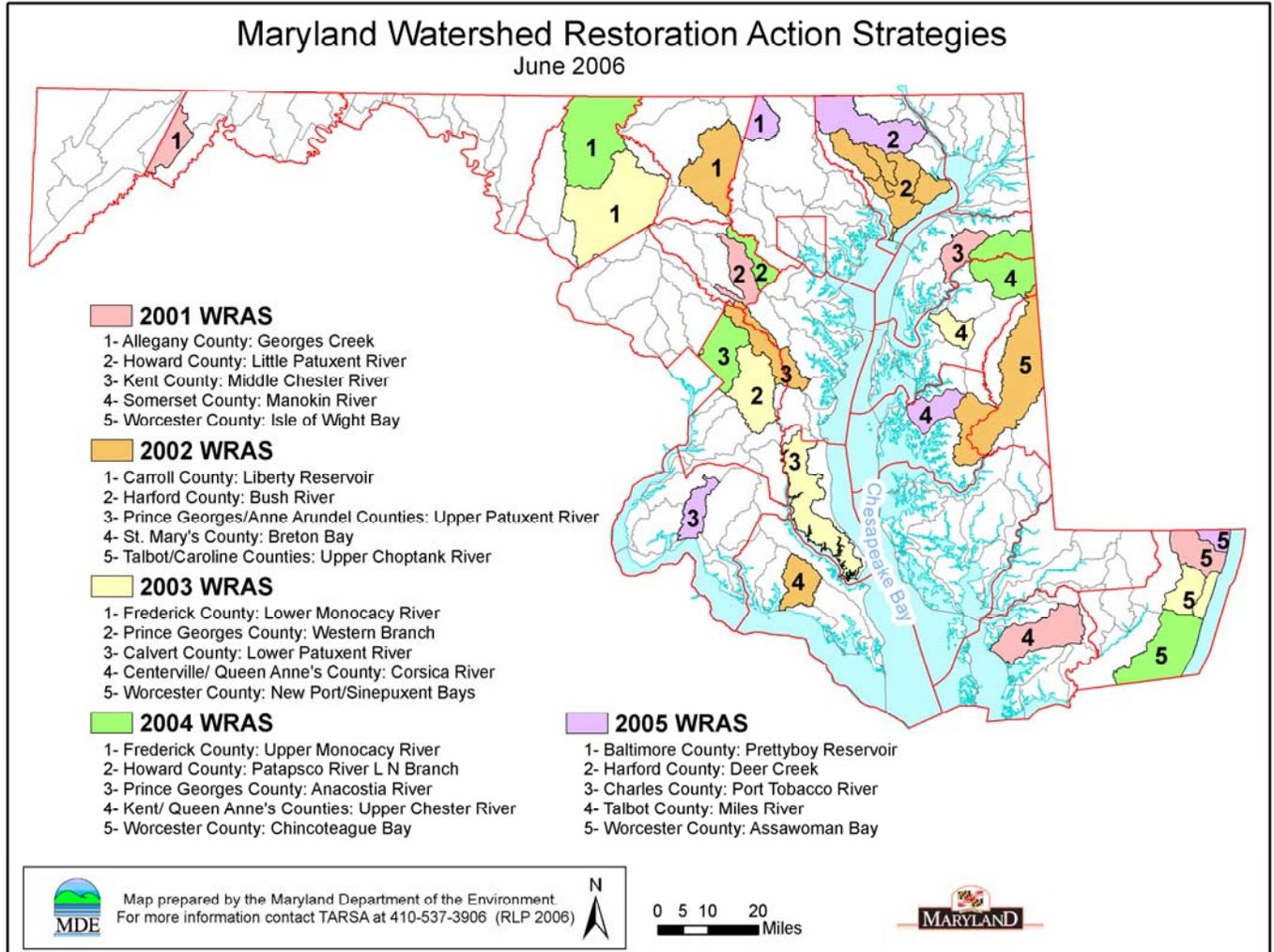


Figure 1: Map showing the locations of the WRAS watersheds at the program's completion

### **III. Overview**

In Maryland, a complex web of water weaves its way through the State. Maryland is home to the Chesapeake Bay, the nation's largest estuary system, and the Coastal Bays that provide habitat for a wide range of aquatic life. Maryland has over 9,940 miles of non-tidal streams and rivers. Several major rivers (Monocacy, Patuxent, Potomac, Choptank, Nanticoke, Gunpowder, Pocomoke and Susequehanna) run through the state. Maryland's water resources provide food and water for its residents, jobs for the economy and a place where people may relax and enjoy the natural environment. Maryland's water resources are under stress from a variety of causes, with nonpoint source pollution the greatest single factor.

Maryland's rich heritage and the bounty of its waters are threatened by the very prosperity that continues to draw newcomers. Recreation, tourism, commercial and recreational fishing, wildlife habitats, and our quality of life are ultimately dependant upon healthy watersheds. Yet, the state's waters are increasingly impacted by and remain impaired due largely to nonpoint sources of pollution and related habitat degradation due to altered land uses.

What is NPS Pollution?

Nonpoint source pollution is defined as polluted runoff caused by stormwater (rainfall or snowmelt) or irrigation water moving over and through the ground. As this runoff moves, it picks up and carries away pollutants, such as sediments, nutrients, toxics, and pathogens. These pollutants are eventually deposited in lakes, rivers, wetlands, coastal waters, ground waters and the Chesapeake and Coastal Bays. Nonpoint source pollution is associated with a variety of land-based activities including farming, logging, mining, urban/construction runoff, onsite sewage systems, streambank degradation, shore erosion, etc. Nonpoint source pollution is the main reason why many of Maryland's waters are considered "impaired." Impaired waters are those waters that do not meet Water Quality Standards for designated uses (e.g., fishing, swimming, drinking water, shellfish harvesting, etc.). The most recent Chesapeake Bay model associates nonpoint source pollution to the following land use categories:

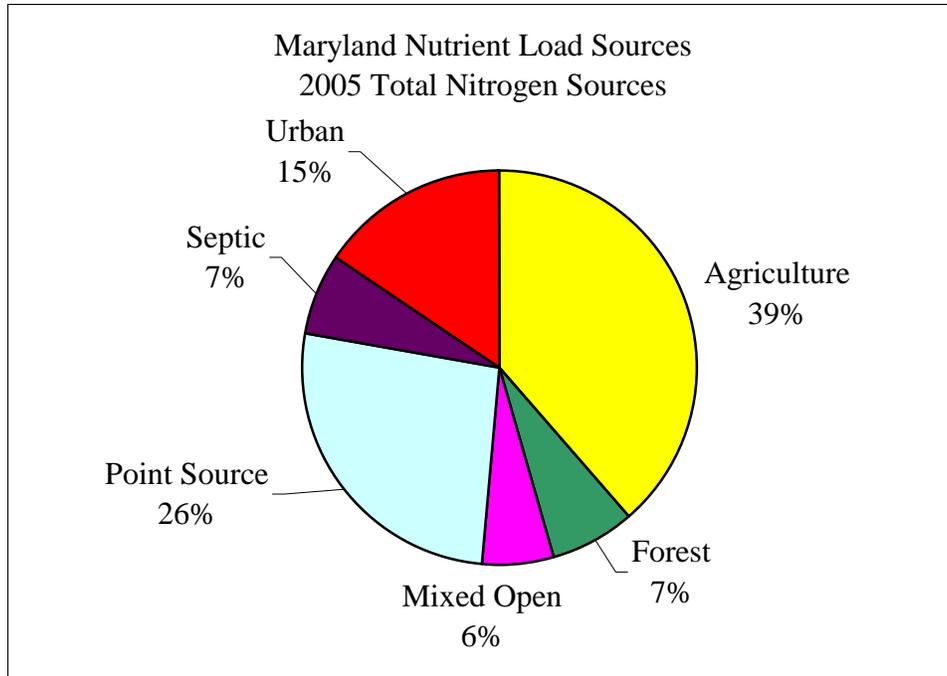


Figure 2: Chart showing the distribution of sources of nitrogen in Maryland<sup>1</sup>

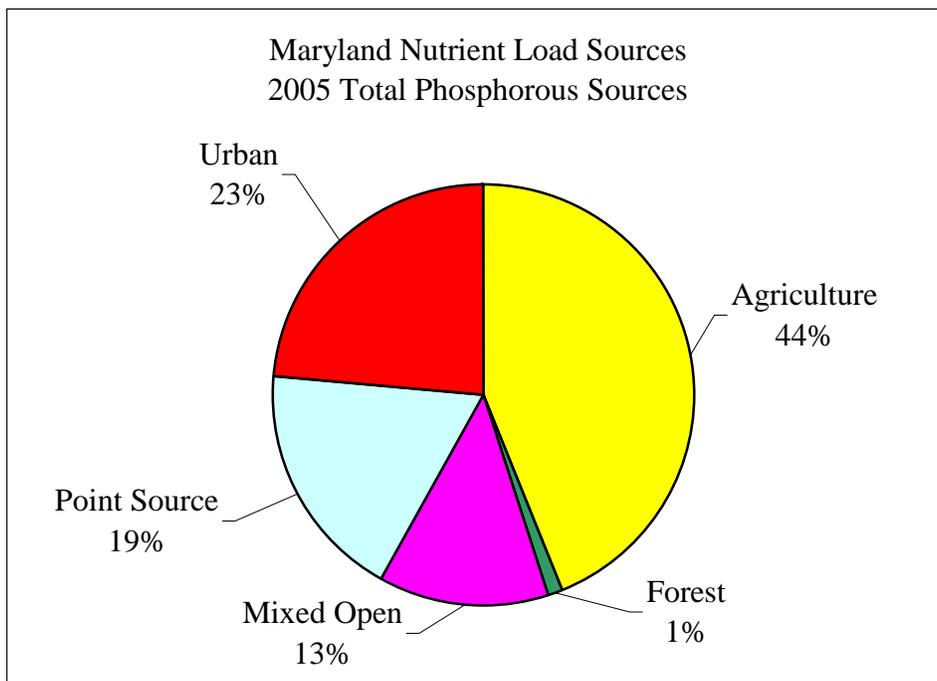


Figure 3: Chart showing the distribution of sources of phosphorus in Maryland<sup>1</sup>

<sup>1</sup> Data referenced from the Phase 4.3 Chesapeake Bay Model. The reported statistics include all of Maryland lands within the Chesapeake Bay Watershed except the main body of the Bay.

## Nonpoint Source Total Maximum Daily Load Implementation

The Maryland Department of the Environment (MDE) is responsible for developing the state's list of impaired waters (i.e., the 303(d) list). MDE is also responsible for developing Total Maximum Daily Loads (TMDLs) for impaired waters. A TMDL establishes the maximum amount of a pollutant that a waterbody can assimilate and still meet Water Quality Standards. TMDLs allocate pollution loads for both point and nonpoint sources. A TMDL addresses a single pollutant (e.g., nutrients, sediment, fecal coliform). Each waterbody can have multiple TMDLs.

During 2006 MDE submitted 22 TMDLs to EPA for review and approval (Table 1). In past years most TMDLs have addressed nutrient impairments in tidal waters of the State, which have significant nonpoint source implications. The majority of this year's TMDLs address bacteria and sediments.

In addition to TMDL development activities, Maryland continues to advance TMDL implementation activities. Maryland recognizes that the §319(h) Program should address the restoration and protection of water quality standards under the Clean Water Act.

Table 1: TMDLs Submitted to EPA in 2006

<b>Watershed</b>	<b>Type</b>	<b>Date</b>
Anacostia River	Bacteria	June 5, 2006
Bynum Run	Nutrients	August 29, 2006
Cabin John Creek	Bacteria	January 26, 2006
Chester River, Middle1	Nutrients	April 11, 2006
Chester River, Upper1	Nutrients	April 11, 2006
Evitts Creek	Sediment	September 29, 2006
Georges Creek	Bacteria	August 10, 2006
Georges Creek	Sediment	September 29, 2006
Gwynns Falls	Bacteria	September 22, 2006
Jones Falls	Bacteria	September 22, 2006
Little Youghiogheny River	Sediment	September 29, 2006
Loch Raven Reservoir	Nutrients & Sediments	September 15, 2006
Lower Choptank River (5 Restricted Shellfish Harvesting Areas)	Bacteria	August 10, 2006
Lower Choptank River (Mainstem)	Bacteria	September 22, 2006
Piscataway Creek	Bacteria	May 19, 2006
Prettyboy Reservoir	Nutrients	September 15, 2006
Rock Creek	Bacteria	January 20, 2006
Upper North Branch Potomac River	Sediment	September 29, 2006
Wicomico River Headwaters	Bacteria	January 31, 2006
Wills Creek	Sediment	September 29, 2006

Watershed	Type	Date
Wills Creek	Bacteria	September 7, 2006
Youghiogheny River	Sediment	September 29, 2006

#### **IV. Major Accomplishments and Successes**

In the past year, there have been notable program accomplishments, successes and challenges. Progress was made in implementing best management practices in all nonpoint source areas through the provision of technical assistance, project funding or both.

