

Protecting Pennsylvania’s Rivers and Water: Tying It All Together—Where Are We Headed?

By Phillip W. Brath

Whether you like to fish, paddle, swim, or just sit on the shore, the beautiful streams and lakes of Pennsylvania provide a marvelous opportunity to enjoy nature. As beautiful as the waters are, those trying to preserve them report that Pennsylvania has some of the most polluted rivers and streams in the country. In response to these reports, the US EPA and Pennsylvania Department of Environmental Protection (DEP) are driving forward with a set of separate programs that are related in order to guide Pennsylvania down the road toward cleaner water and more comprehensive regulations. Let us look at the programs and then short summaries of where we may be going. Where we are going is opinion, based on the realities of our government’s processes and the evidence presented. For more complete information about particular programs, I encourage attendance at the various meetings throughout the Commonwealth that are being put on by the DEP and EPA.

In response to EPA’s increased activity around Clean Water Act enforcement, the DEP has enhanced enforcement of, and has been updating, its rules, standards, and regulations. The DEP’s State Water Plan of 2008 is intended to “integrate and leverage existing state and federal stormwater management regulations, policies, and requirements” through “appropriate legislation, regulation, and administrative changes.” The concept is to provide “an effective, straightforward, seamless stormwater management program that is blind to regulatory origin.” Some of the existing regulations include the Stormwater Management Act 167; Sewage Facilities Act 537; Municipalities Planning Code, Chapters 102 and 105; NPDES MS4; and, through EPA and DEP, established total maximum daily loads (TMDLs). Some of the current programs undergoing comprehensive

reviews and significant changes include:

- Title 25, Article II, Chapter 92a National Pollutant Discharge Elimination System (NPDES) program updates, including municipal separate storm sewer system (MS4)
- Title 25, Article II, Chapter 96 Water Quality Standards Implementation requiring TMDL development for various water courses in the state
- Title 25, Article II, Chapter 102 Erosion and Sediment Control, and Stormwater Management program updates (includes Best Management Practices, BMPs) In order to “bring people into compliance,” John Hines, deputy secretary of the DEP, has indicated several established regulations that are slated for increased enforcement and greater use, including:
 - Nutrient Trading Program through Pennsylvania Infrastructure Investment Authority (PENNVEST) and independent brokers
 - Title 25, Article II, Chapter 105, Dam Safety and Waterway Management
 - Title 25, Article II, Chapter 93, Water Quality Standards
 - Act 167, Pennsylvania’s Stormwater Management Act
 - Act 38, Pennsylvania’s Nutrient Management Act

To facilitate municipal compliance with the new rules and regulations, the state legislature is responding to concerns over legal aspects of funding and control of stormwater facilities and MS4 watershed programs by putting forward legislation for development for stormwater authorities (HB 1390). However, our commonwealth system of government presents challenges to creating legally binding coordinated solutions to watershed-wide issues.

One of EPA’s focus points is the NPDES Phase I and

Il programs, including the MS4 permit program. Over the next two years, EPA is planning on reworking this stormwater permit process, with specific attention to MS4 permits. EPA has announced its plans to strengthen national stormwater regulations by establishing a program that reduces stormwater discharges from new development, redevelopment, and existing developments. It is also considering expanding the regulated dischargers beyond the urbanized areas to include suburban and rural areas. Further, a single set of consistent requirements for all MS4s, in place of existing “Phase I” and “Phase II” rules, is being developed. The DEP has, in turn, added language to the Pennsylvania Chapter 92a standards that incorporates the “latest” EPA MS4 regulations. This will ensure that Pennsylvania’s rules and regulations will automatically incorporate the new EPA regulations when they are updated and keep Pennsylvania in compliance with federal rules.

