

# **Chesapeake Bay Implementation Plan for Schuylkill County**

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**Schuylkill Conservation District**

**The Schuylkill County Bay Tributary Strategy was prepared with the assistance of our Conservation District staff and Board of Directors, personnel from the Natural Resource Conservation Service, Penn State Cooperative Extension and representatives from partnering organizations addressing the environmental and conservation needs of Schuylkill County.**

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# Schuylkill County Chesapeake Bay Implementation Plan

2010

## Introduction

Since 1989, Pennsylvania's Department of Environmental Protection Chesapeake Bay Program, funded by federal and state monies, has provided costshare and technical assistance through the Schuylkill Conservation District to agricultural operations in the Susquehanna River Watershed within the County. The goal of the program is to reduce nutrients and sediment entering streams and waterways by the installation of best management practices (BMPs) and the implementation of nutrient management plans (NMPs). In 2005, in response to a mandate from Environmental Protection Agency (EPA) that required significant reductions in nutrients and sediment to the Bay by 2010, a document titled "Pennsylvania's Chesapeake Bay Tributary Strategy" was released by the PA Department of Environmental Protection (DEP) outlining new ambitious goals for nutrient and sediment reduction to the Chesapeake Bay. Conservation districts participating in the Bay Program were directed by DEP to develop a Chesapeake Bay Implementation Strategy specifically for their county utilizing selected BMPs that have been identified to be ones that provide the most benefit for the least cost. In May of 2009, President Obama issued an Executive Order mandating renewed efforts for the protection, restoration, and cleanup of the Chesapeake Bay. In response to the President's mandate, the EPA issued a "Draft Strategy for Protecting and Restoring the Chesapeake Bay" that places an emphasis on compliance with clean water regulations, their enforcement and potential consequences for non-compliance.

The Environmental Protection Agency is working with its state partners to set restrictions on nutrient and sediment pollution through a Total Maximum Daily Load, or TMDL a regulatory tool of the federal Clean Water Act that will be backed by a series of accountability measures to ensure cleanup commitments are met.

The Bay TMDL, involving six states (Maryland, Virginia, Delaware, New York, West Virginia, Pennsylvania) and the District of Columbia will be the largest and most complex ever developed. It affects a 64,000 square mile watershed, nearly 17 million people, 88,000 farms, almost 500 large wastewater treatment plants and thousands of counties, cities, towns and townships. The Bay TMDL will actually be 92 TMDLs – the Bay and the tidal portions of its tributaries and embayments are divided into 92 segments.

TMDL stands for total maximum daily load. It is a calculation of the maximum amount of pollution that a body of water can receive and still meet its water quality standards: acceptable levels of dissolved oxygen, water clarity or other criteria that are set to ensure waterways are safe, swimmable, and fishable.

The federal Clean Water Act requires that a TMDL be written for all segments of a waterway that fails to meet a state's water quality standards. Every two years, each state reports a list of impaired segments to the EPA. The agency may also add segments to the list if it has evidence that they are impaired. States are required to write a TMDL for each impaired segment. The Chesapeake Bay TMDL will be completed by December 31, 2010. Under the TMDL, EPA

expects the states and D.C. to provide specific timelines for enhancing programs and implementing controls to reduce pollution.

Analysis of the nutrient sources within Pennsylvania's portion of the Chesapeake Bay Watershed indicates that about 89 percent of the nitrogen loads originate from nonpoint sources and about 11 percent are discharged from point sources. Similarly, about 82 percent of the phosphorous originates from nonpoint sources and about 18 percent are discharges from point sources. Consequently, the major focus of Pennsylvania's tributary strategy is towards reductions in nonpoint source nutrient loads.

The 2005 Draft Chesapeake Bay Strategy outlined management practices for the Susquehanna and Potomac basins that are needed to achieve the necessary nutrient and sediment reductions. These practices encompass reductions from all sources including agriculture, urban, forestland, open land, wastewater treatment plants, septic systems and air pollution.

The Chesapeake Bay Watershed Blue Ribbon Finance Panel was established to identify funding sources sufficient to implement basinwide clean-up plans so that the Bay and its tidal tributaries would be restored sufficiently by 2010 to remove them from the list of impaired waters under the Clean Water Act. The Panel report states that; "For twenty years the Chesapeake Bay Program has coordinated Bay restoration efforts. Through a remarkable state-federal partnership, the program has developed the most sophisticated estuarine science in the world. The partners have built unparalleled cooperative efforts and pioneered clean-up strategies that have resulted in measurable gains in reducing the flow of pollutants into the Bay. In spite of its commendable work, the Chesapeake Bay Program is not fully equipped to meet the future challenges of restoring the Bay. The reason is simple. It lacks a permanent funding base that is sufficiently large to do the job. The lack of adequate funding and implementation has left the Bay effort far short of its goals."

Bay cleanup efforts have been estimated to cost more than \$15 billion in order to implement all the actions identified in the strategies. The total amount of funding for Best Management Practices, now known as "special projects" is approximately one million dollars to be allocated among the 38 Conservation Districts participating in Pennsylvania's DEP Bay Program. Adequate funding to continue, complete and maintain the clean-up of the Bay has proven to be a tremendous challenge.

With limited dollars available conservation districts participating in the DEP Chesapeake Bay Program are directed to develop county specific plans of action or strategies that would deliver the largest nutrient and sediment load reductions for the least cost.

"Tributary Strategies" are river specific clean-up strategies that detail "on the ground" actions needed to reduce the amount of nutrients and sediment flowing into the Chesapeake Bay. The strategies aim to reduce pollution coming from all sources. They are a framework that will evolve over time to chart the most efficient and effective course to a clean Bay.

There are some encouraging signs that the diligent work of the past 20 years towards improving water quality is showing progress. The Susquehanna River Basin Commission recently issued a report (2009) about water quality in the Susquehanna River on nutrient and sediment trends since 1985. Significant reductions for these two targeted pollutants have been documented at all monitoring stations along the Susquehanna River. For example, at the Conestoga station (near Lancaster County), nitrogen has decreased about 20%, there is a 50% reduction in phosphorous and sediment is down about 70% compared to 1985 levels. With the Susquehanna River being the largest tributary to the Chesapeake Bay-providing more than 50

percent of its fresh water – reductions in nutrient and sediment loads in the river directly benefit the Bay. The Commission's findings do help validate the fact that the nutrient and sediment reduction efforts over the past two decades are working and supporting Bay restoration efforts.

## **Background**

Schuylkill County is in the east-central part of Pennsylvania. It has an area of 778.6 square miles or 498,304 acres with a population of 150,336 (2000 census). Schuylkill County, whose Dutch name means "Hidden Stream", is uniquely situated topographically straddling two major watersheds. Most of the eastern part of the county is in the Delaware River Basin; the western part and the northern tip are in the Susquehanna River Basin. Over 50% of Schuylkill County drains to the Susquehanna River Basin. The county touches the borders of seven other counties: Northumberland, Columbia, and Luzerne to the north, Lehigh and Berks on the eastern and south edges, and the western borders meet with Lebanon and Dauphin Counties.

Schuylkill County was created in 1811 from parts of Berks and Northampton counties. It was named for the Schuylkill River. Today Schuylkill County is known for Mrs. T's Pierogies and Yuengling beer (America's oldest brewery). There are hi-tech businesses like AlliedSignal and Alcoa. Despite the mining industry's decline, Schuylkill County has 90% of the world's anthracite coal reserve.