#### **Implementation Projects**

Table 2 shows the projects that were funded either with FFY 2006 funding or FFY2004 reprogrammed funding from the §319(h) program.

Table 2: List of FFY2006 and FFY2004 reprogrammed funded projects

Name	Watershed (HUC)	Is there a TMDL or WQA?	303(d) List Impairment	Sources of impairment
Aaron Run Watershed Remediation Project	02070002050136	No	pH	AMD
Agricultural Data Management Operations	Statewide	N/A	N/A	N/A
Agricultural Data Management Staff: In Support Of TMDL Implementation And Tributary Strategies	Statewide	N/A	N/A	N/A
Antietam Creek Watershed Project	02060001	WQA	Bacteria, Sediments, Nutrients, Biological	Non-point and Point sources
Bishopville (Lizard Hill) Mine Wetland Restoration Project	020600100020	Yes	Bacteria (1996) and Biological (2004 draft)	Nonpoint sources
Corsica River Monitoring for Interim and Post Water Quality	02060002	Yes	Bacteria, Sediments, Nutrients	Nonpoint sources
Corsica River Watershed Implementation Monitoring	02060002	Yes	Bacteria, Sediments, Nutrients	Nonpoint, Point Sources, Natural
Corsica River Watershed Restoration Ag Demonstration Project	02060002	Yes	Nitrogen & Phosphorus	Nonpoint
Corsica River Watershed Restoration Town Of Centerville Demonstration Project	02060002	Yes	Bacteria, Sediments, Nutrients	Nonpoint sources, Point Sources
Deer Creek Watershed Agricultural Soil Conservation and Water Quality Technical Assistance	02050306	WQA	Biological	Nonpoint sources
Gwynns Falls At Chartley Stream Restoration	02060003	Under Development	Bacteria, Sediments, Nutrients	Nonpoint sources

Name	Watershed (HUC)	Is there a TMDL or WQA?	303(d) List Impairment	Sources of impairment
Laurel Valley Stream Restoration	02060003	No	Biological, Sediments, Nutrients	Nonpoint sources
Liberty Reservoir Targeted Watershed Project	02060003150	Yes	Nutrients, Mercury	Nonpoint sources
Lower Choptank Agriculture Soil Conservation and Water Quality Technical Assistance	02060005220	Under Development	Biological, Sediments, Nutrients	Nonpoint sources
Lower Monocacy Watershed and Lake Linganore Watershed Agricultural Implementation Project (02140302)	02070009	No	Sediments, Nutrients	Nonpoint sources
Lower Potomac Watershed Agricultural Tributary Strategy in St. Clement's Bay	02070011	Yes	Bacteria, Biological	Nonpoint sources
Marshyhope Creek and Nanticoke River Watersheds Agricultural Soil Conservation and Water Quality Technical Assistance Project	020600080506, 020600080507, 020600080605, 020600080606	Yes	Bacteria, Sediments, Nutrients, Biological	Point sources and Nonpoint sources
NPS Program Coordination and Grant Management	Statewide	N/A	N/A	N/A
Services to Facilitate the Understanding of TMDLs, the "Water Element" in Comprehensive Plans (HB 1141), and Local Tributary Strategy Plan Development	Statewide	N/A	N/A	N/A
Targeted Watershed Project with TMDL Implementation Evaluation and Monitoring	02060002	Yes	Bacteria, Sediments, Nutrients	Nonpoint sources, Point Sources, Natural
The Corsica & Beyond	02060002	Yes	Bacteria, Sediments, Nutrients	Nonpoint sources, Point Sources, Natural
Tracking and Analyzing Data for Nonpoint Source Pollution in Maryland	Statewide	N/A	N/A	N/A
Upper Choptank Agricultural Technical Assistance	02060005	N/A	Bacteria, Sediments, Nutrients	Nonpoint
Urban Stormwater Management Database Project	Statewide	N/A	N/A	N/A
Urban Wetlands Program, Bennett Creek Watershed Pilot	02070009	N/A	Biological	Nonpoint sources
Western Chesapeake Coastal Plain Stream Restoration Targeting	0206004	Yes	Sediments, Nutrients	Nonpoint sources

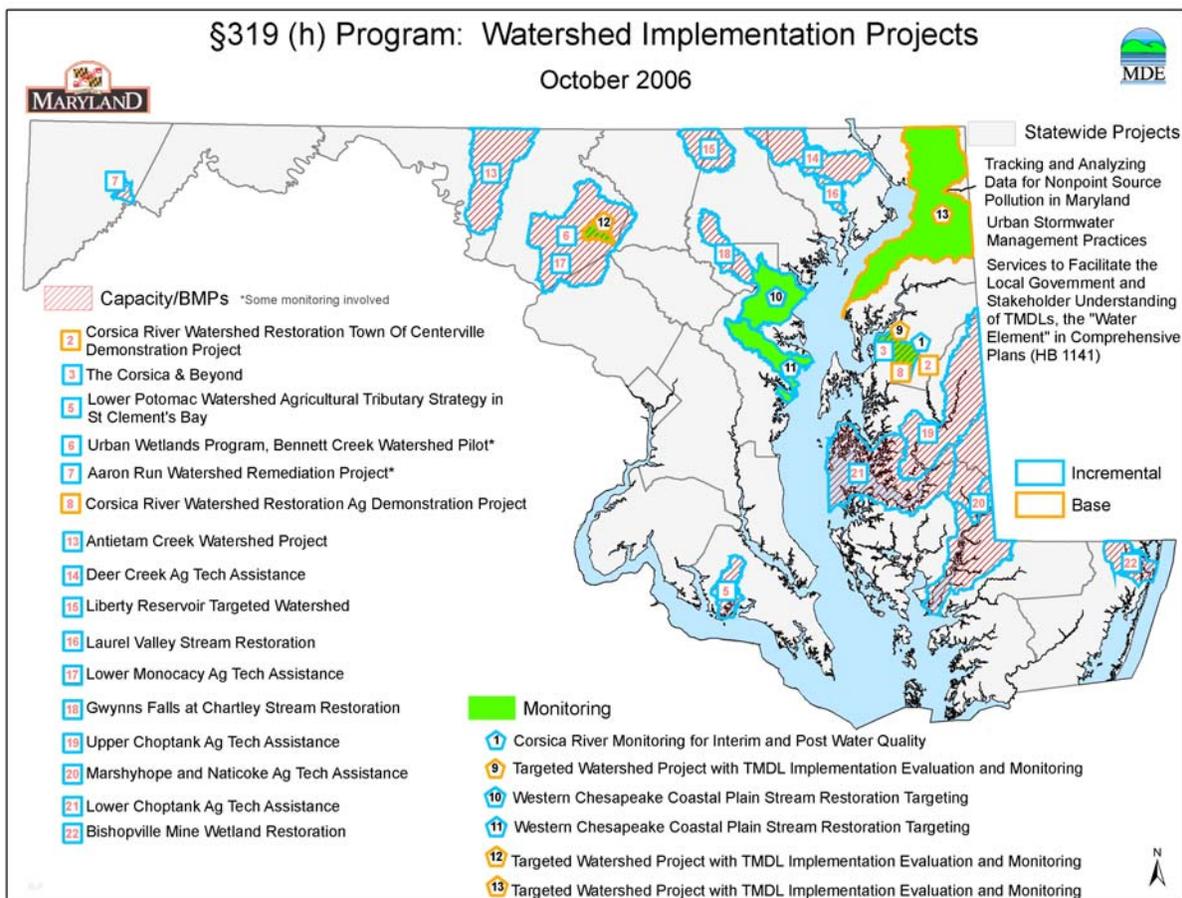


Figure 4: Map showing the locations of the FFY2006 Implementation projects (Funding for these projects came from FFY2006 and FFY2004 reprogrammed funds)

*Corsica River Targeted Watershed:* At the end of 2003, representatives from Centerville, a small town near the tidal head waters of the Corsica River, coordinated with a diverse group of citizens and with MD Department of Natural Resources to develop a Watershed Restoration Action Strategy which was funded by the EPA §319(h) program. This plan identifies needed implementation to address the TMDL and other restoration goals. Using funding from EPA §319(h) FFY 05, Maryland Bay Restoration Fund, Oyster Recovery Partnership, the National Fish and Wildlife Foundation, and the Chesapeake Bay Trust the stakeholders began to strategize and implement the objectives of the WRAS. See Appendix F for the WRAS Implementation Objectives.

This entire restoration project is pushed forward through the efforts of a large stakeholder group, The Implementers Group. Meeting on a monthly basis, this group has a regular attendance of between 25 to 40 people planners, biologists, engineers, municipal officials, state officials, academics, and volunteer citizens group representatives. The entities involved in the Corsica River Restoration Project, with a focus on their progress within the year 2006, are Maryland Department of the Environment, The Maryland Department of Natural Resources, Maryland Department of Agriculture, Maryland Department of Planning, Town of Centerville, Queen Anne's County Government, Storm Water Outreach Committee, University of Maryland Cooperative Extension, and The Corsica River Conservancy.

By the end of the first year of the project, strengths and weaknesses were made clear using a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. This process was very useful in motivating the group and developing a strategy to address and resolve issues.

Overall, the implementer's group felt that this project was strong because of the large amount of (scientific, political, and financial) support it is receiving, the amount of collaboration between groups, the collective knowledge of the implementers, the overall commitment, the project's organization, and the project's flexibility and visibility. This project is supported by many partners, including state government, local groups, local municipalities, and the governor. This support comes in the form of funding from multiple sources, legislative initiatives, guidance, and actual time spent implementing various programs. Agencies have also been working with locals on monitoring, education, and fish sampling. There is an overall spirit of cooperation among the parties involved, and the numbers of partners and funding devoted to this project is a sure sign of commitment from all interested parties. Another major strength of this project is the amount of knowledge that is incorporated into this process. From the agencies and CRC monitoring program, we have scientific knowledge. The local citizens provide historical knowledge, and a large amount of institutional knowledge is available through the Town of Centreville. All of this knowledge is focused into the watershed and this restoration project. Because of the visibility of the project, we have the ability to increase our outreach to include more of the public, various groups, conservation NGO's, schools, and the media. Within the schools, there is an opportunity to develop interpretive programs.

The implementer's group identified four main threats and weaknesses, Lack of Basic Understanding, Lack of Communication, Lack of Institutionalization, and Lack of Farmer / landowner participation. Many of the problems occurred because of a lack of understanding some of the science and therefore the connection of projects to the actual "clean-up" of the watershed. Because of the lack of communication, this knowledge wasn't readily transferred and any new player's faced a steep learning curve. Also because of lack of communication between partner's some of the problems that arose from this situation are that there is little knowledge of what other entities are doing, agencies focus on their own objectives, multiple priorities, variable progress, prioritization becomes difficult, and benchmarks (whether individual program based or overall project-wide) are not discussed. There has also been a lack of communication to the public and to the media. A Lack of Institutionalization could also hamper the restoration of the watershed. Because the current state involvement will eventually be cut back, there were several fears as to how the current efforts will be institutionalized in the watershed. Many of the group members feared that the project was too reliant on funding, which is finite. Lastly there is Lack of Farmer/ Landowner participation. Without this participation some of the projects funding cannot be fully utilized. Farmers need to sign up for cover crop funds and also homeowners need to participate in the on-site sewage disposal program.

Since the beginning of this targeted watershed project there has been many lessons learned about the undertaking of such a large project. One of the most important lessons learned is that there needs to be a strong project leader. Having such a leader can and will make a project move forward in an arena where there are so many partners with multiple objectives. Another lesson is that having a Watershed Coordinator is also important. With multiple projects on-going, having a Watershed Coordinator to coordinate and facilitate meetings, assist the §319(h) grant recipients

with their contractual obligations, assist with outreach efforts, and to respond the needs of the Implementers Group has been a great factor in moving this targeted watershed project forward. And lastly, without local buy-in there were some projects that could not move forward though there is some indication that with the support of all the partners these projects can and will contribute to the Corsica River watershed restoration.

