

Wyoming County Conservation District's "Chesapeake Bay Tributary Strategy"



Adopted 2/14/05

Robert K. Robinson, District Chairman

County Description

Wyoming County is a small, rural county located in northeastern Pennsylvania. The county is bisected by the North Branch of the Susquehanna River and is situated entirely within the Chesapeake Bay watershed.

The county contains 405 square miles of land and water resources. Of this total, 8 square miles is surface water, or 1.88% of the total area. The southwestern corner of the county is heavily forested and mountainous. Much of this section is public land managed by the PA Game Commission for wildlife and recreation. The borough of Tunkhannock, located at the junction of Routes 6 and 29, is the county seat.

According to the 2000 U.S. census, the population of Wyoming County was 28,020. This translates to 71 residents per square mile.

Agriculture and forestry played a primary role in the county's early development. These industries remain a strong part of the county's socio-economic structure. According to the 2002 National Agricultural Statistics Survey, there were 370 farms totaling 62,500 acres. The average farm contains 169 acres.

In 2001, there were 9,600 head of cattle, 1,100 sheep, and 200 hogs. There are no commercial poultry operations in the county. Due to its relatively large agricultural land base in comparison to the number of farm animals raised, there are currently no Concentrated Animal Operations located in Wyoming County.

Agricultural producers planted 7,600 acres of corn grain and 6,000 acres of corn silage in 2001. An additional 18,900 acres of hay/alfalfa and 500 acres of oats were also raised during that year.

Manufacturing is also an important part of the county's economy. The major employer in this sector is the Procter and Gamble Paper Products Company, which is located along the Susquehanna River near Mehoopany.

Maps and additional information regarding the geography, land use, and demographics of Wyoming County can be found in the appendix.



**Susquehanna River Winding
Through Wyoming County**

Non-point Nutrient and Sediment Sources

The following water quality concerns were identified by the District as contributing sources of non-point nutrient and sediment pollution to Wyoming County waterways:

Agriculture

1. Improper animal waste handling and utilization
2. Improper application of commercial fertilizers, herbicides, and pesticides
3. Unrestricted cattle access to streams and wetlands
4. Improper treatment of milkhouse wastewater
5. Unstable animal concentration areas
6. Improper field practices on highly erodible land
7. Poor use of cover crops
8. Low number of intensively managed rotational grazing systems
9. Unstable farm and cattle lanes
10. Inadequate buffers near environmentally sensitive areas
11. Operations without nutrient management and/or conservation plans

Rural Infrastructure

1. Poorly constructed and/or maintained dirt and gravel roads
2. Improperly functioning septic systems
3. Inadequate stormwater management
4. Inadequate land use planning and zoning
5. Increasing amount of impervious cover

Waterways

1. Excessive streambank erosion
2. Inadequate riparian buffers
3. Prior loss and/or degradation of wetlands
4. Flood plain encroachment

Resource Extraction

1. Improper E&S controls on logging and mining sites
2. Stormwater runoff from logging and mining sites

Construction Activities

1. Improper E&S controls on construction sites
2. Increased stormwater runoff

Urban and Suburban Runoff

1. Increasing amount of impervious cover
2. Higher peak stream flows
3. Increased use of lawn fertilizers
4. Poor stormwater management
5. Inadequate stream buffers

Current Program Participation

The Wyoming County Conservation District administers a number of government sponsored programs that are designed to protect water quality. These programs provide technical as well as financial assistance to municipalities and private landowners. We also partner with other state and federal agencies to increase our ability to resolve current resource concerns. The following is a list of programs that the District participates in to varying degrees:

Agriculture

1. Chesapeake Bay Program
2. Nutrient Management Program
3. Environmental Quality Incentive Program
4. Conservation Reserve Program
5. Conservation Reserve Enhancement Program
6. Wetland Reserve Program
7. PA DEP Streambank Fencing Program
8. Farmland Preservation Program
9. Wildlife Habitat Incentive Program
10. Agricultural Management Assistance Program
11. Grasslands Conservation Program

Rural Infrastructure

1. Dirt & Gravel Roads Pollution Prevention Program
2. Emergency Watershed Protection Program

Construction and Forestry Activities

1. Erosion & Sedimentation Control Program (Chapter 102)

Others

1. Growing Greener Grant Program
2. U.S. Fish & Wildlife Service Stream Improvement Grant
3. Environmental Education

Critical Water Quality Concerns

“Accelerated Streambank Erosion”



Unusually severe storms in recent years have caused an enormous amount of erosion and sedimentation along every stream throughout Wyoming County. This problem is perhaps the single greatest source of sediment that is sent to the Chesapeake Bay by the County’s many tributaries. It is difficult to quantify the amount of soil that has been lost, but it is safe to say that number is staggering. The cost to prevent further damage will also be staggering.