Schuylkill County is an area of many contrasts. It is best known for its Anthracite resources and for its past mining history. During the time period 1900 to 1930 the production of coal was the most important industry in the area when more than 100 million tons of coal were produced annually. Mining as a land use currently represents 10 percent of the total area in the County. This has overshadowed the vast agricultural and wooded areas which also exist in the County. Two large anthracite coal belts run northeast to southwest through the center of the County. To both the north and south of these coal belts are some of the most beautiful agricultural areas found in northeastern Pennsylvania. Woodlands comprise approximately 44 percent of the land area of the County, with agriculture encompassing about 30 percent.

Schuylkill County sits in a unique area of Pennsylvania, acting as a source of water for many of the major rivers in the eastern part of the state. Practically all the water that flows through Schuylkill County originates here. From the lush farmlands of the Schuylkill River Valley to the peaks of the Broad Mountain, Schuylkill County boasts one of the most beautiful environments in eastern Pennsylvania.

## **LAND USE and WATER QUALITY**

Farming is a major land use in Schuylkill County. The County has approximately 790 farms covering 97,000 acres. According to the 2003 Pennsylvania Crop and Livestock Annual Summary, 52,200 acres were planted in field and forage crops, 9,300 for small grain; approximately 802 acres for fruit production; and 3,373 acres for vegetables. There are 66,285 acres designated as prime agricultural farmland soils in the County. The majority of these acres are located in the Swatara, Mahantango, and Catawissa Watersheds.

Seven hundred farm families produce over 65 million dollars in economic benefits to the County annually. Products include: poultry, dairy, beef, swine, fruits, vegetables, potatoes, field crops, forestry, Christmas trees, nursery plants, animal products, food processing, and farm equipment

operations. Some unusual operations include fish farming, commercial duck operations, and at least two buffalo “ranches”.

Compared to other land uses in the county, woodlands comprise the largest, with approximately 224,000 acres or 44 percent of the land. Major bands of woodlands, located in the central portion of the county stretch from the western to the eastern borders. Other significantly wooded areas are located in the northern section of the County. There are also over 9,000 acres of woodlands preserved in the Weiser State Forest in association with the Second and Blue Mountain ranges.

## **GROWTH TRENDS and ISSUES**

Despite the dominance of open space as a land use component in Schuylkill County, with approximately 44 percent of the county as woodlands, 10 percent used for mining, and 30 percent of the county as agricultural lands, a gradual encroachment into these areas is occurring. This phenomenon reflects a basic population shift in Schuylkill County, with old settlements losing population while new housing construction takes place in outlying areas.

The effects of the population shift can be seen on the landscape with new development patterns occurring in the formerly wooded, scenic and rural areas. Dispersion of residences and business bring with it a number of potential problems, including lack of public services in rural areas, a near universal dependence on private vehicles for transportation, a decline of local business centers and loss of the strong social fabric inherent in city, borough, and village communities. Scattered urban uses also represent potential threats to environmentally sensitive resources, visual intrusions into the countryside, and weakening of the economic base of the county in agricultural productions and tourism.

In 2004, the concern for open space conservation in the county prompted the County Commissioners to commission the preparation of a County and Open Space and Greenway Plan at the same time it was preparing and updating a new County Comprehensive Plan. The two plans together have identified areas of the county that are most important to maintain as open space, the mechanisms by which areas may be established and preserved, priorities in terms of open space and facility recreation, and ways of coordinating with adjacent counties to develop a regional open space network. During the public input phase of the plan development, protection of open spaces and natural environment as it relates to quality of life was identified as a priority.

Several methods are now being used to conserve farmland and open-space in the county. The most important is the purchase of agricultural conservation easements which essentially preserves farmland in perpetuity. Other programs such as Agricultural Security Areas are also helpful in conserving land for agriculture. Additional land is being preserved in the County through the acquisition of property for county parklands, state gamelands, state parks and state forests. The Schuylkill County Conservancy works to protect the quality of life in Schuylkill County by conserving farmland, open space, rural heritage, streams, wetlands, waterways, forests, historic structures, and other natural resources.

## **SUSQUEHANNA RIVER BASIN WATERSHEDS**

Schuylkill County is located in two major drainage basins, the Delaware and the Susquehanna, which are principally separated by the Broad Mountain that supplies water to both. Generally, hydrologic features and water runoff in the eastern side of the county flow into the Delaware River drainage basin while water flows reach the Susquehanna drainage basin from the western part of the County. The nature of this plan will target the Susquehanna River Basin Watersheds.

The Susquehanna River basin in Schuylkill County is comprised two major subbasins, the Lower North Branch and the Lower Susquehanna East. The Lower North Branch is composed of the Catawissa and the Mahanoy watersheds, The Swatara, Mahantango (Deep and Pine Creeks) and the Wiconisco watersheds are part of the Lower Susquehanna East subbasin. The main agricultural areas are in the Ringtown, Mahantango, Hegins, and Swatara valleys.

### **LOWER NORTH BRANCH**

#### **Catawissa Creek Watershed (Subbasin 05E)**

The Catawissa Creek Watershed occupies the Northern tip of Schuylkill County, bordering Columbia and Luzerne Counties and flows generally northwest to the Susquehanna River in Columbia County. It comprises approximately 10% of the County, or 49,500 acres. The Catawissa Creek watershed is a very rural, relatively remote, largely forested watershed, with some agricultural land. The only urbanized area is the Borough of Catawissa (Columbia County), at the mouth of the Catawissa Creek. Ringtown Borough, in the upper Little Catawissa Creek watershed, is the only other incorporated municipality in the watershed. Several small villages are scattered throughout the watershed. Little new development exists in the watershed except for Eagle Rock Resort in the upper Tomhicken Creek watershed. The Ringtown Valley is the predominant agricultural area. The agricultural operations are primarily grain and vegetable farms. Soil test reports for various intensive vegetable operations show excessive levels of phosphorous and farming is commonplace on slope of 8 to 15% making implementation of conservation plans vitally important in reducing sediment and nutrient pollution. Other non-point pollutants such as raw sewage, wildcat sewers, acid rain deposition, siltation, erosion and sedimentation, and excess nutrients also contribute to impairment of the watershed; however, these pollutants are minor compared to the mine drainage.

The major pollution source in the watershed is acid mine drainage from five deep mine tunnels located in the upper third of the watershed. Catawissa Creek has been labeled as the "Sulfur Creek" for decades; however it is contaminated by aluminum, metals, and acidity. A total of 44.5 miles of Catawissa Creek watershed, 11 miles of Tomhicken Creek and 3.4 miles of Sugarloaf Creek are listed as impaired by metals from abandoned mine drainage on the DEP 303d list of impaired waters.

Approximately 80 percent of the pollution load of acid and aluminum to Catawissa Creek comes from the Audenreid Mine Tunnel (a mine water discharge tunnel). In 2005, the Schuylkill Conservation District with assistance from partners, the Columbia County Conservation District and the Catawissa Creek Restoration Association, secured a 1.4 million dollar Growing Greener Grant to construct a treatment system to treat the discharge from the tunnel. The treatment system captures the AMD and feeds it into 3 concrete storage tanks, each about 120 feet in diameter and 12 feet deep, filled with 20,000 tons of high calcium carbonate limestone. Contact

with the limestone neutralizes the acidity and causes the aluminum to precipitate. The tanks are equipped with siphons to automatically flush the tanks removing the aluminum precipitate from the surface of the limestone, which is collected into two settling ponds. Shortly after the completion of the system, in June of 2006, heavy rains and flooding conditions deposited tons of sediment from around the mine opening onto the intake structure rendering the entire treatment system inoperable. Funding to repair the damage to the system was provided from grants obtained from FEMA and PEMA. Repairs to the intake system were completed in October 2009 and additional repairs to the system were finished in January 2010. The expected result of treatment of this discharge is the restoration of water quality for approximately 36 miles of stream.