On April 21, 2010, EPA announced a new set of permit conditions for the District of Columbia, requiring the District to continue improving its MS4 program. EPA’s announcement for the permit included the following steps that were not required by the old permit issued in 2004:

- “Implementing a sustainable and enforceable approach to promoting low-impact development and green infrastructure, including enhanced tree planting, green roofs, and water reuse onsite to slow down the rate of runoff from paved areas of the District”
- “Complying with strict discharge limits, and new performance standards requiring 90% onsite retention of storm flows at non-federal facilities for new development, redevelopment, and retrofit projects, to avoid pollutant runoff and stream damage”
- “Increasing monitoring of TMDL or ‘pollution diet’, for impaired waterways, including the Anacostia and Potomac Rivers, Rock Creek, and the Chesapeake Bay”
- “Controlling and reducing trash through enhanced street sweeping and implementing the Anacostia River TMDL for a ‘Trash Free Potomac’ by 2013”

This is just one example of how new EPA actions are consistent with its recently stated goals and its plans and efforts to strengthen national stormwater regulations as noted above.

For the Chesapeake Bay, when it became clear that the Bay watershed states would not meet the previously agreed 2010 nutrient reduction goals, EPA began an enforcement strategy. In November 2009, EPA sent a letter to the states in the Chesapeake Bay watershed regarding the establishment of TMDLs and the requirement of the states to develop watershed implementation plans. In December 2009, EPA sent a second letter outlining consequences and potential enforcement actions in an accountability framework with triggers. Some of the consequences identified in those letters include the following:

- Expand NPDES permit coverage to currently unregulated sources
- Object to NPDES permits and increase program oversight
- Require net improvement offsets for new or increased point source discharges
- Establish finer-scale wasteload and load allocations in the Bay TMDL
- Require additional reductions of loadings from point sources

- Increase and target federal enforcement and compliance assurance in the watershed
- Condition or redirect EPA and/or federal grants
- Federal promulgation of local nutrient water-quality standards

In response to the failure to meet the Bay goals, the House and Senate have introduced the Chesapeake Clean Water and Ecosystem Restoration Act of 2009 (HR 3852/S 1816), commonly referred to as the “Cardin Legislation,” introduced by Senator Ben Cardin. For this bill, EPA has stated that the Chesapeake Clean Water Act (CCWA) strengthens the Clean Water Act, Section 117 through the following:

- “It places legally enforceable, science-based limits on pollution from all sources.”
- “It gives states pollution reduction standards to meet and allows them the flexibility to achieve those reductions as they best decide.”
- “It provides significant funding for technical assistance to farmers so they can implement pollution controls, as well as funding for stormwater pollution controls.”
- “It encourages market-based approaches to pollution reduction, which could provide an estimated \$300 million annually to rural areas.”

The objective of the legislation is to correct the Clean Water Act’s problem, which is commonly understood by many in that the Act gives no direct regulatory control over the nonpoint sources of pollution that account for most of the nitrogen, phosphorus, and sediment entering the Bay. The Act appears to place responsibility for regulatory control into the states’ hands and provides EPA with a method to bring the states into compliance.

It should also be noted that EPA attempted an enforcement action in Lancaster County against 24 agricultural properties for nutrient-laden runoff associated with those properties. EPA indicated that this area of Watson Run, a tributary to Pequea Creek, was chosen from tax maps and, at the time, the agency was not aware that 23 of the 24 farmers in the watershed were Plain Sect Amish. The DEP and the Lancaster County Conservation District interceded on behalf of the farmers, and EPA has allowed the Conservation District to work with the farmers to correct runoff problems. EPA was clear that the Watson Run farmers are expected to correct the problems and place best management practices on their farms or possibly face enforcement actions in the future. EPA has indicated that other assessments are planned in watersheds in Lancaster County.

These program and regulation revisions are generally moving in the same direction, with the DEP following EPA regulations with changes in Pennsylvania. However, the DEP seems somewhat reluctant to follow EPA’s lead with such types of assessments. The DEP leadership has stated openly that it is concerned that some of the requirements are far too expensive to implement for those with the least money, potentially leading to a backlash that would be counterproductive to the state and federal clean water goals. Despite those concerns, DEP’s leadership is determined to make every attempt to meet the goals set and push forward with more comprehensive regulations and enforcement to comply with federal requirements placed on the states by EPA.

With the essential facts presented, it would appear that we are heading down a path that could mean a whole new outlook on water, wastewater, and stormwater management and municipal accountability. The direction and speed in

which we progress will be related to the EPA's and the DEP's ability and willingness to enforce the existing and new regulations. So, where are we most likely headed?