This targeted watershed initiative included the following funded §319(h) projects, Agriculture Demonstration Project, Town of Centerville Demonstration Project, Maryland Department of Environment Monitoring Project and the Maryland Department of Natural Resources Monitoring Project. These projects were allotted approximately 26% of the funds awarded in the 2006 Grant Year. Each project is described below.

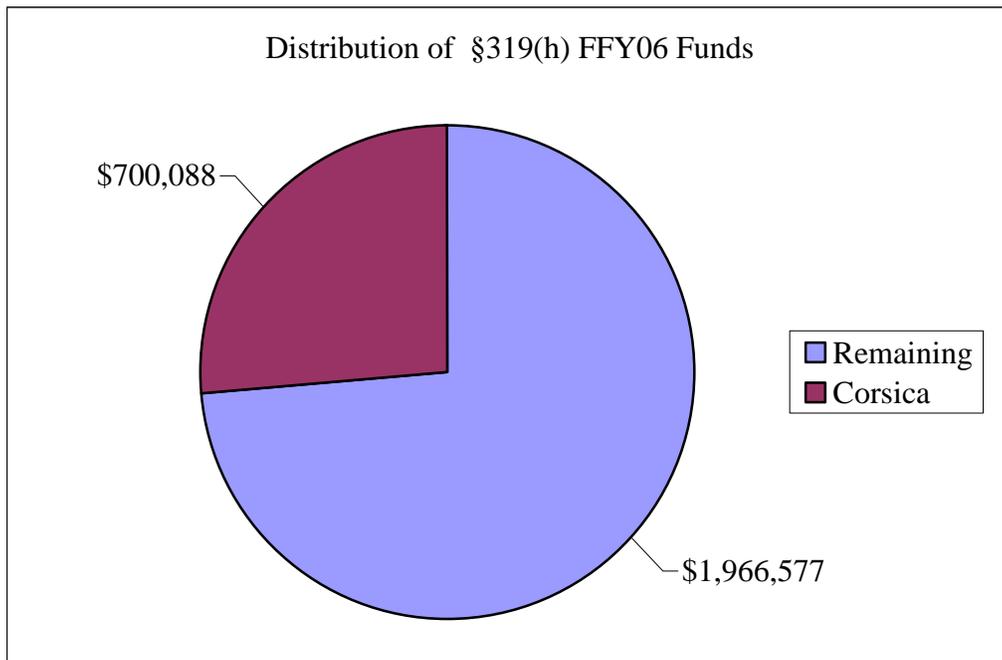


Figure 5: Chart showing distribution of Maryland's FFY 2006 §319(h) funding between the Corsica Targeted Watershed Project and Remaining Projects

- Corsica River Watershed Restoration Project Agriculture Project Capacity Development Demonstration: This project addresses the need for capacity assistance in order to facilitate and accelerate the implementation of best management practices, enhance the participation in Maryland's cover crop program and support other demonstration BMPs with particular focus on farmette horse pasture management demonstrations.

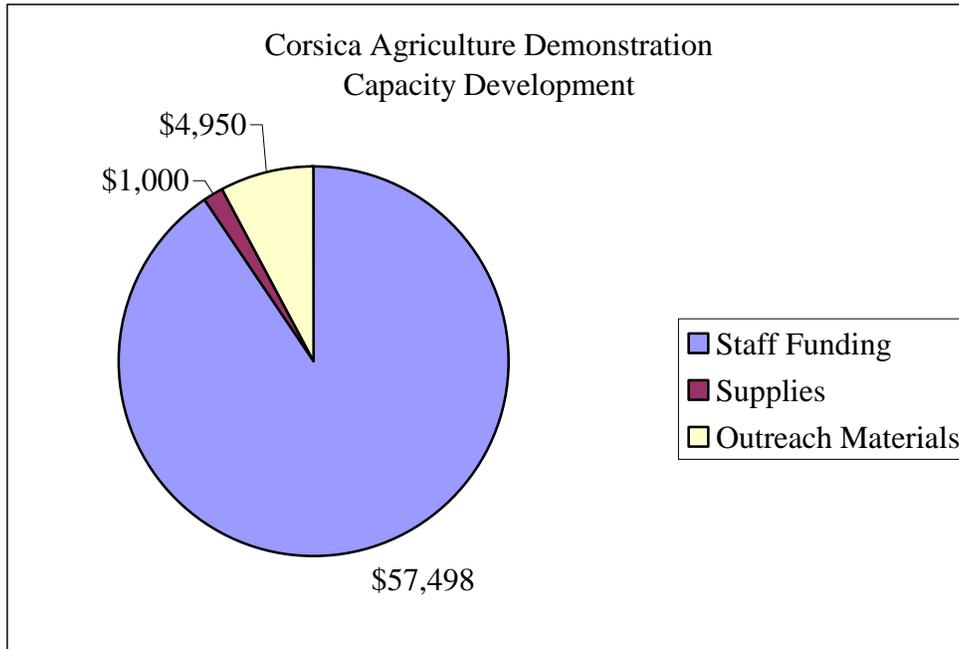


Figure 6: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Agriculture Capacity Development Demonstration

- Corsica River Watershed Restoration Project Town of Centreville Demonstration Project: This projects funds stormwater retrofit/stormwater management techniques such as wetland creation, riparian buffer plantings, and fish migration barrier removals if necessary. Wetlands, especially when constructed adjacent to waterways will provide added benefits of flood attenuation, sediment retention, and will slow storm water sufficiently to allow the stream system to heal unstabilized stream banks immediately downstream of the wetland area. Stormwater retrofits are easier to connect to an impacted area, as they generally are the immediate recipient of storm flow. This project also addresses the need for capacity assistance. It funds a watershed/grants manager and outreach manager to accelerate the application of urban code and programmatic development, outreach, and urban BMP's in this watershed. It is through this additional management capacity and technical support that water quality improvement, in both surface and ground water, will lead to improving the waters of the Corsica River. This project funds Programmatic Changes, to professionally review and recommend code changes, programmatic changes, and local/state regulation changes. The effort also includes extensive public outreach and education and upfront participation in the process. Estimated load reductions are calculated to be 33% for nitrogen and 46% for phosphorous improvement over existing untreated lands. A calculation for Centreville is

as follows: 996 acres (urban impervious) x 8.1 lbs/ac. x 0.33 = 2668.3 lbs of nitrogen and 996 acres x 0.5 lbs/ac. x 0.46 = 235.7 lbs of phosphorous.

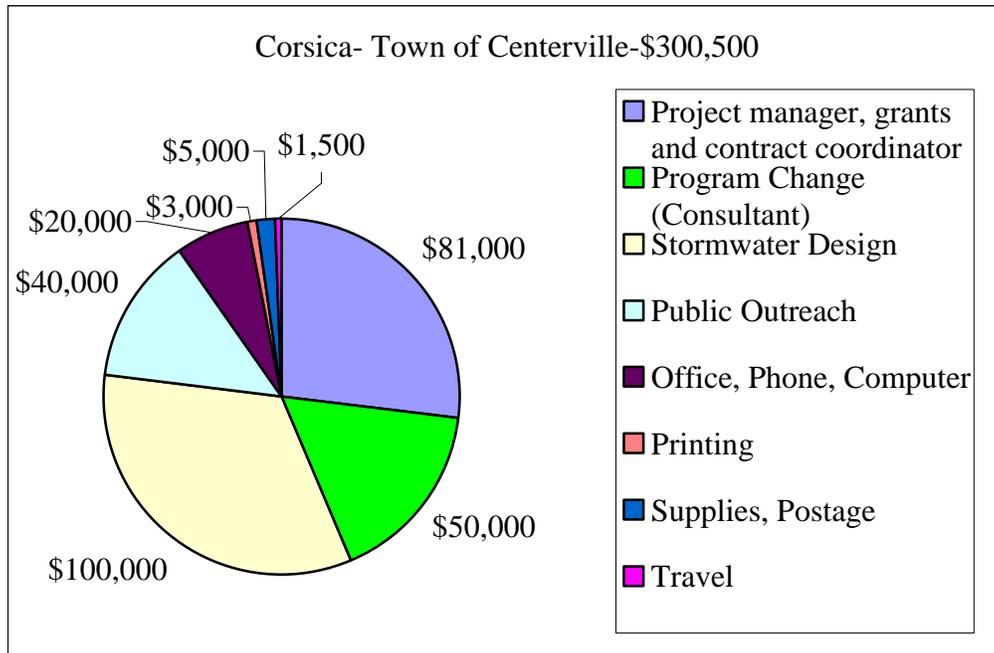


Figure 7: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Town of Centerville Demonstration

- Corsica River Watershed Maryland Department of the Environment’s Implementation Monitoring Project:** The goal of this project is to monitoring the effectiveness of retrofitting conventional OSDs with nitrogen reducing technology in the Corsica watershed. This project will monitor the Town of Centerville’s upgrade of 30 septic systems that lie in close proximity to impaired streams. Conventional systems that are currently permitted in the County discharge 40 - 60 mg/l of nitrogen (estimated N content in what flows from the whole septic system into the groundwater). There are existing systems that are installed in marginal soils, some are very poorly (if ever) maintained, some lie within 300 feet of a tributary stream or the edge of tidal water, and employ dated technology not capable of any significant nutrient reduction.



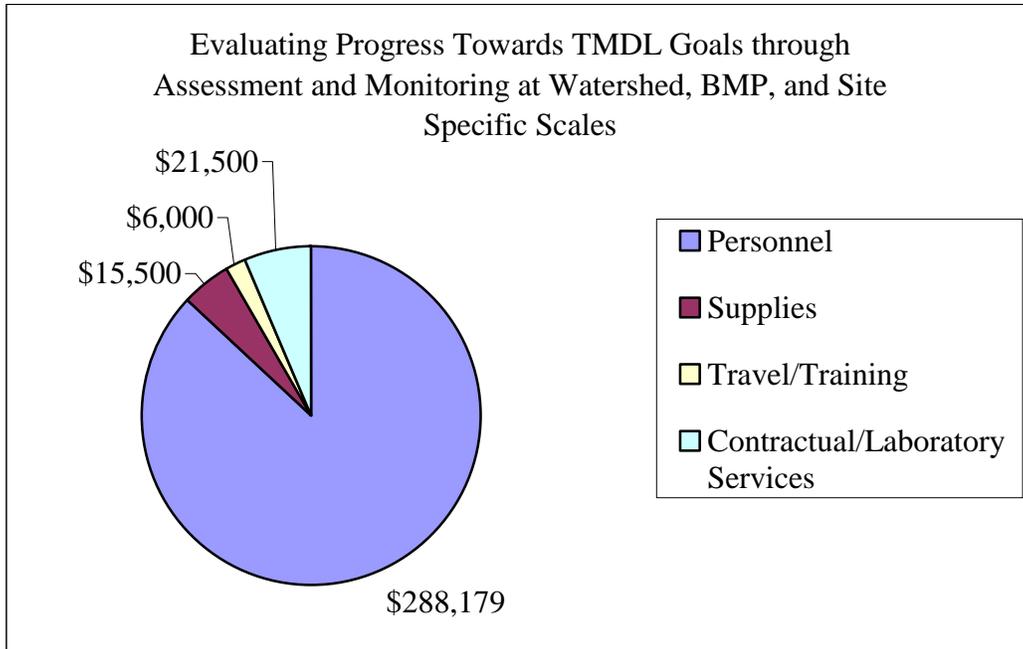


Figure 8: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Maryland Department of the Environment's Implementation Monitoring

- Corsica River Restoration Project Maryland Department of Natural Resources Monitoring for Interim and Post Project Water Quality: This project is a comprehensive monitoring project being conducted to assess early progress in the Corsica River Watershed Restoration Project and to provide feedback necessary to enhance the success of future watershed restoration projects\_which include: cover crop implementation results, stormwater bmp implementation results, and monitoring for living resource projections.