Oneida #3 Mine Tunnel Discharge is the second largest discharge (by volume) in the Catawissa Creek Watershed. Construction of the Oneida #3 Mine Tunnel Discharge System was completed in December 2009. This system was planned for two slightly smaller limestone tanks, similar to the Audenreid Treatment System. Due to limited grant funding and increased construction costs one of the tanks was eliminated. Smaller treatment systems such as the Oneida #1 Treatment System have already been installed on some of the smaller tributaries to the Catawissa Creek. With these three systems functioning (Audenreid, Oneida #3, and Oneida #1) it is expected that the Catawissa Creek will experience much anticipated restoration.

#### **Mahanoy Creek (Subbasin 06B)**

The two major streams in this subbasin, Mahanoy Creek and Shamokin Creek originate in the Anthracite coal fields. The drainage area of the Mahanoy Creek is a 157 square miles which is partly located Schuylkill County bordering Columbia and Northumberland counties. The boroughs of Shenandoah, Ashland, Gilberton and Girardville are located in the watershed. The Mahanoy Creek and several of its tributaries are impaired by abandoned coal mine drainage. Leaky on-lot septic systems also degrade local stream sections. A small portion of the Mahanoy creek is also affected by agriculture along the Northumberland border.

### **LOWER SUSQUEHANNA EAST**

#### **Swatara Creek Watershed (Subbasin 06D)**

The Swatara Creek Watershed is located in the southwest corner of the County bordering Berks and Lebanon counties. It occupies approximately 17% of the County or 87,000 acres. The major tributaries consist of the Upper Swatara, Upper Little and Lower Little Swatara Creeks, and the Northern Swatara Creek. The tributaries converge near the borough of Pine Grove where it continues to flow through the western edge of Berks County, Lebanon County and Southern Dauphin County to its confluence with the Susquehanna River at the borough of Middletown. The upper main stem of Swatara Creek flows southwest through the Southern Anthracite Coal Field to the Swatara Gap of the Blue Mountain and covers approximately a 43 sq. mile area that is largely undeveloped. The primary land use is forestland, which accounts for 80% of the land area north of Blue Mountain. Mining, primarily abandoned surface mines account for 18%, and the remaining 2% is urban or other uses. The major sources of AMD are in the Lorberry Creek and Good Spring Creek watersheds

The Upper Swatara and the Upper Little and Lower Little Swatara Creek tributaries flow through areas predominated by agriculture. Agricultural lands cover approximately 24,000 acres of the watershed. Crops are principally corn and hay grown to support the predominance of dairies within the area. There are also several swine and poultry operations located in the watershed. Agricultural nonpoint source pollution is the main source of pollution. The majority of the

nutrient loading is being delivered through nonpoint contributions from runoff of rainwater over areas containing commercial fertilizers and animal manure.

Over 35 years ago, the Commonwealth proposed to construct a 750 acre lake on Swatara Creek at Swatara Gap. The State Park Lake project was delayed primarily due to poor water quality. The water quality has improved greatly overtime due to remediation projects, enforcement of regulations, mine reclamation, sewage treatment in several communities, and ongoing remediation efforts with passive treatment systems.

Sediment and nutrients from agricultural lands and uncontrolled stormwater runoff from the Upper Swatara Creek have seriously impacted Sweet Arrow Lake. In 1989, this watershed was targeted by the Chesapeake Bay Program as a high priority watershed. . Presently, there are 14 Chesapeake Bay cooperators in this watershed. Thirteen agricultural waste storage facilities were constructed and there are approximately 1800 acres farmed with implemented nutrient management plans. Today water tests show vastly improved water quality. Sweet Arrow Lake recently became the County's first county park. Plans for recreational activities include facilities for swimming, fishing and boating.

### **Mahantango Creek and Wiconisco Creek Watersheds(includes Deep/Pine Creeks) (Subbasin 06C)**

Mahantango Creek and Wiconisco Creek Watersheds cover a 495 square mile area on both sides of the Susquehanna River. The subbasin includes several major tributaries on the east side of the Susquehanna River, (East) Mahantango Creek, Wiconisco, Armstrong Creek, and Powell Creek, and one major tributary on the west side (West) Mahantango Creek. The subbasin has the typical Appalachian Mountain region topography with mountains forming its northern and eastern boundaries. Narrow valleys between these northeast-southwest trending ridges have medium size creeks flowing towards the Susquehanna River and contain the best agricultural lands.

The Mahantango Creek (East) Watershed is approximately 164 +/- square miles located within Schuylkill county and portions of Northumberland and Dauphin Counties. The headwaters of the Mahantango are located in Schuylkill County which then flows into Northumberland and Dauphin Counties. The land use within the Mahantango Creek Watershed is largely dominated by agricultural activities, with small rural towns, mainly farms and small single-family dwellings. Due to the large amount of farmland, livestock operations, and other agricultural related activities there are large amounts of non-point source pollution affecting the watershed. The Mahantango Creek (East) has historically been degraded due to siltation from agricultural activities and has been evaluated under the Unassessed Waters Program and subsequently has been listed on the DEP's 303(d) list as agriculturally impaired due to the problems from agriculture.

The Wiconisco Creek flows through a sparsely settled rural area with several boroughs and villages. Its watershed is affected by a combination of nonpoint and point source discharges, including municipal waste, farmland runoff, on-lot septic systems and abandoned mine drainage.

The eastern third of the subbasin is in the Anthracite (67e) coal subecoregion. This valuable "hard coal" in Dauphin, Schuylkill and Northumberland Counties was extensively mined for over 150 years and lead to much of the settlement in the eastern subbasin. Surface mining was also prevalent through the coal basin. The coal fields have been largely depleted of the easily obtainable coals and mining has declined significantly. Most of the mines were abandoned and



discharge huge quantities of water polluted with iron, aluminum, and often acid into the receiving streams.

## **STATEWIDE BAY STRATEGY and TARGETED BMPS**

In the document, “ Cost Effective Strategies for the Bay” the Chesapeake Bay Commission evaluated a list of 34 nutrient reduction practices and identified the top six best management practices that have been identified as those practices that will deliver the largest nutrient and sediment load reduction for the least cost. The identified practices are:

1. Wastewater Treatment Plant Upgrades – Widespread utilization of advanced nutrient reduction technology at wastewater treatment plants.
2. Diet and Feed Adjustments – Commercial testing and application of diet and feed changes which increase animals’ ability to utilize nutrients, thereby reducing the nutrient content of manure.
3. Traditional Nutrient Management – Broad scale coverage of agricultural lands in Nutrient Management Plans (NMP), thereby closely matching fertilization application rates with crop needs.
4. Enhanced Nutrient Management – Reduced application of fertilizer to cropland beyond NMP levels, with the goal of maintaining yields while more closely matching application rates to crop nutrient requirements.
5. Conservation Tillage – Enhanced used of conservation tillage in order to minimize soil disturbance and associated erosion and leaching.
6. Cover Crops – Enhanced adoption of late cover crops and use of early cover crops to absorb excess nutrients in the soil.

The Commission also reiterates that this is by no means an all inclusive list. There are many well-proven practices already in place, and there are other innovative and well-targeted practices that warrant consideration and funding. Since 1989, the Chesapeake Bay Program has assembled a full range of nutrient and sediment reduction measures as part of its mission to accomplish its ultimate goal of restoring the Bay.

It is important to mention that pollution contributions from urban areas and development where also given consideration. Yet none of the measures to deal with the impacts of development are on the list of most cost/effective actions to help meet the 2010 nutrient goals of the Chesapeake Bay Agreement. This is essentially because corrective actions in urban and suburban areas are costly. Specifically, the job to reduce stormwater impacts from developed land is complex, likely to be expensive, difficult to measure and effective only over the long-term.