“Inadequate Stormwater Management”

Much of Wyoming County’s water quality problems stem from the slow adoption of stormwater and floodplain management plans by our local municipalities. Peak stream flows increase in proportion to human activities within the watershed, as does the frequency and severity of property damage. Without proper stormwater ordinances, we can expect property damage to get worse in the future, sediment loads to the Chesapeake Bay to increase significantly, and the cost of restoring the ecosystem to rise dramatically.



“Improper Farming Practices”



While past implementation of many best management practices have helped to improve water quality, nutrient and sediment pollution from agricultural operations remain a significant problem. Use of cover crops, no-till planting and rotational grazing is poor. Not all operations have approved conservation and/or nutrient management plans. Many miles of stream buffers need to be established. Some cropland has high phosphorus levels. A number of unstable animal concentration areas still need improvement.

“Substandard Dirt & Gravel Roads”

Wyoming County has a large network of dirt and gravel roads that are owned and maintained by local municipalities with small operating budgets. Many of these roads contribute large sediment loads to nearby waterways during every storm event. As a whole, the county’s dirt and gravel road system sends a tremendous amount of sediment to the Chesapeake Bay. Stormwater runoff from such roads also exacerbates streambank erosion by adding to peak stream flows. Local townships cannot afford to rectify these problems by themselves.



“Resource Extraction”



Resource extraction industries such as logging and mining are a significant part of Wyoming County’s economy. By their very nature, these operations cause a large amount of earth disturbance, which in turn can cause erosion and sedimentation if proper controls are not in place. Logging and mining can also increase stormwater runoff that directly causes further downstream erosion. Due to the remote locations of these operations, achieving compliance with Chapter 102 E&S regulations can be difficult.

“Increased Development”

Although Wyoming County’s population is relatively stable, our farms and forests are being converted to residential, commercial and industrial uses every day. This change in land use has the potential to offset past environmental gains made in agricultural non-point source pollution reduction through increased stormwater runoff and erosion, as well as reduced groundwater recharge. Some municipalities are reluctant to adopt planning, zoning and stormwater management ordinances. This situation is expected to continue for the foreseeable future.



Wyoming County's Tributary Strategy



To address the six identified critical water quality concerns, the Wyoming County Conservation District plans to continue our participation in those programs that in the past have shown measured improvements in water quality, embrace new and effective conservation strategies, strengthen our conservation partnerships with other government agencies and non-governmental organizations, and improve our environmental education and outreach efforts to the citizens that we serve. Many of the steps that we will need to take are outlined in the District's recently updated "*Strategic Plan*".

The following pages present a road map that will lead the District and our conservation partners in the direction of meeting our responsibilities to help achieve the *Chesapeake Bay 2010* goals for restoring the Bay:



North Branch Land Trust
11 CARVERTON ROAD TRUCKSVILLE, PA
(570) 696 5545 www.NBLT.org

1. Reduce Streambank Erosion

The District purposely listed streambank erosion at the top of our Tributary Strategy because we believe this is by far the single greatest source of sediment pollution to the Susquehanna River and the Chesapeake Bay. Recent storms have had a devastating impact on every stream throughout the county. Damage to private property has also been extensive.

While this problem will be very expensive to resolve, the District believe we are in an enviable position to achieve measurable reductions in sedimentation caused by streambank erosion. We recently received a \$750,000 grant through the U.S. Fish & Wildlife Service (USFWS) for streambank stabilization projects in the Bowman and Tunkhannock creek watersheds. An additional grant is also expected.

Through the USFWS grant, ten student interns were hired in 2004 to assess and prioritize problems areas in the two watersheds. These interns worked under the direct supervision of the District's Watershed Specialist, with oversight by the District Manager. Once the construction phase of the project begins, the District's Chesapeake Bay Technician is expected to provide quality assurance and technical support for each project.