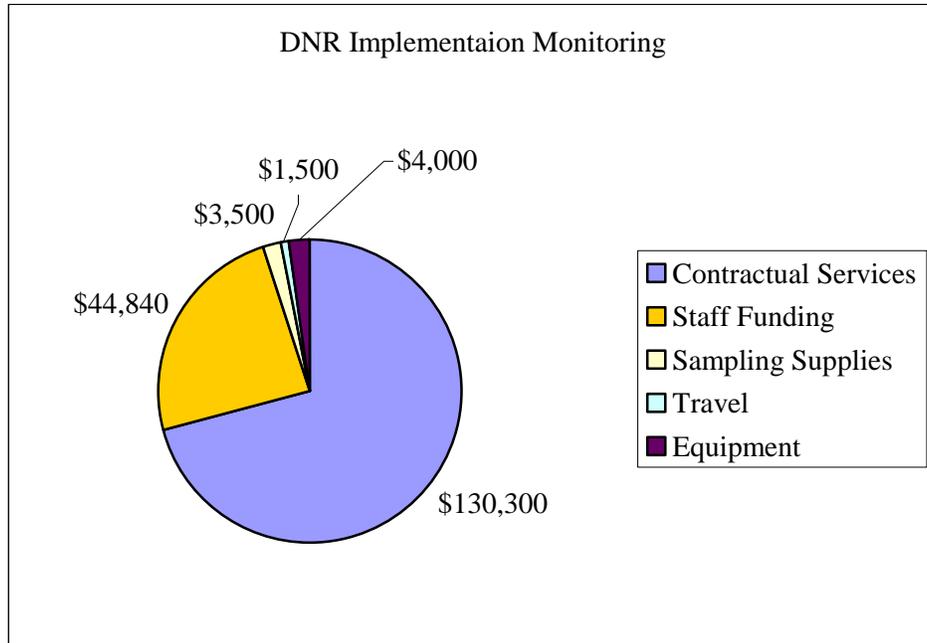


Figure 9: Chart showing the distribution of FFY 2006 §319(h) funds for the Corsica River Watershed Restoration Project- Maryland Department of Natural Resources Monitoring for Interim and Post Project Water Quality

- The Corsica & Beyond: The Corsica & Beyond proposal, sponsored by Queen Anne’s County with support from governmental and private stakeholder interests, has served to implement numerous goals as established by the Corsica River Watershed Restoration Action Strategy (WRAS). This project specifically targets the Corsica River and serves as a “roadmap” towards the identification and selection of future watershed improvement initiatives throughout the County. This project included the creation of a Low Impact Development standards manual for stormwater management and water quality systems. A draft of specific stormwater management code modifications referencing the LID standards manual for new development. A comprehensive GIS database for all existing and newly established stormwater management and water quality systems was created. Also a series of video programs and technical presentations as part of a public outreach campaign to inform and better educate residents was developed.

Other Projects supported with §319(h) this year covered a variety of efforts aimed at habitat or water quality improvements. The projects included:

Aaron Run Watershed Project: In this project the Maryland Bureau of Mines intended to design and construct best treatment technologies for acid mine drainage at four sites in the watershed. The construction of these treatment systems will abate the impacts of the presently uncontrolled discharge of acid mine drainage from four sites. With the abatement of these acid discharges, the mainstem of Aaron Run will recover good water quality capable of sustaining native fish populations. This project also planned to include the re-introduction of native brook and brown trout to the upper reaches isolated by several waterfalls in the watershed.



Urban Wetlands Program, Bennett Creek Watershed Pilot Project: This two year project intended to develop a mechanism for Frederick County Government's Watershed Management Section to establish wetland assessment standards and protocols, update and map the nontidal wetlands GIS layer, define characteristics for benchmark nontidal wetlands in the Piedmont hydrophysiographic province. In the first year this project monitoring objectives, strategy and protocols to identify benchmark nontidal wetlands in the Piedmont Region were developed. Also, field wetland inventory procedures, habitat assessments protocols for vegetative, amphibian, and nesting bird surveys and data sheets were created. Plan sets of land use change and create scanned electronic version for Bennett Creek watershed were compiled. Delineated wetlands from plan sets for the pilot watershed were digitized to create a GIS data layer. There was also a review of NWI for recognizable changes since layer development; earmark changes for future assessment, and a list of identified nontidal wetland areas that require field verification was developed. In the second year of this project, two stormwater wetland restoration/enhancement projects that treat 36.35 acres will be established. Restoration will remove 279.5 pounds of phosphorus, 1739.3 pounds of nitrogen, and 42.5 tons of sediment over the project lifespan.



Laurel Valley Stream Restoration: Harford County proposed to restore approximately 2000 linear feet of an unnamed tributary to Bynum Run. This project is one of many projects identified by the Bush River Watershed Action Strategy (WRAS) and the Bush River Watershed Management Plan (WAMP). The project, in Abingdon, Maryland, is located within an open-space parcel owned by the Laurel Valley Homeowners' Association. The stream restoration project is the final component of a three-phase project to address uncontrolled stormwater runoff. Upstream of the restoration reach, a bioretention facility has been constructed to improve water quality and a pond has been retrofitted to manage stormwater quantity and quality. The goal of the stream restoration project was to reduce bank erosion, improve instream and riparian habitat, and to enhance stewardship by the community. A monitoring plan has been developed that



includes macroinvertebrate sampling and physical measurements of channel cross-section and slope. Based on EPA Chesapeake Bay Program's water shed model, this project will result in 40 lbs reduction of total nitrogen, 7 lbs reduction in total phosphorus and 5100 lbs reduction in sediment.



Lower Potomac Watershed Project – Implementing the Agricultural Tributary Strategy in St. Clements Bay and Wicomico River: This project supported the continual need for capacity assistance for Agricultural BMP implementation. The project improves the water quality in the St. Clements Bay and the Wicomico River watersheds by the development of comprehensive soil conservation and water quality plans and the subsequent installation of best management practices on agricultural land to reduce the amount of sediment and nutrients delivered to these watersheds. The project goals included the implementation of 1,000 acres of conservation cropping. The conversion of 200 acres of conventional tillage to conservation tillage for 200 acres, which would yield 922 lbs nitrogen removed, and 226 lbs phosphorus removed. The implementation of cover crops on 150 acres, which would yield 1,422 lbs nitrogen removed, and 19.5 lbs phosphorous removed. The implementation of nutrient management on 500 acres would yield 1555 lbs nitrogen reduced and 150 lbs phosphorous reduced.

Several projects include those which support the tracking of achievements in BMP implementation:

Urban Stormwater Management Practices Database: This project continues to support the need for coordination and communication between jurisdictions regarding stormwater management data. This project fulfills the need to continue providing necessary information to the Chesapeake Bay Program.

Analyzing and Tracking Nonpoint Source Data: This ongoing project has successfully coordinated the consolidation of nonpoint sources Best Management Practices for inclusion in the Chesapeake Bay Watershed Model. It also achieved the goal of coordinating information exchange with other agencies concerning BMPs. See Appendix B for the tracked BMPs by major watershed and their approximate nutrient reductions.

During the FFY2004 the NPS Program was transferred from the Maryland Department of Natural Resources to the Maryland Department of Environment. With the transfer, projects that had previously been expected to occur did not for various reasons. Because of this there were funds available for funding future projects. Projects funded in 2006 using FFY 2004 reprogrammed funds follow.

Gwynns Falls At Chartley Stream Restoration: This project entailed the removal of a failing concrete channel and riparian forest buffer establishment. This project's environmental results include a reduction in frequency, or prevention of increases, of peak flows associated with storm events in a developed area, improvements in surface and groundwater quality parameters, improvements in biological and physical parameters, and a riparian buffer creation, which will be protected by local statute. This project will restore approximately 2000 feet of stream. It is estimated the riparian forest buffers reduces nitrogen by 317 lbs/year, phosphorous by 419 lbs/year and sediments by 5,652 lbs/year. The stream restoration reduces nitrogen by 40 lbs/year, phosphorous by 7 lbs/year and sediments 5,100 lbs/year.



Bishopville (Lizard Hill) Mine Wetland Restoration Project: The purpose of this project was to design and construct a forested and emergent nontidal wetland adjacent to Buntings Branch in the headwaters of the Isle of Wight Bay watershed. The goals of the project were to improve water quality to Buntings Branch and the St. Martin River (tributaries to Isle of Wight Bay) by reducing nutrient and sediment inputs, improve aquatic and wildlife habitat, expand the adjacent forest and floodplain area, and restore rare and unique wetland vegetative communities. This project directly targets those goals as stated in the Isle of Wight WRAS by creating wetland habitat to improve water quality and wildlife habitat. In addition, the mine site, which is currently in a severely degraded state, will be restored to a forested wetland ecosystem. It was the intention of this project to restore this extraordinary vegetative community and this project presents a unique opportunity to do that. The project created approximately 20 acres of forested wetland and enlarged a previously fragmented forested area by approximately 25 acres.



Services to Facilitate the Local Government and Stakeholder Understanding of TMDLs, the "Water Element" in Comprehensive Plans (HB 1141), and Local Tributary Strategy Plan Development: The project is a state-wide program that assists specific local governments and stakeholders understand through facilitated meetings the confluence of TMDL implementation, inclusion of the "Water Element" into the Comprehensive Plans, and the development of local Tributary Strategies.

Agricultural Projects: The following watersheds received §319(h) funding for technical assistance and various BMP Implementation: Antietam Creek Watershed, Deer Creek, Liberty Reservoir Targeted Watershed Project, Lower Choptank, Upper Choptank, Marshyhope Creek and Nanticoke River. The funding for the projects supplies the continual need for capacity support. These individuals make the implementation of the BMPs as shown in Table 3 possible.

Table 3: Agriculture 2006 Outcomes as proposed in Project Work Plans

Practice	Planned BMPs	Nitrogen Reduction Approx. (lb/yr)	Phosphorous Reduction Approx. (lb/yr)
Soil Conservation and Water Quality Plans (acres)	12,743	14,505	2,555
Nutrient Management plans (acres)	2,750	3,130	551
Soil Conservation and Water Quality Plans	190	N\A	N\A
Nutrient Management plans	10	N\A	N\A
Best Management Practices (General)	272	N\A	N\A
Stream Buffer (Forest) Plantings	2	N\A	N\A
Animal Waste Storage Structures	12	14,446	1,636
Stream Fencing (feet)	5,000	68,298	6,683
Water Troughs	2	N\A	N\A
Grassed Waterways (acres)	30	294	35
Conservation Tillage (acres)	1,000	5,691	N\A
Cover Crops (acres)	4,800	8,660	396
CREP (acres)	192	2,229	274
Total		16,874	670

*Other Agricultural Programs:* The implementation of agricultural programs [Nutrient Management, Maryland Agricultural Cost Share (MACS), Soil Conservation and Water Quality (SCWQ) Program, Conservation Reserve Enhancement Program (CREP)] continues to play a key role in reducing nonpoint source pollutants.

### **Maryland's Agriculture Programs**

Good water quality is the most critical element in the overall restoration and protection of the Chesapeake Bay, the Coastal Bays and their tributaries for the support of living resources and to ensure safe drinking water supplies and other beneficial uses. Agricultural activity, human population growth, development activities, atmospheric deposition and septic systems are each contributing nonpoint source pollution in the form of sediment, nutrients and other potential pollutants which affect the State's surface and ground waters.

A strong agricultural industry and a healthy environment go hand in hand. As we move ahead into the future, agricultural and soil conservation partners will continue to preserve Maryland's rural legacy by developing and promoting farming practices that are both environmentally sensitive and economically sound. Maryland has a variety of agricultural programs (Nutrient Management Program, MD Agricultural Water Quality Cost Share Program, Soil Conservation and Water Quality Planning, Conservation Reserve Enhancement Program, Manure Transport Program, and Agricultural Water Management Program) described below that address the control and reduction of nonpoint source pollution.

### **Nutrient Management /Water Quality Improvement Act (WQIA)**

In 1998, the Maryland General Assembly passed landmark legislation that placed Maryland at the forefront of national efforts to protect water quality. The Water Quality Improvement Act (WQIA) established both short and long-term strategies for reducing nutrient levels in our streams, rivers and Chesapeake and Coastal Bays. The most significant feature of the Act is a provision requiring nutrient management plans for virtually all Maryland farms. The WQIA changed the nutrient management program from its voluntary status to a regulatory program. It requires farmers who use chemical fertilizers to submit a nitrogen and phosphorus based nutrient management plan to the Maryland Department of Agriculture (MDA) by December 31, 2001 and implement it by December 31, 2002. Farmers who use animal manure or sludge must have and implement nitrogen based plans by the same dates as those who use chemical fertilizers. Those who have sludge or animal manure have until July 1, 2004 to submit phosphorus based nutrient management plans and must implement them by July 1, 2005. Although the law includes a number of deadlines and requirements, it also offers many new incentives aimed at helping farmers comply.

### **Maryland Agricultural Cost Share (MACS)**

State and federal funds are used to provide grants to Maryland farmers for the installation of best management practices (BMPs) to address existing or potential water pollution conditions associated with farming activity. Farmers may receive up to 87.5% of the cost of approximately 30 eligible BMPs. For more detailed information on the program, see the MACS website at: <http://www.mda.state.md.us/resource/mawqca10.htm>.