## **COUNTY IDENTIFIED WATER QUALITY PROBLEMS**

Sediment from construction sites, agricultural and timbering operations: Land development can produce uncontrolled runoff of stormwater directly to streams. Soil erosion and sedimentation are accelerated because of the disturbance of stabilized soil. Excavation, construction, subdivision and other activities associated with urbanization all expose erodable soil. The typical construction site erodes at a rate of up to 100,000 tons per square mile per year. This rate is 200 times greater than erosion from cropland and 2000 times greater than erosion from woodland. For most earth moving activities (including timber harvesting operations) an erosion

and sedimentation plan is required to be on site and is expected to be fully implemented. Likewise, in order to be in compliance, agricultural operations area required to have implemented and updated conservation plans. Agricultural crop producers are encouraged to utilize tillage practices that leave the most surface residue and promote the use of cover crops in the rotation where the ground would otherwise be left open. The most effective method of controlling sediment pollution is the implementation of best management practices as required components of conservation plans and erosion and sedimentation plans for construction and timber harvesting operations.

Nutrient runoff from agricultural operations: Agricultural lands account for more than a quarter of the land area in the County and contribute more nutrients as nonpoint source pollution than any other land use. Over application of fertilizers in conjunction with manure is the primary cause of nutrient overload in local streams and groundwater. The goal of nutrient management is to provide crops with enough nutrients – nitrogen, phosphorous, and potassium- to produce optimum yields, while attempting to prevent excess nutrient runoff from entering waterways. With the financial and technical supports provided through various state and federal programs, farmers can develop and implement sound conservation and nutrient management plans.

Sediment and mineral deposition from acid mine drainage: Acid mine drainage (AMD) from abandoned underground and surface coal mines was identified as a major pollution source in several of the County's watersheds. Schuylkill County bears the scars of over 150 years of surface and underground coal mining activities. Numerous unreclaimed open surface mines, coal refuse, culm banks, and mine pits divert surface water into the large underground mine pools. AMD causes high levels of metals and low pH in tributaries and streams. Deep underground tunnels systems extend for miles. These abandoned tunnels are filled with water and many form surface discharges. Many of these tunnel discharges are very large and are responsible for much of the water quality impairment in the region. In areas of historic mining, vegetation, soil, and rock layers (overburden) were stripped away to expose the coal vein. In many cases, this overburden was stockpiled adjacent to the mining operation and remains there still today. These spoil piles are a source of coal fines or culm that, if not properly contained, can runoff into nearby streams covering stream bottoms which serve as a habitat for macroinvertebrates. Slow but steady progress is being made as mine land reclamation projects are funded and completed. Local watershed organizations have made significant impacts on many small tributaries with the installation of acid mine remediation projects.

Stormwater: Schuylkill County government is in a unique position as it administrates zoning or subdivision and land development for more than half of the local municipalities. Stormwater management and flood and erosion control along Schuylkill County's creek and stream corridors are linked to upstream land development practices. Future development of residential, commercial, industrial and institutional uses may result in increased discharge rates into these creeks during and following major storms. The county, with funding assistance from the Pennsylvania Department of Environmental Protection is encouraged to initiate watershed studies with the participation of relevant municipalities. These studies should focus on potential effects of land development upon discharge rates into creeks and streams, and should lead to model subdivision and land development regulations to assure that developments use the best available technology to minimize off-site stormwater runoff, increase on-site infiltration, minimize off-site discharges of pollutants, and encourage natural filtration functions. It is essential that local land development regulations be based on watershed wide considerations.

## **INPUT from COUNTY and PARTNERING AGENCIES**

The Schuylkill County Conservation District has a 55 year tradition of working with its cooperating agencies to oversee the implementation of a wide variety of natural resource conservation programs including those aimed at reducing soil erosion and nutrient management. The following is a brief summary of on-going, continued and proposed programs with those partnering agencies. The District will continue to combine the cooperative and unified efforts among agencies to achieve maximum results while considering that funding restraints and limited staff are common and constant concerns among the partners.

**USDA Natural Resources Conservation Service (NRCS):** The NRCS provides technical and financial assistance to protect and improve the soil, water, air, plant and animal resources of Schuylkill County. The service is provided through a Cooperative Working Agreement between the Schuylkill Conservation District and NRCS. During 2009, NRCS worked with Schuylkill County farm operators to develop 81 conservation plans. The plans address 3,227 acres. The NRCS provides financial and technical assistance for the installation of a variety of Best Management Practices (BMPs) through several Farm Bill Programs such as the Environmental Quality Incentives Program (EQIP) and the Agricultural Management Assistance Program (AMA). In 2009, 22 contracts valued at over \$306,000 were obligated through these programs to landowners in Schuylkill County. The Chesapeake Bay Watershed Initiative (CBWI) became available to landowners in Schuylkill County during 2009. CBWI provides technical and financial assistance to agricultural producers to implement conservation practices to minimize nutrient and sediment losses in order to restore, preserve, and protect local water quality and the Chesapeake Bay. It also offers opportunities to implement core conservation practices on the farm, including erosion and sediment control, nutrient loss reduction, and stream corridor protection. In 2009, NRCS received 31 applications, resulting in 12 contracts valued at over \$265,000. The assistance provided by NRCS and the decisions made by the operators of county land will benefit the general public through reduced sedimentation of waterways, dams, reduced flood damage and improved soil quality.

**USDA Schuylkill County Farm Service Agency (FSA):** FSA administers Federal Farm Programs. Farm programs are designed to assure a stable food supply at reasonable prices. Several of these programs promote the conservation of natural resources. The Conservation Reserve Program (CRP) provided \$619,151 in rental payments to farmers in return for devoting cropland acres to conserving uses and paid \$21,412 to assist in the cost of seeding acreage to suitable grassland or tree cover. Sportsmen and others benefit from this approximate 7,248 acres of land which provide a multitude of benefits in preventing soil erosion and improving water quality.

**Penn State Cooperative Extension:** Schuylkill County Cooperative Extension's mission is to provide researched based information to the residents of the county through its informal education program. The main programs conducted include agriculture, family living, 4-H youth and development. In conjunction with District and NRCS staff the Extension agronomy, livestock and horticulture agents are planning to continue to conduct education and outreach programs on subjects such as no-till farming, horse pasture management, cover crops for field and vegetable crops, nutrient management and soil health.

**The "AG TEAM":** This committee is comprised of staff and representatives from the District, Natural Resource Conservation Service, Penn State Extension and the Farm Service Agency that are responsible for programs involving assistance, education and outreach for the

agricultural community, wildlife and forestry. Some of the collaborative efforts of the AG Team have been educational programs such as Ag Day, workshops and field demonstrations such as no-till and covercrops meetings and the Hay/Forage Field Day.

**Watershed Associations:** Presently, there are six active watershed associations in Schuylkill County. Five of the six watershed associations are focused on watersheds in the Susquehanna River Basin. These watershed associations are involved in many activities such as water testing, fish habitat improvement, water quality improvement projects and educational outreach.

**USDA Pocono Northeast Resource Conservation & Development Council:** The NE RC&D Council encourages local units of government and nonprofit organizations to develop programs to improve their resources. The Council can help secure technical and financial assistance in the form of grants, loans and other funding. The NE RC&D Council takes an active role in demonstrating emerging activities, addressing critical issues and promoting technology not widely used in the community.

**Schuylkill County Conservancy:** The goals of the Conservancy are: 1) Preserve farmland, open spaces, and natural resources of Schuylkill County through the use of conservation easements and other mechanisms and strategies, 2) promote the conservation and wise management of forests, wetlands, streams, open space, wildlife, and other natural resources, 3) promote appreciation for the county's natural and rural heritage, 4) work with landowners, municipalities, developers, and other stakeholders to promote land use planning and sustainable growth that protects natural resources and 5) promote appreciation of historic sites and structures.