As intended, EPA has increased its oversight and enforcement around the NPDES Phase I and II programs including the MS4 permit. Recently, 79 municipalities received Administrative Order and Information Request letters from the DEP South-Central Offices following EPA's review of the 2008–2009 MS4 permit reports. Anecdotal reports indicate closer review and increased enforcement of the minimum control measures (MCMs), especially illicit discharge monitoring, is forthcoming in the next years. We can expect that with the new EPA MS4 requirements, Pennsylvania will be required to increase enforcement of the six MCMs along with some additional requirements associated with the TMDL process. Storm sewer mapping and inspection of the outfalls confirming that there are no illicit connections is likely to be the primary focus of the reviews and enforcement actions. Pennsylvania can also expect that the District of Columbia MS4 permit will be a model for our MS4 permits as they are reissued.

Over the next few years, our municipalities and our developers will likely see significant changes in how they deal with land use and stormwater control. Most likely, the increased use of stream buffers will shrink developable land, and new stormwater systems will be required to treat the stormwater prior to discharge to remove nutrients and sediment. Increased detention and retention of stormwater will be required to meet the proposed nutrient and sediment standards and reduce storm surge and flooding, and EPA has stated its intention to formulate plans to require existing developments to be retrofitted with new or improved stormwater facilities meeting the new requirements. One of the solutions we can likely expect for retrofit requirements will be debris traps and sand filters on existing MS4 outfalls. The costs associated with new infrastructure and additional maintenance will likely be significant, since municipalities will be expected to sweep the streets more and keep stormwater inlets cleaner from sediments and debris.

Legislation for development of stormwater authorities proposed under House Bill 1390 is being designed to provide

funding mechanisms for maintenance and control of stormwater infrastructure. The intent is to permit existing or new municipal authorities, under direction of a municipal agreement to authorize an authority, to collect fees directly related to maintenance and operation of stormwater facilities in a similar manner as water and wastewater. This pulls the costs out of the general municipal funds and provides a dedicated funding source for maintenance and operation. It is likely that existing authorities will be given the operation and maintenance tasks, as these tasks are similar to current tasks performed by their personnel. Many newer homeowner associations already collect fees related to stormwater facilities, which could be transferred to the operating authority. One of the difficulties in this process will be assessing existing developments with appropriate fees for maintenance and newly required infrastructure improvements.

Another possible outcome is that homeowners are likely to find fewer fertilizer choices at increased costs due to regulations that are being considered for lawn and garden fertilization. Nutrients, specifically nitrogen, from lawns are considered a significant problem in several watersheds in Pennsylvania. As in several other states, our cleaning supplies have already been reformulated, removing all phosphates. Taking that one step further, pet wastes are also considered a significant problem and are a focus point in many public outreach and education programs.

Agriculture fertilization, including nitrogen and phosphorus, sediment control, and soil loss are significant concerns for the watersheds in the state. Increasingly, stream setbacks will be formally defined and enlarged, specifically related to animal grazing and feeding areas, but would likely include planting and fertilization. Phosphorus on farmland has been regulated and controlled under the "P-Index" for years and is still a significant problem in agricultural areas. In many areas, the phosphate level in the ground restricts the amount of manure fertilizer that can be applied to the cropland. The county conservation districts are designated to take the lead in educating and assisting the farmers and landowners to comply with the regulations. Agricultural areas, with farmers and animal operations, will be expected to correct nutrient- and sediment-laden runoff and place best

management practices on their farms or possibly face EPA's enforcement actions in the future. Again, the costs associated with BMPs and lost land use will be significant. The nutrient trading program is expected to provide opportunities for advanced practices and to help offset some of these costs.

Standards already in place that will likely be enforced, to a greater extent, as this process goes forward include Title 25, Article II, Chapter 93, Water Quality Standards. This is an antidegradation regulation that asserts, "Existing in-stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The regulations include temperature considerations that can affect stormwater and wastewater discharges. For example, across the country there are a number of wastewater facilities that are being required to include effluent cooling capabilities. Since the costs and technology associated with cooling stormwater and wastewater are significant, energy reduction requirements and innovative design criteria must be considered. We should expect additional enforcement of these types of requirements in Pennsylvania for waters designated as cold water fisheries and possibly in some falling into the special protection category.