A steering committee is currently in the process of selecting the highest priority sites for restoration. Once restoration of the priority sites is completed, the District expects to see a marked reduction in sediment contributions to the Bay watershed from these two sub-watersheds.

Assessments were also completed on the Meshoppen and Mehoopany creeks watersheds through Growing Greener and other grants. **According to the engineering firm of Borton-Lawson, “the main problem in the**

Mehoopany Creek watershed is streambank erosion”. The District believes this analysis could equally apply to every other stream within Wyoming County. No funding is currently available for streamside restoration projects in the Mehoopany/Meshoppen watersheds, as well many other smaller direct tributaries to the Susquehanna.

Streambank erosion is a monumental problem that has no easy or quick fix. The District has already taken the first important steps toward real progress. But we cannot go it alone. It will take a comprehensive approach to watershed management on the part of landowners, municipalities, planning officials, developers, government agencies and others before a permanent solution is realized.

Strategies to Reduce Streambank Erosion

- ✓ Enact stormwater management plans in every township (see section 2)
- ✓ Enact land use management plans in every township (see section 6)
- ✓ Complete 10,000 feet of streambank restoration
- ✓ Establish 1,000 acres of forested riparian buffers
- ✓ Implement farm Conservation Plans on 25,000 acres (see section 3)
- ✓ Upgrade 75,000 lineal feet of dirt and gravel roads (see section 4)

Funding Requirements to Meet Goals

From the strategies listed above, it is obvious that in order to reduce current streambank erosion levels, a comprehensive watershed management approach must be considered. Permanent stabilization of the county's many miles of stream corridors will not be possible unless every effort is taken to minimize peak storm flows. There is no doubt that poor land use practices within a watershed adversely impacts its receiving stream.

In the past, the cost to prepare and enact comprehensive stormwater and land use plans has been born by the local municipalities themselves. This perhaps explains why so few municipalities have implemented such plans. In order to entice municipalities to adopt stormwater management plans supplemental funding from other sources may be required. These issues are addressed in further detail in the following sections.

The District estimates that to restore 10,000 feet of severely eroded streambank will cost upwards of \$1 million dollars. Keep in mind that there are many more feet of stream corridors that are in need of repairs. So the overall costs to protect every mile of every stream in Wyoming County will be in the millions of dollars.

To establish 1,000 acres of forested riparian buffers it will be possible to utilize existing funding available through the USDA's Conservation Reserve Enhancement Program (CREP). The response from county landowners for the CREP program has been positive. To date, 60 landowners have offered to participate in the program. When establishing forested buffers (CP22), typically 100 containerized trees per acres are planted at a maximum allowable rate of \$14 per tree, which includes the installation of the required shelters. At \$1,400 per acre, the cost to establish 1,000 acres of forested buffers will be approximately \$1.4 million. Funding from non-profit organizations such as the Chesapeake Bay Foundation has also been used in the past to establish forested buffers.

The cost to implement farm conservation planning and upgrading substandard dirt and gravel roads are addressed in the following sections.

2. Promote Stormwater Management Planning

The District believes that the underlying cause of many of the water quality problems in Wyoming County stems from inadequate stormwater management planning and the reluctance of local townships to enact and enforce stormwater ordinances. Unless this situation is rectified, reducing non-point source pollution, particularly sedimentation is going to get even more difficult and more expensive.

Requiring local townships to enact proper stormwater management plans is just as important as requiring farmers to implement a conservation plan and/or nutrient management plan on their agricultural operations. **Therefore, the District recommends that a greater emphasis on stormwater management must be included in DEP's overall Chesapeake Bay Tributary strategy if we are ever going to achieve its lofty goals.**

In the previous section the District outlined our strategy to reduce streambank erosion and the resulting sediment loads to the Chesapeake Bay. However, the main recommendation included in the Mehoopany Creek Watershed Assessment completed by the engineering firm of Borton-Lawson stated the following:

The main problem in the Mehoopany Creek watershed is streambank erosion and its associated sedimentation and nonpoint source pollution. The problem sections of streams are recommended in the report for restoration using natural stream design concepts. However, if the watershed continues to change, the watershed and stream equilibrium will again shift and restoration projects based on current conditions of the watershed may not be acceptable for these new conditions. **Therefore, any watershed where stream restoration projects are implemented should have a stormwater management plan developed to maintain flows under present conditions.**

As we previously stated, the above by recommendation by Borton-Lawson can be applied to every other stream in Wyoming County.