**Schuylkill County Planning and Zoning:** For municipalities in the County that have local zoning, adoption of agricultural zoning is ultimately the responsibility of each municipality. However the County, with zoning jurisdiction over approximately half of the county's municipalities, can lead the way by adopting these zoning provisions for county administered zoning. In addition, the county can also assist local municipalities by developing model ordinances and providing technical assistance to municipalities that are exploring zoning alternatives. The District will continue to encourage the County and townships to plan and implement Stormwater Control Plans.

**Schuylkill Chamber of Commerce:** During 2009 the Chamber of Commerce joined forces with the Conservation District, NRCS, FSA, Penn State Cooperative Extension and Schuylkill County's VISION to form the Schuylkill County Agribusiness Committee. The purpose of the Agribusiness Committee is to help promote and support local agriculture, and to inform the non-ag community about the importance of agriculture. Agriculture is the #1 industry in Schuylkill County, and local producers take their responsibilities seriously. They are not only concerned with making sure that the food they produce is safe, but that they maintain the County's natural resources as well. As more and more people move away from the farm, it not only puts more pressure on those remaining in the industry but it also causes a disconnect. The Agribusiness Committee was formed to make sure that the general public understands all that the ag community is doing and to encourage support for local agriculture. One of the first projects of the committee was to develop a Schuylkill County Farm Map to help consumers locate farmers who are selling retail products. Along with the map, the Agribusiness Committee is planning to sponsor some promotional events to urge consumers to visit more farm markets throughout the growing season.

**Eastern PA Coalition for Abandoned Mine Reclamation:** EPCAMPR has become well-known and respected for its support for land reclamation efforts and support for land reclamation in the Eastern Coalfields represented by Board of Trustees comprised of conservation districts, cooperating agencies and related organizations partnering to reclaim PA's abandoned mine lands and impact waterways degraded by abandoned mine drainage.

**Additional Partners:** Schuylkill County Office of Solid Waste and Resource Management, Department of Conservation and Natural Resources, Bureau of Forestry: DCNR, PA Fish and Boat Commission, PA Game Commission, Department of Environmental Protection and PA Department of Agriculture

**Other groups:** Ducks Unlimited, Pheasants Forever, Schuylkill County Sportsman's Association, and National Wildlife Turkey Federation

## **SCHUYLKILL CONSERVATION DISTRICT (SCD) PROGRAM INPUTS**

District staff in the various program areas as well as partnering conservation agencies will continue to work to improve the environment, promote the conservation of natural resources and improve water quality. Sediment and nutrient reduction to improve water quality have been important goals of the Schuylkill Conservation District and significant progress has been made in those areas as a result the efforts by staff in the various program areas of the Schuylkill Conservation District. It is expected that if staffing of the Schuylkill Conservation District remains at its present level these positive results will continue.

The SCD plans to utilize a complement of existing and newly developed BMPs to achieve significant nutrient and sediment reductions. These BMPs focus on nutrient management and an array of conservation practices to improve water quality while protecting the soil and natural resources. Working cooperatively with partnering agencies, townships, municipalities and the agricultural community to achieve these reductions is an important part of the District's strategy.

## **Erosion and Sediment Pollution Control Program (Conservation Program):**

The Erosion and Sediment Pollution Control Program (Conservation Program) is probably the most visible and proactive non-agricultural anti-sediment program in the County. Mining, agriculture, and land development have all affected the natural landscape and resources of the County. These valued land and water resources continue to be the subject of the District's efforts to "minimize the potential for accelerated erosion" and to "protect, maintain, reclaim, and restore the water quality" of "Waters of the Commonwealth" in compliance with the Pennsylvania Clean Streams Law and the Federal Clean Water Act.

Chapter 102, Erosion and Sediment Control, of the Pennsylvania Code, and the Clean Streams Law require that anyone proposing earth disturbance activities must implement effective controls known as Best Management Practices (BMPs) to minimize the potential for accelerated erosion and sediment pollution. In 2009, the Schuylkill Conservation District Staff performed 181 Erosion & Sediment Control Plan technical reviews. These plans were for projects encompassing a total of 1,792 acres, of which a total 545 acres were proposed to be disturbed. The Conservation Program staff also administers the National Pollutant Discharge Elimination System (NPDES) Program for stormwater discharges associated with construction activities. A

total of 24 General and 3 Individual NPDES Permit applications were processed by the Schuylkill Conservation District in 2009.

The Conservation Program staff works daily with numerous engineers, landowners, municipal officials, contractors, as technical assistance and educational outreach continue to be an important part of the program. Several educational programs on Schuylkill County Soils, Chapter 102, and the Clean Streams Law were presented to students at the Heavy Equipment Operator School throughout the year, and an Erosion and Sediment Control Bus Tour for Teachers highlighting various sites of earth disturbance and BMP installation in the County was conducted.

## **Watershed Programs:**

Under the direction of the watershed specialist, the Schuylkill Conservation District continues to work diligently with the local watershed associations and other conservation associations to protect and improve local watersheds. The District is working with the watershed associations on such projects as: abandoned mine drainage (AMD) remediation, streambank stabilization, fish habitat improvement, stream cleanups, educational workshops/outreach events and displays. The District administers the Coastal Nonpoint Pollution Program (CNPP) which provided nonpoint source pollution education and outreach in the Upper Schuylkill River watershed.

The following is an overview of the non-ag BMPs and treatment systems that have been installed in Schuylkill County's Susquehanna River Watershed.

### **Upper Swatara Creek Watershed**

Watershed Association: Northern Swatara Creek Watershed Association

TMDL: Yes

EPA Section 319 Watershed Implementation Plan: Yes

#### Treatment Systems:

Tracy Airhole Discharge Treatment System (Good Spring Creek)

Indian Head/Clinton Discharges Treatment System (Middle Creek)

Orchard Limestone Drain Treatment System (Lower Rausch Creek)

I81 Exit 104 Wetlands Treatment System (Lower Rausch Creek)

Martins Run Diversion Well (Good Spring Creek)

Lorberry Diversion Wells & Wetlands (Lorberry Creek)

Newtown Diversion Wells (Headwaters Swatara Creek)

Hegins Run Limestone Drain (Headwaters Swatara Creek)

Hegins Run Aquafix (Headwaters Swatara Creek)

### **Catawissa Creek Watershed**

Watershed Association: Catawissa Creek Watershed Association

TMDL: Yes

EPA Section 319 Watershed Implementation Plan: Yes

#### Treatment Systems

Audenried Mine Tunnel Discharge Treatment System (Catawissa Creek)

Oneida #1 Mine Tunnel Discharge Treatment System (Sugarloaf Creek)

Oneida #3 Mine Tunnel Discharge Treatment System (Tomhicken Creek)

### **Mahanoy Creek Watershed**

Watershed Association: Mahanoy Creek Watershed Association

TMDL: Yes

EPA Section 319 Watershed Implementation Plan: No

Development of a Rivers Conservation Plan

Treatment Systems

Bolich Wetland (Main stem Mahanoy Creek)

### **Tri-Valley Watersheds**

(Pine Creek & Mahantango Creek Watersheds)

Watershed Association: Tri-Valley Watershed Association

TMDL: Yes for Pine, Hans Yost & Rausch Creeks

EPA Section 319 Watershed Implementation Plan: No

Treatment Systems:

Buck Mountain Diversion Well (Hans Yost Creek)

### **Wiconisco Creek Watershed**

Watershed Association: Wiconisco Creek Restoration Association

TMDL: Yes

EPA Section 319 Watershed Implementation Plan: No

Treatment Systems:

Porter Mine Tunnel Discharge Treatment System (Headwaters Wiconisco Creek)

Watershed restoration, protection, and enhancement are critical components of improving, restoring, and maintaining the quality of life in Schuylkill County.