### **Soil Conservation and Water Quality (SCWQ) Program**

Soil Conservation and Water Quality (SCWQ) Plans are at the heart of Maryland's resource conservation and protection efforts. Developed and implemented through a local delivery network of soil conservation districts, these plans help farmers manage natural resources and identify and solve potential environmental problems while reaching optimal but sustainable production goals. SCWQ plans contain a menu of best management practices (BMPs) to help farmers prevent sediment, nutrients and fertilizers from impacting nearby waterways.

### **Conservation Reserve Enhancement Program (CREP)**

Maryland was the first state to take advantage of the innovative Conservation Reserve Enhancement Program (CREP), which allows states to focus on natural resource issues of the greatest local concern. Under the program, Maryland landowners can protect sensitive streamside areas and highly erodible lands and restore wetlands. CREP provides annual rental payments for 10 –15 years and cost share for installing BMPS to conserve these sensitive resource areas. Since program initiation in October of 1997, Maryland landowners have protected over 71,200 acres of these sensitive lands through CREP enrollment and BMP installation.

### **Manure Transport Program**

The Manure Transport Program provides support to animal producers who have excess manure and need to find alternative means of managing it in order to be in compliance with the WQIA. The two-fold objectives of the program include subsidizing the cost of transporting animal manure to make it affordable for animal producers to address excess manure and providing an incentive for the development of alternative technologies and business ventures to create a market for use of animal manures. See <http://www.mda.state.md.us/nutrient/transport.pdf> for more information.

Operations receiving manure for land application under the program must apply it in accordance with a nutrient management plan prepared by a certified consultant. Receiving operations with alternative uses for manure are also eligible to participate. Current alternatives to direct land application include the use of poultry litter as a substrate for growing mushrooms and the manufacture of fertilizer pellets by Perdue Agri-Cycle for use in landscaping and shipment to other regions of the country. To date, practically all of the manure transported has been poultry litter. Reimbursement for all participants is capped at \$20 per ton. Livestock producers receive up to 87.5% of transport costs from public funds.

### **Agricultural Water Management Program**

The Maryland Department of Agriculture (MDA) regulates agricultural public drainage facilities administered as Public Drainage Associations (PDAs). PDAs are independent political subdivisions with local taxing authority and cover over 850 miles of drainage ditches in the coastal zone, mostly on the Eastern Shore. The PDAs are required to develop and implement approved operation and maintenance plans that address sediment control and water quality protection. MDA assists PDAs to conduct biannual inspections and provides technical assistance through the SCDs. Typical best management practices include vegetative filter strips and channel stabilization.

Nonpoint source program incremental funds that went towards implementation of innovative BMPs were leveraged by State funds and local funds raised through taxing landowners beneficiaries. The Soil Conservation Districts, PDA Coordinators and National Resource Conservation Service (NRCS) engineers' time in planning, design, permit applications, construction checks and final approval were all services provided as in-kind and free to landowners and PDAs.

### **V. Areas of Concern/Recommendations/Future Actions**

Key challenges addressed by the NPS Program in collaboration with other state efforts include:

*Urban/Suburban Nonpoint Source Pollution is increasing:* Maryland has seen tremendous population growth over the last 20 years. As more land becomes developed, there has been an increase in the urban/suburban component of nonpoint source pollution to our rivers and bays. The Maryland Department of the Environment has been promoting new and innovative practices to control stormwater through environmentally sensitive design techniques described in the "2000 Maryland Stormwater Management Manual." This manual promotes innovative design measures (e.g., sheet flow to buffers, natural conservation, reduction of impervious area, open section roadways and grass swales, etc). These design techniques are targeted to new

development. There is also a need to address development built before modern stormwater regulations took effect.

*Resource Constraints/Measurable Environmental Results:* As federal and state budgets grow tighter, there is a push for all programs to demonstrate their effectiveness at producing results. The national Nonpoint Source Program is under pressure to demonstrate program effectiveness through measurable environmental results. Over the past few years, the Maryland NPS Program has focused on a watershed approach to help local government effectively leverage their resources to meet environmental goals and objectives. In the future, the NPS Program will selectively target program resources to aid efforts aimed at removing waters from the impaired waters list.

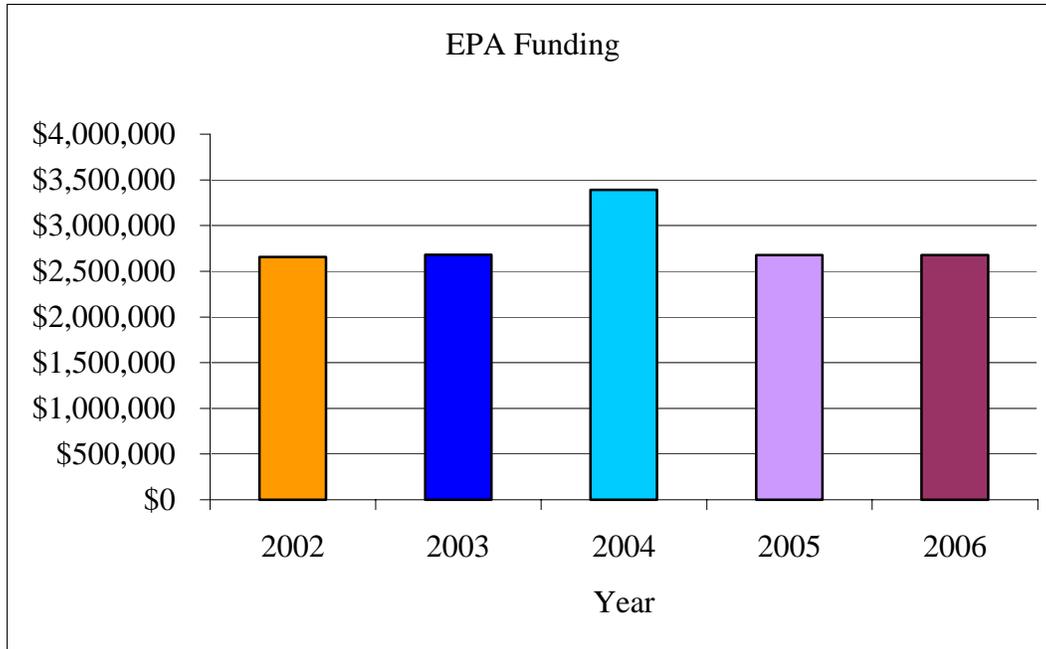
In the future the State's Priorities include:

*Reducing nutrient and sediment pollution:* Nutrient and sediment pollution are the main reason our waterways remain impaired. These pollutants are the foremost threats to the state's living resources. Although significant progress has been made in reducing nutrient and sediment pollution, significant progress still needs to be made to meet Chesapeake Bay 2000 agreement and Coastal Bays management plan nutrient reduction goals.

*Improvement of Impaired Waters:* Removal of impaired waters from the 303(d) list, either entirely or partially, is a priority. As part of the EPA Strategic goals there is a call for improvement in a state's living resources. As part of this goal, targeting watersheds that can either be removed or partially removed is a priority. Plans to strategically target these watersheds are being developed.

**Appendix A: Financial and Contact Information**

A. Amount of EPA §319(h) funding from 2002 to 2006



Year	EPA Funding
<b>2006</b>	<b>\$2,675,598</b>
2005	\$2,675,598
2004	\$3,391,964
2003	\$2,678,890
2002	\$2,654,500
Total	\$14,076,550

B. List of Agency Cooperators

1. State Lead Agency

Maryland Department of Environment  
Technical and Regulatory Services  
1800 Washington Blvd.  
Baltimore MD 21230

Danielle Lucid- MDE NPS Program Manager  
Ken Shanks- MDE §319(h) Grant Manager  
Joe Woodfield- MDE §319(h) GRTS Manager

## 2. Other State Agencies – Contacts

Maryland Department of Natural Resources  
580 Taylor Ave. E-2  
Annapolis, MD 21401

John McCoy- Watershed Services  
Gwynne Schultz- Coastal Zone Management Division

Maryland Department of Agriculture  
50 Harry S. Truman Parkway  
Annapolis, MD 21401

John Rhoderick- Office of Resource Conservation

Maryland Department Of Planning  
301 W. Preston Street Suite 1101  
Baltimore, MD 21201-2305

Joe Tassone- Landuse Planning and Analysis

## 3. Federal Agencies – Contacts

Eugene A Mattis  
EPA Region III GRTS Coordinator- Water Protection Division  
Mail Code 3WP13  
1650 Arch Street  
Philadelphia, PA 19103-2029

Fred Suffian  
Team Leader  
EPA Region III Nonpoint Source Program- Water Protection Division  
Mail Code 3WP10  
1650 Arch Street  
Philadelphia, PA 19103-2029

Bill Toffel  
Maryland Project Officer  
EPA Region III Nonpoint Source Program- Water Protection Division  
Mail Code 3WP10  
1650 Arch Street  
Philadelphia, PA 19103-2029

**Appendix B: 2005 BMP Progress Implementation on Maryland from the FFY06 Analyzing and Tracking Nonpoint Source Data Project**

Type of Practice	Choptank River	Lower Eastern Shore	Lower Western Shore	Lower Potomac River	Middle Potomac River	Patapsco / Back River	Patuxent River	Upper Eastern Shore	Upper Potomac River	Upper Western Shore	Statewide Total	Nitrogen Reduction Approx. (lb/yr)	Phosphorous Reduction Approx. (lb/yr)
Animal Waste Management Systems-Livestock	49	30	4	18	12	46	46	135	642	104	1,086	1,307,326	148,029
Animal Waste Management Systems-Poultry	155	865	0	0	0	0	0	69	11	0	1,100	247,180	27,988
Cover Crops	8,123	14,257	535	1,643	1,710	556	1,820	13,220	7,048	3,417	52,329	94,416	4,315
Dry Detention Ponds and Hydro Structures	756	1,523	3,917	1,012	4,584	12,648	2,423	1,721	14,122	13,079	55,783	20,369	2,521
Dry Extended Detention Ponds	222	80	4,170	1,182	1,218	8,334	3,032	143	7,677	5,223	31,280	68,529	7,068
Erosion and Sediment Control	54	1,136	4,321	410	11,740	5,893	8,457	184	2,491	3,477	38,163	91,970	8,624
Filtering Practices	53	125	71	187	259	891	485	49	915	1,314	4,349	12,705	1,179
Forest Conservation	1,190	2,533	2,671	10,012	9,220	4,377	16,801	7,495	3,200	9,802	67,300	N/A	N/A
Forest Harvesting Practices	1,377	5,729	190	2,583	214	559	968	1,089	3,898	1,388	17,996	N/A	N/A

Maryland Nonpoint Source 2006 Annual Report

Type of Practice	Choptank River	Lower Eastern Shore	Lower Western Shore	Lower Potomac River	Middle Potomac River	Patapsco / Back River	Patuxent River	Upper Eastern Shore	Upper Potomac River	Upper Western Shore	Statewide Total	Nitrogen Reduction Approx. (lb/yr)	Phosphorous Reduction Approx. (lb/yr)
Grassed Buffers	11,763	14,947	12	874	50	524	293	7,533	1,636	208	37,840	370,429	43,834
Infiltration Practices	160	368	3,551	294	1,045	3,452	3,454	32	2,458	1,854	16,668	60,863	5,273
Nutrient Management Plan Implementation	176,714	278,238	21,186	62,148	52,024	81,808	77,282	286,835	360,001	118,438	1,514,674	1,724,149	303,679
Retirement Of Highly Erodible Lands	324	102	43	1,048	753	996	686	3,548	5,296	710	13,506	N/A	N/A
Riparian Forest Buffers on Ag Lands	1,092	1,742	42	32	87	235	184	1,760	2,391	1,004	8,569	99,494	12,217
Riparian Forest Buffers on Urban Lands	3	0	47	26	55	63	73	34	33	11	346	408	1,183
Runoff Control	5	6	5	21	2	46	162	40	190	276	753	550	34
Septic Connections to Sewers	485	796	332	697	0	977	220	4,561	2,008	570	10,646	N/A	N/A
Septic Denirification	0	2	188	3	1	102	115	2	2	6	420	N/A	N/A
Soil Conservation Water Quality Plans	101,188	157,199	3,061	23,918	31,396	13,964	45,753	112,573	162,634	72,226	723,912	824,027	145,138