Stormwater management planning has not been typically a District responsibility. However, if provided with adequate resources, the District could be in a position to assist the PA Department of Environmental Protection, the Wyoming County Planning Commission, and our local municipalities with the drafting and implementation of the necessary stormwater plans and ordinances.

Strategies to Promote Stormwater Management Planning

- ✓ Employ additional staff to coordinate countywide stormwater management efforts
- ✓ Conduct annual workshops for municipal officials on how to adopt and enforce stormwater management ordinances
- ✓ Coordinate stormwater planning efforts with the County planning office
- ✓ Expand public education efforts regarding the need for stormwater management
- ✓ Work with watershed associations and other citizens' groups to encourage proper planning and enforcement of ordinances



Storm damage from Hurricane Ivan

Funding Requirements to Meet Goals

Should the District become involved in taking the lead on stormwater management issues, it is clear that additional staff resources will be necessary. We project that at a minimum one additional full-time staff person could be employed to meet the above strategies. The projected cost to fill such a position with a modest operating budget would be approximately \$50,000 annually.

Additionally, local municipalities must be provided with financial assistance to formulate, adopt, and enforce strong stormwater management ordinances. The current threat to withhold liquid fuels funding unless a plan is adopted does not address the problem of how to pay for one in the first place. There are 18 townships and 5 boroughs in Wyoming County. A few of these have previously adopted stormwater ordinances. If each watershed still in need of a plan were granted \$50,000, the District believes this investment would be far less expensive than continually paying to repair massive stormwater damage that will only get worse as development and other land use changes occur.

3. Enhance Ag-Land Conservation Practices

The District began its participation in the Chesapeake Bay program in 1989. To date 35 cooperating landowners have completed CBP projects at a total program cost-share of \$783,284. Most of the best management practices that were installed included manure storage system, concrete barnyards, milkhouse waste treatment systems, surface water control structures, and roof runoff management systems. Each of the cooperating landowners also implemented approved nutrient management plans for their operations.

The District also assists the Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA) with the installation of various best management practices that are funded through several federal programs.



Art Novak Dairy Farm

Before – Spring 2001
Manure stored in and next to wetland
*Note unrestricted cattle access to wetland

After – Spring 2004
8.4 acres of wetland protected



While there are a number of landowners that remain interested in installing more “traditional” BMPs such as storages and barnyards, demand for these types of systems is clearly diminishing in Wyoming County. The District realizes that the time to switch our emphasis to other less costly BMPs is close at hand.

Strategies to Enhance Ag-Land Conservation Practices

- ✓ Complete 5 Animal Waste Management Systems (750 AEUs)
- ✓ Implement Conservation Farm Plans on 25,000 acres
- ✓ Implement Nutrient Management Plans on 4,000 acres
- ✓ Initiate rotational grazing systems on 300 acres of grassland
- ✓ Initiate no-till farming practices on 3,000 acres of cropland
- ✓ Enhance the use of conservation tillage on 8,000 acres of cropland
- ✓ Plant cover crops on 3,000 acres of cropland
- ✓ Install 1,000 acres of off-stream watering with fencing
- ✓ Install 100 acres of grass buffer
- ✓ Restore 50 acres of wetland/pasture
- ✓ Increase conservation education and outreach efforts to landowners

Funding Requirements to Meet Goals

Many of the above goals can be met with existing state and federal programs administered by personnel currently employed by the District, NRCS, and FSA – providing adequate funding is available.

Of course some practices are more expensive than others. We estimate it will cost \$200,000 alone to construct 5 additional animal waste management systems. Other practices such as writing conservation and nutrient management plans can be incorporated into existing staff workload.

Practices such as grass buffers, off-stream watering systems and wetland restoration can be included in current funding sources for the Conservation Reserve Enhancement Program (CREP).

Promoting good field practices such as no-till planting, conservation tillage, use of cover crops, and rotational grazing will take more of an educational effort than cost-share assistance. The District believes such an undertaking could by itself be a full-time job for a Chesapeake Bay Technician and/or Nutrient Management Specialist. Financial incentives for operators to convert to a no-till system or plant cover crops could help speed up the process. Providing landowners with just a \$5 per acre incentive to reach our watershed model goal of 7,824 acres of cover crops and 3,973 acres of no-till would cost \$58,985 initially. Assuming the \$5 per acre incentive would be paid annually just for the cover crop acreage, an additional \$39,120 would be needed each year.