### **BEAR CREEK FESTIVAL**

The staff of the SCD is committed to educating the public on the importance of water quality and the value of watershed protection and conservation. The Bear Creek Festival is a collaborative effort of the entire staff of the Schuylkill Conservation District. Over 2,500 people attended the 8<sup>th</sup> Annual Bear Creek Festival hosted by the Schuylkill Conservation District in 2009. During this event, the SCD educates participants on a variety of environmental themes including watershed protection and enhancement, non-point-source pollution prevention, biodiversity, sustainability, and toxics and pollutants reduction in the environment. The SCD provided speakers who discussed Acid Mine Drainage (AMD) remediation, agriculture pollution prevention, non-point source pollution reduction activities for households, water conservation, agriculture education, urban sprawl, community revitalization, and various other topics that relate to watershed health. Other watershed education related programs are conducted throughout the year as tours, presentations and teacher workshops.

### **Parks and Recreation Program:**

This program is the newest team member of the Schuylkill Conservation District. This program was officially formed in 2005 when a coordinator was appointed to administer the program. The key role of this program is to promote the establishment, protection, and development of the county-wide permanent open space system and to provide support to local municipalities in planning for open space, parks and recreation in their communities. In 2001, Sweet Arrow Lake

became the first county park when the County acquired the 184 acre site including a 60 acre lake. Under the direction of the Parks and Recreation Supervisor, major improvements have been made to the facilities at Sweet Arrow Lake Park. The Clubhouse has been totally renovated and is truly a unique and desirable facility for all kinds of activities. Many of the larger projects have been completed by the Pennsylvania Conservation Crew. The number of visitors to the Park for 2009 is estimated to be about 32,000. The number of people reserving the rental facilities was over 11,000. The park not only provides an affordable rental facility, but it also provides fishing, hiking, boating, and the whole natural experience in general.

## **Environmental Education:**

“Awareness leads to appreciation and actions to help the environment” is the main goal of the environmental education program. In 2009, 177 programs for 34,222 participants were presented for people ranging in age from grade school to grandparents. The SCD Environmental Education Coordinator provides a wide range of environmental education outreach throughout the County including classroom instruction, nature walks, youth field days, seedling sale, publishing the newsletter, and managing the SCDs website. The “Envirothon” is a county-wide contest for over 300 young people representing middle and high schools interested in nature and the environment. Subject areas tested include: soils, forestry, water quality, conservation and current environmental issues. Workshops and in-services for teachers are held to heighten awareness in the education community of the many resources and agencies available for programs and field studies. The “Seedling” newsletter has expanded to journal format to bring the public more news and information. It is seen as an important source of locally-led conservation news. A plan for environmental education and outdoor recreation development was created to assist the Pine Grove Landfill in its quest to utilize almost 160 acres of fields, forests, and water habitat into a nature facility available to the public. This is a multi-year development project and will continue once the landfill closes.

## **Nutrient Management (Act 38):**

The Schuylkill Conservation District administers the State of Pennsylvania’s Nutrient Management Program (Act 38). Improvement of water quality is the goal of this program. Schuylkill County currently has 26 farms with active nutrient management plans on file at the Conservation District. Eight of these farms are CAFO/CAOs (Concentrated Animal Feeding Operations/Concentrated Animal Operations), one is a CAFO/VAO (Volunteer Animal Operation), and ten are CAOs. All of these farms are regulated by the Act 38 Nutrient Management regulations, and therefore are required to have an Act 38 nutrient management plan that is reviewed and approved by the Conservation District. The other seven farms have volunteered for the program in an effort to efficiently manage their nutrient resources, which can save money and protect water quality. All farms regulated by Act 38 are required to have a up-to-date Conservation Plan to comply with Chapter 102 Erosion and Sediment Control regulations. These plans are required to be updated every 3 years and inspected annually.

## **Farmland Preservation:**

In Schuylkill County, as of 2009 the Farmland Preservation Program has enrolled 91 farms, comprising 9,800 acres. Annual follow-up inspections are conducted on participating farms to ensure that conservation plans are implemented and BMPs are maintained. Unplanned urban and suburban sprawl generally creates more impervious areas which results in more runoff to



area streams. Preserving farmland and conserving open-space is an important mission of the District.

## **Dirt and Gravel Road Program:**

The District administers the “Dirt and Gravel Road Program”. The goal of this program is to improve gravel roads reducing erosion, runoff and dust. The Pennsylvania State Conservation Commission provides training and funding to local road owning entities to mitigate sediment pollution to streams originating from dirt and gravel roads. The conservation district works with local road-owning entities, usually townships, to develop a work plan to correct verified pollution problems on unpaved roads. Townships are required to attend a two-day Environmentally Sensitive Maintenance (ESM) of Dirt and Gravel Roads Training to be eligible to apply for funding. Projects completed in 2009 were located in Branch Township, East Brunswick Township and Sweet Arrow Lake Park.

## **Chesapeake Bay Program**

At present there are over 50 Schuylkill County farmers under Chesapeake Bay Contracts. There are over 9,200 acres in the county that are being farmed following a voluntary Nutrient Management Plan implemented under the Bay Program. These plans are designed to maximize manure nutrients for crop use and minimize environmental impacts.

Non-point source nutrient pollution has been identified as a major cause of pollution impacting water quality. Animal and commercial fertilizers can pollute local waterways if applied in excess. Improper fertilization of residential lawns and gardens, malfunctioning septic systems, and industrial activity can also affect water quality. Cooperating farmers in the Chesapeake Bay Program are doing their part to reduce excess nitrogen and phosphorus in agricultural runoff from entering local waterways and eventually the Bay.

A wide variety of constructed BMPs have been installed including; animal waste facilities in conjunction with implemented conservation and nutrient management plans (soil tests and manure analysis), streambank fencing and crossings, mortality composters, pasture management, barnyard and runoff controls, heavy use area protection, grassed waterways and diversions, roof runoff management and stormwater control structures. These agricultural BMPs have become the common or traditional tools used to treat water quality and nutrient management problems assessed on individual farmsteads.

### **Future challenges: Increase nutrient and sedimentation reduction with less funding and costshare monies.**

Presently, there is one full-time Chesapeake Bay Coordinator. It is understood that the proposed implementation plan is a dynamic template that can and will adjust to changes in available funding, state regulations, available assistance with partnering staff/agencies and program mandates. Presently, the available costshare funding is extremely limited for landowner BMP projects in the Chesapeake Bay Program. However, there is still much that can be accomplished in the effort to continue to improve water quality through, educational activities, demonstration projects, pilot projects and by providing unified coordination with partnering agencies.

As part of the Schuylkill County Bay Strategy, the Conservation District has focused on providing assistance to landowners in order to achieve compliance with the Clean Streams Law. With increased emphasis placed on compliance to regulations, enforcement, and the potential for incurring penalties for non-compliance, the District will continue to assist farmers and landowners with implementing conservation, nutrient and manure management plans. Agricultural operations are required to implement a conservation plan (or agricultural erosion and sedimentation plan) and if manure is used on the operation, a nutrient management plan or manure management plan must be followed. Conservation plan implementation has the potential to have a considerable impact on erosion and nutrient reduction. Some conservation plans may call for field BMPs to be installed or constructed before the conservation plan can be fully implemented. Farmers receiving financial costshare assistance will be encouraged to construct these BMPs and therefore will be able to successfully implement their conservation plans. Usually these constructed practices require designs and engineering calculations in order to be installed according to NRCS standards and specifications and to meet the PA Technical Guide. Farmers require technical assistance to be sure that these BMPs are installed correctly. Many farmers who have already installed conservation practices and BMPs would like to maintain them so they can function as they were designed. BMPs are built with a certain "life expectancy" and occasionally require repairs and maintenance in order to function properly. Farmers are willing to leave these BMPs in place in order that their conservation plan remain fully implemented but may require financial assistance to make repairs. Some BMPs may need to be re-evaluated and upgraded if there has been a change in the landuse that impacts that BMP. Usually these constructed practices require designs and engineering calculations in order to be installed according to NRCS standards and specifications and to meet the PA Technical Guide. Farmers require assistance to be sure that these BMPs are repaired or installed correctly.