Type of Practice	Choptank River	Lower Eastern Shore	Lower Western Shore	Lower Potomac River	Middle Potomac River	Patapsco / Back River	Patuxent River	Upper Eastern Shore	Upper Potomac River	Upper Western Shore	Statewide Total	Nitrogen Reduction Approx. (lb/yr)	Phosphorous Reduction Approx. (lb/yr)
Stream Protection w/Fencing	0	0	12	3,287	121	27	341	742	818	429	5,777	78,911	7,722
Stream Protection w/o Fencing	0	0	606	61	200	5,920	6,591	225	1,980	12,648	28,231	192,812	18,867
Stream Restoration	655	1,203	2,652	1,509	22,527	17,110	7,675	3,497	15,602	34,405	106,835	486,440	833
Tree Planting on Agricultural Lands	1,088	7,302	49	672	420	743	674	1,739	5,150	1,213	19,051	221,193	27,161
Wet Ponds	794	5,831	4,532	3,235	8,884	10,051	9,802	790	5,711	5,206	54,836	120,136	12,391
Wetland Restoration on Ag Lands	1,477	2,585	5	165	35	102	90	1,865	195	188	6,707	77,871	9,562

**Appendix C: General Approach and Schedule to Implement Applicable Management Measures**

Category	Priority	Implementation Timeline (Years)		
		1998-2002	2003-2007	2009-2012
Agriculture	Statewide	<p>Farmers using commercial fertilizers must have n &amp; P based plans by 2002</p> <p>Farmers using animal manure or sludge must have n &amp; P based plans by 2002</p>	<p>Soil Conservation Water Quality Plans (SCWQP) on 50% of all farms by 2003</p> <p>SCWQP implemented on 25% of all farms by 2003</p> <p>Farmers using animal manure or sludge must have n &amp; P based plans by July 1, 2004</p>	
	Watershed Focus	<p>Tributary Strategies</p> <p>Agricultural Priority Watersheds**</p>	Agricultural Priority Watersheds**	
Forestry	Statewide	Riparian Forest Buffer (RFB) goal of 43 miles per year	Riparian Forest Buffer (RFB) goal of 43 miles per year	600 miles of created RFB by 2010
	Watershed Focus	<p>Coastal Bays</p> <p>Special Streams Project</p> <p>Monocacy</p> <p>Anacostia</p> <p>Susquehanna</p> <p>Town Creek</p> <p>Rock &amp; Carroll Creek</p>		
Urban runoff: developing and developed areas	Statewide			
	Watershed Focus	<p>Washington - Baltimore Metro Area, Roland Run, Redhouse Run, Severn River SWM plan</p> <p>Anacostia Watershed</p>		

From "Maryland Nonpoint Source Management Plan December 1999"

Category	Priority	Implementation Timeline (Years)		
		1998-2002	2003-2007	2009-2012
Marinas and Recreational Boating	Statewide	96 Certified Clean Marinas by 2002	125 Certified Clean Marinas by 2004	270 Certified Clean Marinas by 2010  Marine Sewage Pumpout Program goal of 460 facilities by 2010
	Watershed Focus	Chesapeake Bay Coastal Bays Deep Creek Lake		
Channelization and Channel Modification, dams, and shoreline erosion	Statewide			
	Watershed Focus	Chesapeake Bay Shoreline CWAP Priority Watersheds Anacostia Northwest Branch Town Park Stream		
Wetlands	Statewide	3000 acres by 2002	10,500 acres by 2007	15,000 acres by 2010
	Watershed Focus	CWAP Priority Watersheds Coastal Bays		

From "Maryland Nonpoint Source Management Plan December 1999"

**Appendix D: Projected §319(h) funding projects for FFY07**

Title of Project	Funding Request
Corsica Programmatic Demonstration	\$300,500
Corsica Monitoring BMP Results & Living Resources	\$130,300
Corsica Demonstration	\$48,472
Corsica Monitoring OSDS and SWM BMPs	\$79,650
NPS Program	\$397,761
Targeted Watershed	\$371,403
Track and Analyze Data	\$158,461
Urban SWM Database	\$54,880
Aaron Run Acid Mine	\$139,283
TMDLs / Implementation	\$158,522
ID Impairments Stressors and Restore	\$217,514
Urban Wetland	\$176,500
Antietam Creek	\$150,471
Deer Creek	\$53,075
Liberty Watershed	\$17,098
Lower Choptank	\$24,243
Marshyhope / Nanticoke	\$41,930
Upper Choptank	\$66,559
Lower Potomac	\$49,633

In an attempt to concur with EPA schedules an RFP for the FFY 2007 funds was not released. The 2008 RFP however will be released in the Summer of 2007. This will allow Maryland Department of Environment to become more synchronized with EPA's funding schedule.

**Appendix E: FY 2006 Project Status as Reported in GRTS through 1/30/07**

B = Behind Schedule (Original Project term in parenthesis)

C = Completed

O = On schedule

R = Revised

S = Scheduled Start date is after 01/31/2007 (Proposed Project term in parenthesis)

01-NPS Program Coordination and Grant Management	O (7/1/06 – 6/30/07)
02-Targeted Watershed Project and TMDL Implementation	O (7/1/06 – 6/30/07)
03- Tracking and Analyzing Nonpoint Source Pollution in Maryland	O (7/1/06 – 6/30/07)
04 Urban Wetlands Program, Bennett Creek Watershed Pilot	B (11/20/06 – 12/31/08)
05-Town of Centreville Demonstration Project Corsica River Watershed Restoration	R (1/1/08 –12/31/08)
06-Corsica River Watershed Restoration Project Agriculture Demonstration Project Capacity Development	R (1/1/08 – 12/31/08)
07 -Urban Stormwater Management Practices Database	O (7/1/06 – 6/30/07)
08- Aaron Run Watershed Remediation Project	O (10/1/06 –12/31/08)
09- Lower Potomac Watershed Project – Implementing the Agricultural Tributary Strategy in St. Clements Bay and Wicomico River	O (7/1/06 – 6/30/07)
10- The Corsica & Beyond: § Low Impact Development Standards §Programmatic Code Revisions §GIS for Planning, Maintenance & Monitoring §Stormwater retrofit §Public Outreach & Education	O (10/1/06 – 12/31/08)
11- Western Chesapeake Coastal Plain Stream Restoration Targeting	O (12/1/06 – 12/31/08)
12- Laurel Valley Stream Restoration	B (1/1/07 – 12/31/08)
13- Corsica River Restoration Project § Monitoring for Interim and Post Project Water Quality; Cover crop implementation results; Stormwater bmp implementation results §Monitoring for Living Resource Projections	B (10/01/07 - 09/31/08)
14- Demonstration of Bioswales with Enhanced Soil Porosity Construction Method to Improve Stormwater Management in the Selby Bay Subwatershed of the South River Watershed, Edgewater, Maryland	Project on hold, potentially may be dropped if the contractor cannot demonstrate ability to proceed

**Appendix F: 2006 Annual Report on the Restoration of the Corsica River**

**THE 2006 ANNUAL REPORT ON THE RESTORATION  
OF THE CORSICA RIVER**

PREPARED BY:



**DEPARTMENT OF THE ENVIRONMENT  
1800 WASHINGTON BOULEVARD, SUITE 540  
BALTIMORE, MD 21230**

# THE 2006 ANNUAL REPORT ON THE RESTORATION OF THE CORSICA RIVER

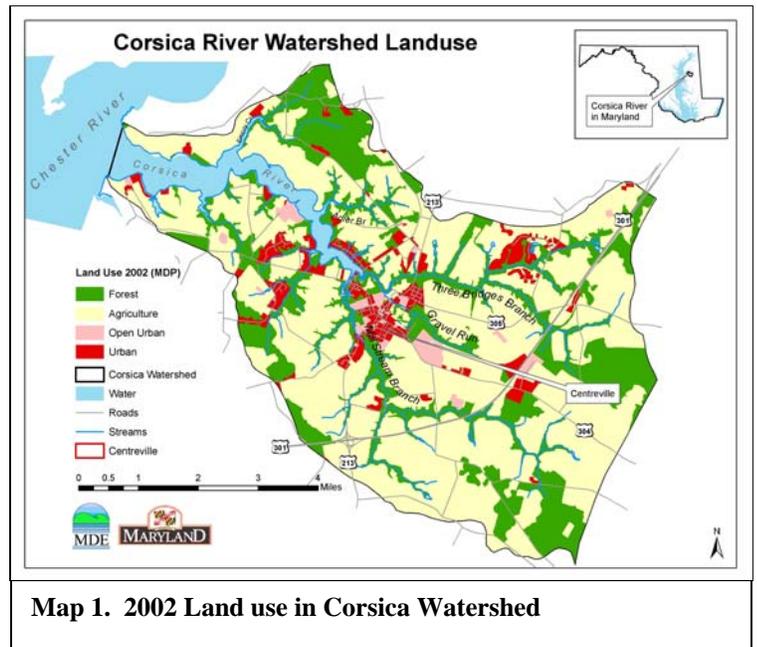
## Introduction

Located entirely in the coastal plain physiographic province, the Corsica River watershed is approximately 25,300 acres. The land within this watershed is predominantly occupied with agricultural practices (See Map 1). In 1998 the Corsica River was identified by the Maryland Clean Water Action Plan (CWAP) as a watershed not meeting clean water and other natural resource goals and in need of restoration (<http://www.dnr.state.md.us/cwap/cwap.htm>). The types of impairments that are present in this watershed include elevated nutrient runoff, sedimentation, and storm water runoff.

With this knowledge, and the intent to improve the condition of the Corsica River, State of Maryland officials and the Town of Centreville developed a Watershed Restoration Action Strategy (WRAS) for the Corsica River in April 2003. This WRAS would consequently guide the restoration of the Corsica River, and position local governments to receive Federal-Funding support for project implementation.

In September 2005, Maryland’s governor backed the Corsica restoration effort by designating it Maryland’s first targeted watershed program. With the Governor’s support, the State of Maryland committed staff and financial aid to the restoration of the Corsica River, a project estimated to cost approximately \$19 million over a five year period. Support for the targeted watershed approach is stated in the Candidate Watershed Program Business Plan (April, 2005),

“In the past, the State has largely spread available restoration resources to all areas where restoration is needed. This has generally stabilized water quality or produced small improvements in many areas, but has not



reached the point where a water body has been declared restored. The Corsica Watershed Project is a pilot program to develop best business practices and implement the processes, partnerships, assessment, and implementation tools needed to meet that threshold for restoring a single sub-watershed of the Chesapeake Bay.”

The endpoint of this targeted watershed approach will be to de-list, with regards to nutrient and sediment impairment, the Corsica River from the State of Maryland’s 303(d) list, which is a list of all of the State’s impaired water bodies.

The advent of Maryland’s 303(d) list came with the writing of the Federal Clean Water Act of 1972, which requires States, territories, and authorized tribes to develop water quality standards for all jurisdictional surface waters, monitor these waters, and identify and list those waters not meeting water quality standards. Water quality standards characterize and protect designated uses, such as swimming, fishing, drinking water supply, or oyster propagation and harvest on water bodies.

Additional goals of the Corsica River Restoration Project include monitoring, restoration, and preservation of habitat areas; monitoring nutrient reductions; and pre-accounting for environmental impacts of growth anticipated by local comprehensive plans. In addition to these goals, funding gaps and sources of funding and changes to local policy, code, and environmental regulations will secure the institutionalization of the restoration efforts. Extensive coordination will be required from all entities including local governments, the Soil Conservation District, and other stakeholders.