In the past, additional funding and technical support has been provided by private organizations such as the Chesapeake Bay Foundation. CBF has helped the District establish 14,877 feet of riparian buffers and restore 61.5 acres of wetland pasture. This type of partnership can be an economically effective means of meeting the above goals.

4. Upgrade the County's Dirt and Gravel Roads System

The District began its participation in the Dirt and Gravel Roads Pollution Prevention Program in 1997. To date 51 sites have been completed which improved 64,302 lineal feet of road at a total program cost-share of \$408,663.34. An additional three sites are currently under contract.

This program is administered by the District's Watershed Specialist, with oversight by the District Manager and technical support from the District's Chesapeake Bay Technician. The Natural Resources Conservation Service and the PA Fish & Boat Commission assist the District with ranking sites and by providing design assistance.

The District believes the Dirt & Gravel Roads program is one of the most highly effective programs available to reduce sediment pollution to our streams. Proof of the program's ability to minimize erosion was obvious following the storm damage caused by Hurricane Ivan in September of 2004. Immediately after the storm the District assessed the damage caused by the unusually high runoff and determined that little or no sedimentation occurred at the improved sites. As a result, our local townships saved money and time by not needing to repair these previously problematic sites. Without the Dirt and Gravel Roads program, our townships could not afford to make these environmental and safety upgrades to their road system.



before/after – Bochnik Lane, Monroe Township

Strategy to Upgrade Dirt and Gravel Road System

- ✓ Complete an additional 75,000 lineal feet of dirt and gravel road improvements by 2010.

Funding Requirement to Meet Goal

To meet this goal, the District anticipates that an annual allocation of approximately \$100,000 over the next five years will be needed.

5. Enforce Erosion and Sedimentation Control Regulations

For many years the District has administered the Chapter 102 Erosion and Sedimentation as well as the National Pollution Discharge Elimination System (NPDES) programs. As a level II delegated District, we strive to achieve voluntary compliance with the appropriate Chapter 102 and NPDES regulations.

Complaints are received, assessed, investigated and resolved. We also receive, process, and review permit applications for E&S Control Plans and General and Individual NPDES permits associated with stormwater discharges. NPDES permit coverage is required for sites of 5 or more acres or (phase II) 1 acre with a point source discharge to a waterway. Permits are reviewed for administrative and technical completeness. NPDES permits now require post construction stormwater plans.



Improper road maintenance practices can be a significant source of sediment pollution

As land use continues to change throughout the county, proper erosion and sedimentation controls are vital to minimize sedimentation resulting from earth disturbance. Typical sources of sedimentation to county waterways are building and road construction, road maintenance, logging operations, and non-coal surface mining.

Strategy to Enforce E&S Regulations

- ✓ Continue to review permit application as required
- ✓ Continue to respond to E&S complaints in a timely manner
- ✓ Continue to conduct the District's annual Contractors' Workshop to inform builders, contractors, developers, designers, planners and township officials regarding the most current E&S regulations, techniques, and products
- ✓ Continue our partnership with the PA Fish & Boat Commission to achieve program compliance as soon as violations are reported
- ✓ Strengthen our relationship with the PA Dept. of Environmental Protection and the U.S. Army Corp of Engineers in order to obtain regulatory and legal back-up for those operations that refuse to achieve voluntary compliance
- ✓ Strengthen our relationship with the PA Department of Transportation to help assure that proper erosion and sedimentation control measures are undertaken during all road construction and maintenance projects
- ✓ Encourage all municipalities to inform the District of new earth moving projects
- ✓ Continue to provide technical assistance to landowners as requested