"Special project" funding is available through the Chesapeake Bay Program to landowners who need costshare assistance in-order to construct or repair field practices or BMPs as part of their conservation plan implementation. Presently, there are no programs to assist with the installation of "small" projects and practices that may be called for in a conservation plan or farmers may not qualify for other costshare programs because they are not given a high priority. Additionally, there are no available programs to assist with the repair or installation of formerly constructed BMPs projects and practices that may be called for in a conservation plan. Practices installed that are beyond their "life-expectency" or out-dated may require maintenance or repair in order to continue to be an effective component of a conservation plan. Farmers need technical and financial assistance to maintain and repair BMPs that are not functioning as designed and maybe having a negative impact on soil erosion or water quality.

In addition to providing "constructed" BMPs, increased emphasis will be placed on "soft" or non constructed BMPs such as good conservation and erosion control practices that provide a protective soil cover, reduce surface water runoff and sedimentation and increase infiltration. Cropping systems that maintain plant cover add to the productivity of the soils. On pasture and hayland, deferred grazing and proper grazing and the use of grasses and legumes help to reduce erosion, provide nitrogen and improve tilth. Contour farming and terraces, no-till, minimum, and conservation tillage, and the use of cover crops and crop residue also help to increase infiltration and reduce the hazard of erosion.

A "Local Workgroup" made up of AG TEAM participants (NRCS, SCD, FSA, Penn State Extension), representatives from the SCD Board of Directors and other interested people met to discuss, identify and prioritize resource concerns and funding priorities for Schuylkill County.

The group also discussed the resource concerns and their implications in relation to the Chesapeake Implementation Strategy and important issues resulting from EPA's latest proposals.

The following are a list of resource concerns identified for Schuylkill County (not in order of importance): waste storage on livestock operations, nutrient management, overgrazed feedlots and ACAs (equine operations), fencing livestock out of streams, farm lanes, invasive species (golden algae in SW PA), carbon sequestration/greenhouse gases, home horticulture (turf grass, lawn care), pesticides (right-of-way spraying), acid mine discharges/drainage, 911 spill signs, water quality, and stormwater on croplands (culvert pipes).

The participants ranked a list of categories pertaining to their importance for funding. The following is how the workgroup ranked the list (1 is highest importance):

1. Livestock, 2. Cropland, 3. CNMP (Comprehensive Nutrient Management Plan) writing, 4. IPM (Integrated Pest Management), 5. Irrigation, 6. Forestry, 7. Air Quality, 8. Wildlife, 9. Grazing, 10. Organic transition

While the District supports the research and development of alternative new technologies and methods to reduce erosion and nutrient pollution and will pursue possible funding and offer assistance wherever possible, the District also recognizes and emphasizes the need for the promotion and implementation of "basic" agricultural conservation and best management practices especially on small family farming operations. There is still a tremendous need for installed BMPs relating to manure management on smaller family farm operations. Best Management Practices on livestock operations to manage manure and BMPs on cropland to control erosion are considered to be the areas requiring funding and assistance.

**Schuylkill Conservation District  
Chesapeake Bay Coordinator Job Description  
Pennsylvania Chesapeake Bay Program  
(2010-2011)**

**Purpose**

The purpose of this position is to coordinate and apply the necessary resources, programs and funding available to implement the Schuylkill County Chesapeake Bay Tributary Implementation Plan.

**Duties and Responsibilities**

Administer the Chesapeake Bay Tributary Strategy Program by the following:

- Develop a county-wide Chesapeake Bay Tributary Strategy Implementation Plan following the criteria set forth by the Pennsylvania Department of Environmental Protection.
- Update the Implementation Plan at least annually to ensure it is consistently addressing Schuylkill County's most pressing water quality impacts.
- Administer several Best Management Practice (BMP) programs simultaneously.
- Administer all special project and grant funds received to implement the Schuylkill County Chesapeake Bay Implementation Plan.

- Maintain all record-keeping related to the Chesapeake Bay Tributary Strategy Program.
- Conduct follow-up reviews with contracted landowners to assure that planned BMPs have been installed on schedule; that any necessary contract revisions have been made; and that previously installed BMPs are being maintained.

Coordinate the implementation of the Chesapeake Bay Tributary Strategy Implementation Plan to ensure that the goals of the plan are accomplished annually.

- Develop BMPs and BMP programs to address Schuylkill County's water quality impacts.
- Request special project funds annually; or by supplemental allocations offered by the Chesapeake Bay Tributary Strategy Program to fund BMPs and BMP programs to address Schuylkill County's water quality impacts.
- Assist NRCS in implementing the Chesapeake Bay Watershed Initiative (CBWI) funding program (2009-2012)
- Write and submit grants to funding sources outside the Chesapeake Bay Tributary Strategy Program to fund BMPs and BMP programs to address Schuylkill County's water quality impacts.
- Seek out and identify potential landowners for participation in BMP programs to address Schuylkill County's water quality impacts.

Ensure that all BMPs are designed and installed to meet the Department of Environmental Protection (DEP) and/or the Natural Resource Conservation Service (NRCS) standards and specifications.

- Assist District Conservationist and Engineers with site inventory and evaluations, surveys and design of BMPs.
- Complete construction packages for review by NRCS.
- Complete bid packages and host contractor site showings for the installation of BMPs in the Chesapeake Bay Tributary Strategy Program and other costshare programs such as 319, Act 38 and EQIP as needed.
- Conduct construction inspections for BMPs on behalf of the project engineer as assigned in the project's Quality Assurance Plan for projects or BMPs receiving costshare monies from the Chesapeake Bay Tributary Strategy Program and other costshare programs such as 319, Act 38, EQIP and other NRCS projects as assigned.
- Complete all construction inspection notes and as-builts for BMPs and projects.
- Provide landowners and municipalities with technical assistance upon request.
- Assist Schuylkill Conservation District with construction of watershed projects.

Assist landowners with nutrient management and conservation planning by the following:

- Ability to pass and maintain Dual Public/Specialist Certification in accordance with Pennsylvania's Nutrient Management Act 38.
- Develop a nutrient plan for eligible landowners, in accordance with program rules and regulations under PA Act 38.
- Assist landowners with the interpretation and necessary revisions of nutrient management plans as necessary.
- Review and recommend for approval to the District Board Act 38 Nutrient Management Plans when submitted.
- Assist landowners with obtaining a Conservation Plan, Nutrient Management Plan (if required) or manure management plan.

- Assist NRCS with developing and implementing conservation plans for landowners.

Promote public awareness about water quality problems and solutions through education and outreach:

- Provide educational programs and information to landowners and the community on agricultural related topics such as BMP implementation, nutrient management, no-till systems, using cover crops and conservation planning.
- Assist partnering agencies with conducting educational programs relating to water quality issues.
- Distribute educational materials and information to landowners concerning programs, water quality issues and regulations.
- Pursue a working relationship with agencies such as; DEP, NRCS, Penn State Cooperative Extension, Farm Service Agency, County Departments, Municipalities, Local Environmental Groups, Watershed Organizations, etc to more effectively implement the Schuylkill County Chesapeake Bay Tributary Strategy Implementation Plan.