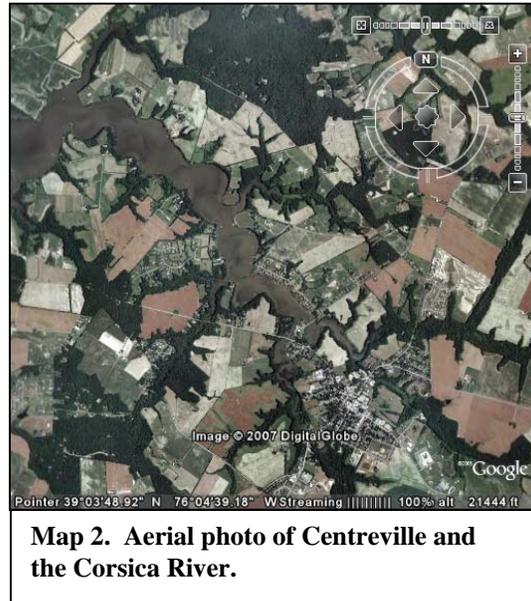
## **How this Project is Structured**

### **Implementers Group**

The Corsica Restoration Project is organized around the Implementers Group. Meeting on a monthly basis, this group of local stakeholders has a regular attendance of between 25 to 40 people, which includes planners, biologists, engineers, municipal officials, state officials, academics, and volunteer citizens group representatives. Below is a list of the entities represented in the Implementers Group:

- Maryland Department of the Environment (MDE)
- Maryland Department of Natural Resources (DNR)

- Maryland Department of Planning (MDP)
- Maryland Department of Agriculture (MDA)
- The Town of Centreville
- Queen Anne's County
- The Corsica River Conservancy
- The Master Gardeners Program
- University of Maryland
- Queen Anne's County Soil Conservation District
- The Chester River Association
- The Chesapeake Bay Alliance



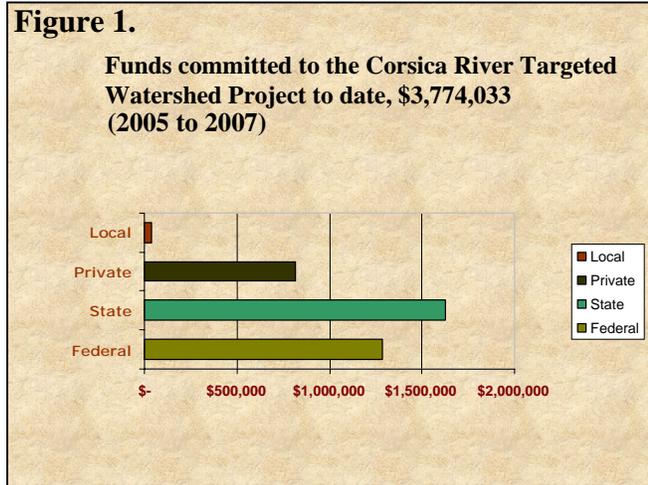
Because of this group's diverse background, there are multiple objectives, but a shared goal of improving water quality and habitat in the Corsica River. Consequently, the overall restoration project is a collection of many implementation initiatives. The Implementers Group is most likely the one component that gives this project the most strength. The State of Maryland has provided considerable staff support to this effort.

The Implementers Group, and the restoration effort as a whole, is presently chaired by staff from the Maryland DNR). In addition, a Watershed Restoration Coordinator, provided by Maryland Department of the Environment – Science Services Administration (MDE-SSA) assists in coordinating the implementation activities with each of the entities in the restoration effort. Each entity updates the entire Implementers Group at the monthly meetings. This allows the group to remain informed regarding the progress of all the implementation initiatives. The monthly meetings also provide a forum to address new opportunities and threats as a group and helps to expedite the planning process for many of these issues.

### Funding Sources

The restoration of the Corsica River is estimated to cost approximately 19 million dollars over a 5-year time period. To date, approximately \$3,774,000 has been committed to the restoration effort.

Financial support for such an endeavor comes from many different sources (Figure 1).



For Federal Fiscal year 2006, Federal 319(h) EPA Clean Water act funding has been used directly for implementation. Clean Water Act 319(h) funding provides support to the

Corsica River Restoration Project by funding monitoring, and implementation. In addition, this funding has allowed local Governments and Program Initiatives to hire staff. This increased capacity provides an opportunity for initiatives to develop local resources sufficient to sustain the position into the future. This will allow for the institutionalization of the restoration efforts after the state involvement ends.

Five individual programs have contracts for multiple years of 319 funding (See Table 1).

1. The town of Centreville has currently received \$300,500, and has been able to use these 319 funds to hire a fulltime Watershed Manager, hire a consultant to

**Table 1. Corsica River Watershed 319(h) Grant Funding Summary**

<u>Recipient</u>	<u>Funded Activity</u>	<u>Project Year 1</u>		<u>Project Year 2</u>		<u>Project Year 3</u>		<u>TOTAL</u>
		<u>Funding Amount</u>	<u>Federal Fiscal Year</u>	<u>Funding Amount</u>	<u>Federal Fiscal Year</u>	<u>Funding Amount</u>	<u>Federal Fiscal Year</u>	
Town of Centreville	Plan, Implement	\$300,500.00	2005	\$300,500.00	2006	\$300,500.00	2007	\$901,500.00
MD Department of Natural Resources	Monitoring	\$208,040.00	2005	\$184,140.00	2006	\$130,300.00	2007	\$522,480.00
MD Department of Agriculture	Implement	\$212,998.00	2005	\$63,448.00	2006	\$48,472.00	2007	\$324,918.00
MD Department of the Environment	Monitoring	\$77,225.00	2005	\$30,415.00	2004*	\$79,650.00	2007	\$187,290.00
Queen Anne's County	Plan, Implement		--	\$152,000.00	2006		--	\$152,000.00
<b>Total</b>		<b>\$798,763.00</b>		<b>\$730,503.00</b>		<b>\$558,922.00</b>		<b>\$2,088,188.00</b>

\* Reprogrammed Funds

design storm water retrofits along Route 213 in the town, and examine and update the Town's codes. The Town will received funding to 2009.

2. Maryland Department of Agriculture (MDA) has received \$63,448 of 319(h) funding, and will continue to receive funding to 2008. This funding is used to reimburse farmers who enroll in the cover crop program. It was also used to employ a new staff person to assist with agricultural issues in the Corsica Watershed.
3. DNR has received \$184,140 of 319(h) funding to implement a storm water-monitoring scheme, which will track changes in storm water runoff in targeted locations around the watershed.
4. Queen Anne's County is using the \$152,000 of 319(h) funding that it received to update its codes.
5. MDE-SSA has received \$30,415 of 319(h) funding to implement its non-tidal water-monitoring program.

Many other sources of money have also been utilized for the Corsica River Restoration Project. Maryland Department of Agriculture has attained funding from the Federal Conservation Reserve Program and the Clean Water Act 319(h) program to implement cover crops. Through this initiative, MDA and NRCS can pay farmers to plant cover crops in the off growing seasons which will use up excess nutrients on the landscape.

The State Bay Restoration Fund has provided funding for the replacement of conventional septic systems with denitrifying septic systems in the watershed. The Bay Restoration Fund was enacted by Maryland Senate Bill 260 in May 2004. This fund is financed by user fees from municipal waste water treatment plants.

The Oyster Restoration Partnership has committed funds for the restoration of oyster beds in the Corsica River. This nonprofit group is made up of organizations, institutions, businesses, and individuals dedicated to carrying out the Maryland Oyster Roundtable Action Plan. Enacted in 1993, this plan addresses the decline of the Eastern Oyster in the Chesapeake Bay.

The Volunteer Stormwater Monitoring Group has obtained funding from the National Fish and Wildlife Small Watershed Grant program to implement rain garden

planting in the watershed. This grant program focuses on watershed groups that build a citizen-based stewardship.

And, in addition to these funding contributions, substantial amounts of funding have been committed by MDE and DNR from their general funds budgets to promote restoration and de-listing of the Corsica River.

### **Analyzing Overall Program Strengths and Weakness Through Adaptive Management.**

At the August 2006 Implementers meeting, the Implementers group went through a “SWOT” analysis, which is an exercise that examined the Project’s Strengths, Weaknesses, Opportunities, and Threats. The group identified several main strengths and opportunities listed below:

#### **Overall Program Strengths**

1. Level of support: Overall, the Implementers Group perceived a strong level of support and knowledge (scientific, political, and financial) received by the project. The many partners, including state government, local groups, local municipalities, and the governor, support this project, in the form of funding from multiple sources, legislative initiatives, guidance, and actual time spent implementing various programs. The state agencies’ and the Corsica River Conservancy’s monitoring programs provide scientific knowledge, the local citizens provide historical knowledge, and a large amount of institutional knowledge is available through the Town of Centreville.
2. Collaboration: The Implementers Group perceived a high level of collaboration. All of the entities involved in the Corsica River Restoration project are collaborating at a level that is rarely witnessed in multi-agency projects. There is an overall spirit of cooperation and commitment among the parties involved.

3. **Project Management:** The Project is perceived as organized, flexible, and visible, with several well-defined problems and specific written objectives. The Implementers meetings are well managed, timely, and well attended. The scope and scale of this project are reasonable, and with realistic goals. Finally, the chosen adaptive management approach gives this project strength in its flexibility.



**Volunteer Storm Water Outreach Committee**

4. **Project Visibility:** The project has a high degree of visibility, giving it the ability to increase outreach to include more of the public, interested groups, conservation NGO's, schools, and media.

With the successful restoration of the Corsica River, the State of Maryland can de-list this river from the state's list of impaired waters. Such a success would contribute greatly to watershed management and encourage future inter-jurisdictional coordination on a similar scale.

### **Overall Program Threats and Weaknesses**

The SWOT analysis performed at the August 2006 meeting also challenged the group to identify the Project's threats and weaknesses. The group identified four main weaknesses.

1. The Implementers Group perceived a lack of basic understanding:  
The group felt that there was no detailed plan for the implementation of the watershed clean up. There was concern that a lack of a visible scientific plan and a timeline with long and short-term benchmarks would interfere with a successful watershed clean up. The group felt that there was also no list of environmental stressors that are present in the watershed. Many of the group members could not identify the connection between some of the programs

(cover crops and wetland creation) and the recovery of the Corsica River. There was also confusion about the connection between chlorophyll *a* and dissolved oxygen. The group perceived a significant delay in funding. They also expressed a concern that it may take a very long time to demonstrate results in the environment, leading to a lack of understanding by media, new residents to the watershed, and new political leaders. This would result in a complete loss of support of this project, resulting in its termination.

2. The group perceived a lack of communication:

The group felt that there was substantial weakness in the group's communications, often related to the different expertise and skill level within the group. Depending on the issue at hand there is undoubtedly a steep learning curve for one or more individuals. The group also identified that there is little effective communication between state and local entities regarding budgets, expectations, funding and project issues. Notably, multiple disciplines make it difficult to maintain effective communication.

Consequently there are multiple priorities, variable progress, prioritization difficulties, and benchmarks (whether individual program-based or overall project-wide) are frequently not communicated. Because of this, an under appreciation among partners persists.

3. The Implementers Group was concerned about the potential lack of Institutionalization:

The current level of State involvement will eventually be cut back, and currently there were several restoration efforts that are not permanently institutionalized in the watershed. The concern was expressed that after the key, state support ends, how will local governments sustain the watershed restoration effort. There is no process in place that will outlive the 2-4 year political life span of current politicians. The project is currently too reliant on finite funding. More "buy-in" is needed from the Queen Anne's county commissioners and from the general public. Because regional growth continues, it is necessary to reach new residents to instill the preservation initiatives within them.

4. The Implementers Group was concerned about the lack of farmer and landowner participation:

The agricultural component (farmers) is greatly under represented in the project meetings. Yet, the agricultural industry continues to be the majority of the nutrient input in the Corsica Watershed. And, there was a concern that not enough farmers are involved in the cover crop program to make it successful. It is suggested that this is because there are not enough incentives for farmers to sign up for cover crops, and/or that the watershed only had a handful of farmers.

It is important to note that while a SWOT analysis is effective at highlighting the weakness and threats of the restoration project, the end result is to find solutions for these weaknesses and threats, and make the Corsica Restoration Project stronger and more robust. The Implementers Group has been systematically reviewing the SWOT findings at subsequent meetings and will continue to address each of these four concerns at future meetings. By the end of 2006, the “general lack of understanding” and the “lack of communication” had been addressed by providing overview presentations and by making updates by each partner part of the standard agenda. The first couple meetings of 2007 will provide opportunity to further address communication, institutionalization, and farmer participation.

### **Success in 2006**

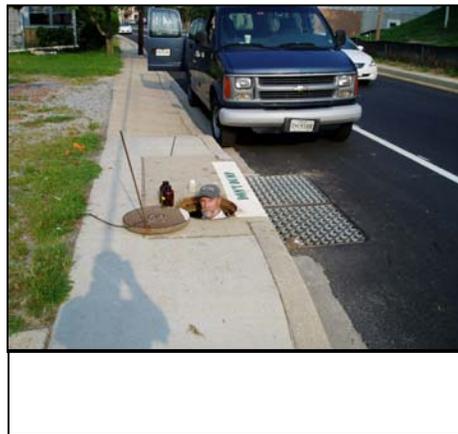
Much of the success of the entire Implementers Group is in the form of improved organization and communication. A communication strategy was drafted to identify missing communication pathways and establish a regimented communication protocol. This strategy has identified five important areas of communication in this project: 1. communication at the Bay Cabinet level, 2. inter-agency communication, 3. local government communication, 4. communication to the general public, 5. intra-group communication, and 6. communication with the media. For each of the six components of communication, the draft strategy identifies a responsible person for promoting the objectives at that level of communication and a time frame in which to do so. In addition

to identifying these six levels of communication, the strategy also identifies a need for an action item list and progress-tracking component.