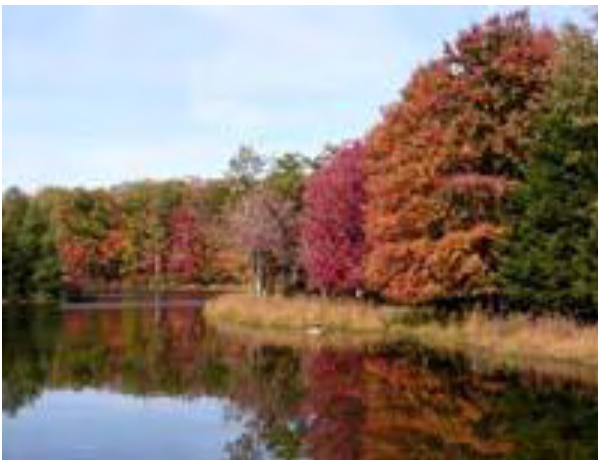
Funding Requirements to Meet Goals

Most of the above strategies can be funded through existing programs. However, as with other District programs, staff turnover due to low salary levels has been a chronic problem. This situation can make it difficult to maintain continuity and efficiency of program administration and enforcement. A way must be found to better compensate all District employees in order to attract and keep competent, qualified, and dedicated personnel.

6. Promote Sound Land Use Planning

If you ask the average citizen in Wyoming County why they like living here, you almost always get the same response – “I like the rural character and lifestyle that Wyoming County provides to me and my family”. The county’s scenic beauty, bountiful natural resources, and numerous outdoor recreational opportunities indeed make this a special place to call home.

Most residents have made it clear they don’t want the county to lose its rural atmosphere. However, on the local level little is being done to prevent that from happening. A number of Wyoming County municipalities still have not adopted modern planning and zoning ordinances. Local attitudes toward government regulations and property rights have in the past stifled efforts to enact comprehensive land use planning and zoning. Unfortunately citizens often don’t



realize or understand the need for controlling land use until it is too late.

Land use planning is not typically a Conservation District responsibility. However, as with stormwater management, many of the environmental challenges that we face today are the direct result of how humans have altered the watershed in the past. These challenges will only grow unless everyone takes a proactive approach to how the land is used in the future.

Strategies to Promote Land Use Planning

- ✓ Cooperate with the County Planning Commission in their planning efforts
- ✓ Continue assisting with the Farmland Preservation Program
- ✓ Promote the Forest Stewardship Program
- ✓ Conduct annual land use planning forums for municipal officials
- ✓ Continue our conservation partnerships with regional land trusts, watershed associations and other non-profit organizations

Funding Requirements to Meet Goals

Many of the above strategies can be met with existing staff and budget resources. However, as with stormwater issues, grants to cover land use planning costs would be a good incentive for local municipalities to undertake such efforts. Providing each of the county’s townships currently without a comprehensive plan with a \$10,000 grant to complete a comprehensive land use plan would cost in excess of \$100,000.

Some Final Thoughts

As we prepared this document, the District tried to look at how Wyoming County could best fit into the “Big Picture” that we envision for restoring the Chesapeake Bay. Obviously, the goals of our proposed tributary strategy are ambitious, but they are not unachievable. Reaching them will undoubtedly require resources and responsibilities that historically have been beyond the reach of most Conservation Districts.

Formulating the District’s Tributary Strategy for us was like playing a game of Jeopardy. We believe we have the right answers. The problem is they raise a number of thought provoking questions:



- ✓ Can the tributary strategy goals be achieved in a short five years? Can they ever be achieved?
- ✓ Will the District have adequate financial and staffing resources needed to meet the projected goals?
- ✓ Will the District be given enough “teeth” to implement the proposed solutions?
- ✓ Are all the District’s conservation partners willing to step up to the plate to get the job done through a joint effort?
- ✓ Is there the political will to finally require every municipality to enact and enforce comprehensive planning, zoning, and stormwater management ordinances?
- ✓ Is there the political will to stop further encroachment in our floodplains?
- ✓ Is there the political will to require every municipality, every business, and every property owner to install properly functioning wastewater treatment systems?
- ✓ Is there the political will to require every farmer to clean up their operations?
- ✓ How are we ever going to make each and every one of our citizens realize that their daily lifestyle choices in one way or another impact the Chesapeake Bay?
- ✓ How can we do a better job of teaching our children to become more environmentally conscious citizens in the future?
- ✓ Will “society” accept paying higher taxes and other costs to fund the proposed solutions?
- ✓ What will happen beyond the year 2010 if the strategy fails?

Stay Tuned...

In five years the Final Jeopardy category will be:

“A Restored Chesapeake Bay”

And the question may still be: “Will It ever happen?”