Coordinate sediment and nutrient reduction programs, strategies and projects with Conservation District staff and partnering agencies.

\* Coordinate with and provide assistance to the watershed specialist on water quality and stream restoration projects

\* Coordinate with environmental education coordinator and E & S staff to provide educational programs to youth and homeowners on the importance and significance of sediment and nutrient reduction.

\* Coordinate with watershed coordinator and work closely with other water quality and erosion and sedimentation staff to ensure the most complete and comprehensive Chesapeake Bay Tributary Strategy Implementation Plan is developed and implemented.

\* Provide education promotion and agency coordination: Coordinate partnering agencies involved in nutrient and sediment reduction to promote educational programs: nutrient management, no-till, cover crops, rotational grazing, pasture management and record keeping.

(Coordinate with Agronomy Extension Agent to conduct and promote educational programs and demonstration projects in the areas of pasture management (livestock and horse), cover crops, soil health, nutrient management.)

\* Work with local animal nutritionists, veterinarians, and County Extension agent to promote and provide educational materials on nutrient and mineral feed adjustments for livestock and poultry.

\* Coordinate efforts and network with other conservation districts to utilize the experience, expertise and resources of other district staff in conducting and promoting educational programs, assisting landowners and implementing best management practices to improve water quality by reducing nutrient and sediment loading.

\* Assist NRCS in farm and landowner evaluations for CSP program.

\* Work with NRCS to recommend conservation plans of participating farmers that may need to be updated or written. Encourage farmers to fully implement existing conservation plans

\* Assist with implementation of RC & D grant programs such as farm road improvements and promote innovative solutions to identified problems.

### **Additional Job Responsibilities**

The Chesapeake Bay Coordinator will perform additional job functions such as but not limited to:

- Create and balance yearly program budgets to meet audit and program inspection requirements.
- Complete and submit quarterly reimbursements for all programs and grants for which the Coordinator is responsible.
- Complete and submit monthly reports to the Board of Directors and DEP.
- Participate as a member of applicable committees.
- \* Investigate and follow-up on complaints involving agricultural operations, management of livestock and impacts on water quality. Provide assistance and education to all parties involved.
- \* Assist with Schuylkill Conservation District activities such as; Envirothon, Bear Creek Festival, etc.
- Assist with other non-funded programs such as; the Plan Development Incentives Program.
- Gain and maintain technical and educational knowledge by attending all applicable training and certification programs.
- Maintain current certifications and attend update trainings as necessary or required; Act 38, CCA, and pesticide.
- Acquire other certifications as necessary to promote professional experience; ie.conservation planning certification.

### **Reporting and Accountability of Accomplishments**

During the process of determining inputs and accomplishments in order to meet the nutrient and sediment reduction goals, partners, staff and other agencies expressed their concern over the reporting of results. The question of how all these accomplishments would be accounted for and who would be responsible for assembling the information was raised many times. The reductions that have been credited towards nutrient and sediment reduction may not actually be the total of all that has been done because each agency reports its own accomplishments to its own entity. The inability to collect and quantify results is not a new issue or concern and has been discussed for the past two decades. Some agencies may be able to share results but in most cases the data bases are inadequate or incompatible. Partner agencies should have the ability to provide input into a central source so that they may reported in a form that the “model” recognizes. The County agencies should also have access to the information that they are providing to aid in the tracking of progress and goal accomplishments. Without the ability for all agencies to report nutrient and sediment reduction to a common data base many of the accomplishments that should be given credit will continue to be overlooked.

## Conclusion

The Chesapeake Bay Draft Strategy specifically acknowledges that Bay restoration success “depends on a collaborative effort involving state and local governments, the private sector, non-profit organizations and the region’s residents.” Conservation Districts already coordinate the efforts of these groups and their activities. Conservation districts are poised to assist in the many aspects of the water quality restoration process beginning with the technical assistance they provide and ending with public education efforts on resource protection so residents within the watershed fully understand their impact on the environment and how they can engage in the Bay restoration process.

Despite limited funding, efforts to improve water quality on the local level, in the watersheds of Schuylkill County, have succeeded. Credit goes to the combined endeavors of volunteers, cooperators, watershed organizations and the diligence the Schuylkill Conservation District staff and the support and participation of partnering agencies to improve water quality over the past two decades. If more results are to be expected from local efforts then additional funding will be necessary. If funding remains status quo or is decreased, clean-up efforts will be severely compromised and it will become difficult to conduct “business as usual”.

In order to expedite local efforts resulting in achieved water quality goals then significant funding increases will be necessary to enhance efforts in Schuylkill County to execute a successful nutrient reduction program. If greater progress and results are expected from local efforts then additional personnel will also be necessary to assist in the development and implementation of Strategy goals ranging from technical assistance to the agricultural community, assistance with stormwater and development planning and public educational efforts.

Protection and restoration of the Bay are vital through pollution control, habitat protection, land and water conservation, and improved management of our natural resources. By virtue of conservation district’s role as the primary local technical assistance organization in the states in the Chesapeake Bay Watershed, the Bay’s cleanup will be contingent on strong conservation district participation in the process.

In conclusion, whether the issue is erosion and sedimentation control, stormwater, or agricultural best management practices, road improvements, watershed restoration projects, or educational efforts, conservation districts are intricately involved. The key factor, as already stated, is adequate funding to provide the guidance necessary to reduce water pollution in the Chesapeake Bay Watershed. Additionally, funding will have to become available to the agricultural community to implement the BMPs to reduce nutrients to the Bay. Without this funding, progress towards reducing nutrient and sediment runoff into the Bay will continue to be a very lengthy, continuous, and arduous process.

It is understood that the nature of the Implementation Plan is dynamic and may change focus and methodology as funding permits. The District will evaluate the Chesapeake Bay Implementation Strategy annually and submit applications for funding as it becomes available.

## References

Soil Survey of Schuylkill County

Chesapeake Bay Agricultural Nonpoint Pollution Assessment of the Catawissa Creek Watershed

Watershed Restoration Plan Catawissa Creek Portion of State Water Plan Subbasin 05E

Addendum to the Catawissa Creek Watershed Restoration Plan Addressing the TMDL

Watershed Restoration Action Strategy (WRAS) State Water Plan Subbasin 07D Swatara Creek Watershed

Northern Swatara Creek TMDL Watershed Implementation Plan

Swatara Creek Agricultural Nonpoint Source Nutrient Abatement Project

Watershed Restoration Action Strategy (WRAS) Subbasin 06C Mahantango Creek and Wisconisco Creek Watersheds (Susquehanna River)

Watershed Restoration Action Strategy (WRAS) Subbasin 06B Mahanoy and Shamokin Creek Watersheds (Susquehanna River)

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The Role of Production Agriculture in the Schuylkill County Economy:  
<http://agimpact.aers.psu.edu>

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Schuylkill Conservation District Strategic Plan

Cost Effective Strategies for the Bay – Smart Investments for Nutrient Reduction

U.S Geological Survey Water Resource Investigations Report 88-4087: Preimpoundment Hydrologic Conditions in the Swatara Creek (1981-1984) and Estimated Postimpoundment Water Quality in the Downstream from the Planned Swatara State Park Reservoir, Lebanon and Schuylkill Counties, Pennsylvania

Executive Summary of Pennsylvania's Draft Chesapeake Bay Tributary Strategy

Pennsylvania's Chesapeake Bay Tributary Strategy December 2004

Saving a National Treasure: Financing the Cleanup of the Chesapeake Bay

Citizens Guide to Soil Erosion Control - PACD

2009 President Obama's Executive Order 13508 "Chesapeake Bay Protection and Restoration"

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Fact Sheet: Chesapeake Bay Total Maximum Daily Load (TMDL), EPA 09/09/09