In addition to the success that the entire group has experienced, each implementation program has experience success in 2006. The following is a focus on the progress of each partner, as well as other contributing programs, in the Corsica River Restoration Project, within the year 2006.

### 1. Maryland Department of the Environment (MDE):

- a. In the past year, MDE-SSA has hired a Watershed Restoration Coordinator and has been able to increase implementation activity in the watershed, particularly by assisting 319 grant recipients. MDE-SSA staff has played a leading role with the Implementers Group meetings by maintaining minutes and responding to the needs of the group.
- b. The non-tidal monitoring program, headed by SSA, has maintained its momentum throughout this past year. Under their continuous monitoring efforts, three automated samplers were installed by July 2006, and data for three storm events as of October 2006 have been collected. In addition, three synoptic surveys have been completed since the start of the project. Finally, ground water monitoring wells have been installed this past year and sampling started in July 2006. More wells are to be installed within the next year.
- c. MDE-SSA's Fish and Shellfish Monitoring program have collected fish tissue samples in the Corsica River. Findings are maintained on MDE's Fish Consumption Advisory website (<http://www.mde.state.md.us/CitizensInfoCenter/FishandShellfish/home/index.asp>).



## 2. The Maryland Department of Natural Resources (DNR):

The Corsica Restoration Project lead, John McCoy, has resolved many of the issues that developed throughout the restoration process.

- a. In the past year, DNR's Watershed Services has been negotiating with MDE's (Bay Restoration Fund), to try to wave the tax applied to the grant recipient. Currently 24 households have signed up for septic upgrades and new participants are being recruited into the program.
- b. In 2006, the wetland and forest restoration initiative in the Corsica Watershed, headed by The Watershed Services Division of DNR, had created 4-5 acres of wetlands and replanted 12 acres of riparian forest at Riggs Farm, a county owned farm-park. They have also identified landowners that own properties adjacent to waterways for wetland and forest restoration. DNR along with the Soil Conservation District and the NRCS will be applying Wetland Reserve Program funding to buy easements from these landowners.
- c. The tidal monitoring initiative, headed by the Tidewater Ecosystem Assessment Division of DNR, has successfully put out its annual report in late 2006, which can be found on the web at (<http://mddnr.chesapeakebay.net/eyesonthebay/index.cfm>). This past year they have terminated one of their continuous surface monitors and replaced them with two mid-channel surface and bottom continuous monitors down river. This group will be using a Cumulative Frequency Diagram Method to test there monitoring results against the bay water quality standards.
- d. DNR Fisheries is conducting anadromous fish sampling in the Corsica River to assess the extent and quality of spawning habitat. Yellow perch larvae were sampled in the upper tidal portions of the Corsica River and both Yellow Perch and White Perch were sampled the in the fresh water tributaries (Gravel Branch, Three Bridges Branch, and Mill Stream). Relative abundances of yellow perch larvae were below those measured in

reference water bodies, the Choptank and Naticoke Rivers. The lower abundances in the Corsica River are suspected to be the result of lethal salinity levels measured in the Corsica River. Stream sampling showed that all tributaries support spawning habitat for white perch, with Three Bridges Branch being the most productive and Gravel Run being the least. In addition, Three Bridges branch supports yellow perch spawning. Sampling efforts will continue in 2007, and creel surveys will commence with the hiring of a Volunteer Coordinator.

- e. In 2006, Maryland Biological Stream Survey (MBSS), which is performing the non-tidal biological sampling in the Corsica Watershed has finished its phase three sampling. In addition to their standard sampling protocol, they assisted DNR's Maryland Natural Heritage Division with a mussel survey. Through their efforts, the range of the endangered dwarf-wedge mussel in the Corsica river watershed is now more clearly defined. Results will be published in the following year.
- f. The grass bed restoration, headed by the Tidal and Estuarine Assessment Division, had their first attempt to plant marsh grasses in 2006. Unfortunately the grasses didn't take due to the high levels of turbidity. Efforts in replanting have been suspended until there is an improvement in water clarity.
- g. In 2006, the Oyster Recovery Partnership seeded 10 acres of oyster beds with spat. Monitoring efforts will be ongoing throughout the following years to determine the success of their efforts.

3. **Maryland Department of Agriculture (MDA):**

Only 400 acres were enrolled in the cover crop program in 2006, approximately 13% of their annual goal. Sign-up for 2007 improved; traditional and commodity cove crop sign up will be approximately 3000 acres, which will achieve their goal for 2007. Actual acreage will be known after the 2007-growing season. MDA's new staff person will also be developing a horse pasture management program for the watershed. This new staff person has also devoted a significant amount of

time to the Home Owners Pamphlet that was initiated by the Volunteer Storm Water Outreach Committee (See Below).

**4. Maryland Department of Planning:**

MDP has just hired their new staff member to assist the Town of Centreville and Queen Anne’s County with rewriting their ordinances. Much of this person’s efforts will be in modeling and mapping the future growth of the Town and County under different sets of development ordinances to predict the various nutrient loads and other environment impacts due to future growth in the Corsica River Watershed. Their efforts will be increasing in the following years.

**5. Town of Centreville:**



Accumulation of sediment due to storm water runoff in Centreville.

The town filled their Watershed Manager position by the end of 2006, and has started the process of designing storm water retrofits for route 213, one of the main roads though town. The town’s contractors are currently developing designs for two of the five storm water treatment areas the town has targeted with their 319(h) grant funding. The town continues to work closely with MDE’s watershed coordinator to implement this storm water program. Obstacles that this program faces in the future are in working at the remaining three sites. These sites are currently targeted on private land so coordination with landowners is required.

**6. Queen Anne’s County:**

Queen Anne’s County has started taking steps to have their storm water codes rewritten. An RFP was recently released. Queen Anne’s County includes MDE’s SSA and Water Management Administration in planning and implementation activities.

**7. Storm Water Outreach Committee:**

This volunteer based group developed an outreach pamphlet targeting local residents of the Corsica River Watershed. The goal of this pamphlet is to promote environmentally friendly practices for homeowners. First printing of this pamphlet began in 2007. In addition to this pamphlet, this group has set a goal of installing 200 residential rain gardens in the year 2007. Taking steps to achieve this goal and expedite the installation process, they have identified vendors and have developed a list of template designs from which homeowners may choose. In addition, this group has initiated the steps to install two sizeable rain gardens at the Centreville library.

**8. University of Maryland Cooperative Extension:**

- a. Staff from the University of MD Coop Extension has been providing support for shallow ground water and storm water monitoring initiatives. In addition, the Master Gardner Program has been working in close coordination with the Storm Water Outreach



Committee, especially in designing and installing the rain gardens. See above section on Storm Water Outreach Committee.

**9. The Corsica River Conservancy (CRC):**

In 2006 the CRC had created opportunities for outreach to the general public. They organized a field trip to examine installed, denitrifying septic systems in Kent County. In addition, they hosted an open forum, in which they reviewed the results of their water monitoring efforts in the Corsica, and they organized the first annual Corsica River Awareness Day at Riggs Farm in October 2006.

Approximately 400 people attended, and there were good reviews on this event in the local paper.

### **Past Obstacles Overcome**

With regards to the obstacles that the Corsica River Restoration Project faced in 2006, the overall project challenges fall into two generic categories: First, a difficulty in getting started due to staffing transitions and other issues, delayed funding, not enough buy in, or other logistical issues, and second, the difficulty in coordinating multiple objectives

The delay in the Town of Centreville's involvement with the Corsica River Restoration Project started with the changing of the Town Manager position. The new Town Manager started in June 2006. In addition to this, there was a delay in the Town filling their Watershed Manager position due to a delay in Federal Funding support. The Town's new Watershed Manager arrived on January 1, 2007.

There was also a delay in MDE-SSA filling their Watershed Coordinator position. This Watershed Coordinator Position is designated to represent MDE in the restoration project, working closely with the project lead at DNR. This position was filled at the end of July 2006.

The Cover Crop Program, sponsored by the Maryland Department of Agriculture had difficulty getting buy-in by the local farmers and farm operators. During the first year of cover crop enrollment, only 400 of the 3000-acre goal was met. Fortunately, as mentioned under the successes of MDA in 2006, they have committed around 1400 acres of traditional cover crops for the year 2007. Buy-in from the agricultural community will continue to be a challenge in the Restoration Project.

The denitrifying on-site septic system initiative has also experienced obstacles in the financing of the reimbursement of the septic system installments and with buy-in on the idea of denitrifying septic systems. All work is to be done on a reimbursement basis. Therefore, the residential landowner must produce, up front, approximately ten thousand dollars for the installation. Another disadvantage to this system is that the Federal Government originally viewed the reimbursement funds as "taxable" income. These are thought to be the two main reasons for the slow sign up for this program. In addition to

this there was some misunderstanding on what entity would oversee the supporting grant. Fortunately, DNR has taken the responsibility of overseeing the grant, is addressing the taxation issue with the federal government, and is looking for creative ways of circumventing the need for the residential landowner to get involved with the funding process.

Coordinating the multiple objectives of the Implementers Group is a challenge. Where this is most evident is in obtaining access to land for project implementation. Many of the projects associated with the restoration of the watershed target land adjacent to waterways. Some individuals that own land along the waterways have been approached by several different program leaders for access to monitoring sites, installing sampling wells, and to install other various BMPs. The Implementers Group fears that landowners will feel threatened and overwhelmed by multiple requests for permission to access private land. To avoid the risk of turning landowners away from the restoration effort, the Implementers Group developed a coordinated approach and a single letterhead, and has made an effort to coordinated requests for access into one instance of contact.

Another obstacle relating to the challenge of coordinating the multiple objectives of the restoration effort is experienced primarily by those that are in the position of public servant at the local level. While many of the individuals that work for public office at the local level throughout the watershed may be personally vested in the restoration effort, they must ultimately follow the direction of their respective elected officials.

### **Obstacles for 2007**

Aside from unforeseen circumstances, there are two general obstacles that the Corsica River Restoration Project will have to face in the future: First, a changing administration and secondly, making a positive change in a rapidly developing environment.

An unknown future exists with the turnover of elected officials at the state and county level. In addition to this, many of the supporting state agencies will experience a change in administration as a result of the elections. Maintaining this project as a priority in the minds of the new officials and administrators will be paramount for the success of this restoration effort.

Another challenge this project faces is trying to remain aware of upcoming detrimental changes in the watershed. The process of restoration at the watershed scale is slow. Much of it depends on grant funding, which usually takes a year or more to initiate, and volunteer time, which is not easily carved out of people's busy schedules. On the contrary, the development process has become a very fast, efficient process. For example, land can change hands in a matter of a couple of days. It can be daunting for the restoration effort to try to compete with the rate at which the development market moves. Unfortunately, this will continue to be a challenge throughout the life of the restoration project.

### **Goals For 2007**

The implementers group has several goals set for 2007. These goals are primarily developed from what was identified as the group's weaknesses in the SWOT analysis. Outreach and communication will improve in 2007 with the implementation of the communications strategy and the focus of more attention to communication at the Bay Cabinet level, inter-agency communication, local government communication, communication to the general public, intra-group communication, and communication with the media.

Another goal for the Implementation group is to clearly identify an institutionalization strategy, including developing the capacity to permanently maintain the Town Watershed Manager and the Soil Conservation District's positions dedicated to environmental issues in the Corsica Watershed. This strategy must also establish a process to maintain the attention of the Town and County officials and increase farmer participation in the restoration process.

The up coming year 2007 looks to be a promising one. Monitoring programs are in place and most of the implementation initiatives have received their funding and developed the capacity to start construction of many of the implementation projects. Consequently, the year 2007 may well be a year of on the ground projects. It is difficult to predict the actual output progress in 2007, due to the complexity in developing each implementation initiative. However, with most of the necessary partnerships formed in 2006, projects planned for 2007 should progress with relative ease.

## Overview

Overall, activities devoted to the Corsica River Restoration Project in 2006 focused on developing partnerships, establishing monitoring frameworks, developing strategies for implementation. Very little implementation has been performed. Therefore, little improvement has been measured in the watershed by way of nutrient reduction. The coordination of such a large project is a slow process. Building a foundation of partnerships with the various



stakeholders is an integral step in the restoration process, and is worth the time spent to do so. With the support of the necessary stakeholders, and the necessary capacity in place, the years following 2006 promise to be busy with on the ground implementation. However, the years following 2006 will present new challenges to the restoration effort. Fortunately, the Implementers Group is diverse, talented, and adept at reacting to challenges. Funding for many of the initiatives is committed through the next couple years, with that funding is the commitment of full time staff who are focused on de-listing the Corsica River and institutionalizing the restoration process, so the River stays de-listed.