Many Pennsylvania wastewater treatment plants (WWTPs) in the Chesapeake Bay watershed are coming into compliance with new permit requirements as directed by the DEP. Phase 1 plants, also referred to as "significant dischargers," are designed and most are under construction or completed. A significant discharger is any sewage treatment facility with design flows of 0.4 MGD or greater, or any industrial waste facility that discharges 75 pounds total nitrogen and 75 pounds total phosphorous. Phase 1 includes 63 significant dischargers with the highest total nitrogen delivered loads. Phase 2 includes the next 52 dischargers. Phase 3 is the remaining 70 "significants." The Phase 2 plants should be in design to meet the October 2012 permit requirements. The Phase 3 upgrades are for small plants and are yet to be started, and in many cases, the upgrade planning has barely begun. There are also Phase 4 and 5 plants that are currently being considered for additional limits, although the size of the plants precludes the use of some of the advanced treatment techniques.

It should be noted that existing and future financial impact of the WWTP upgrades is significant, and it is very likely that additional nutrient limits regulations would be fought in court and at the political level as a result. However, taking all the WWTPs to zero nutrient discharge would not necessarily solve the Bay problem. It is probable that enhanced nutrient removal processes could be added to selected plants with the objective of removing more nutrients below the TMDL limits in order to relax restrictions elsewhere in the watershed. These nutrient reductions could, in some cases, be more cost effective to achieve at the point source and could be traded to other sources through the nutrient trading program or purchased and banked by the DEP. The concepts developed under this program are likely to be utilized in the Lake Erie, MI; Ohio; and Delaware watersheds. Additional information on the Bay program can be found in the DEP Web site at www.dep.state.pa.us at Water > Waterways > Chesapeake Bay Program.

With some of the possibilities and concerns outlined above, we should note that for decades, especially since the 1970s, we have been moving forward and cleaning up our environment. And, for the next several decades, we will continue to move forward and continue to be smarter and more aware of the impacts we have on our environment. The balancing act that we are faced with is setting our goals in a way that celebrates and expands upon our good impacts and moderates our bad impacts; it is how we fund improvements, and how we continue to use our land and water for working, housing,

food production, and recreation.


You may ask yourself: "Do we really need to do all this?" One certainly cannot deny that eutrophication (the growth of algae that depletes the dissolved oxygen content of the water) and associated dead zones are present in many of our bays and rivers. One also cannot deny that we can and should do better to ensure that clean water is available for generations to come. The people of this state and our surrounding states enjoy our collective waters both up and downstream of our own. Granted, the two hundred billion dollar elephant in the room that we cannot deny is that the costs of these programs will be incredible and, if not pursued in a scientific yet cost-effective manner, can be stifling to our economy, our municipalities, our businesses, and our personal lives. The science of the process must be clear and correct, and credit must be swift with appropriate adjustments made when progress is achieved. Remember, only our active involvement in the process can ensure that we continue to do better and that we control the costs as we move forward. Equally important, our active involvement with our local and national elected officials may be the key to keeping fiscal sanity in the mix.

You may also ask: "What can I do?" The DEP states, and this author highly recommends, "You can get involved by first being aware of regulations and policies under development; participating in or attending advisory committee, stakeholder, regulatory negotiation, or public information meetings on regulations; and commenting on regulations when they are formally published for

review and present comments at public hearings." Since the DEP and EPA are required by law to respond to all comments submitted during the formal comment period for regulations and permit applications, presenting them with comments and questions that are clear and reasoned out, and that present reasonable alternatives and solutions, will have a positive influence on the process.

For the current process for nutrient management in the Chesapeake Bay watershed, one should do the following:

1. Monitor EPA's TMDL Web site on a regular basis at www.epa.gov/chesapeakebaytmdl/.
2. Listen in on the DEP Chesapeake Bay Advisory Committee meetings. More information is available at www.dep.state.pa.us/dep/subject/adv-coun/chesbay/chesbay.htm.
3. Monitor the DEP Chesapeake Bay Web site at www.portal.state.pa.us/portal/server.pt/community/chesapeake_bay_program/10513.

For other programs and regulation updates, monitor DEP's public participation Web site, specifically the section www.portal.state.pa.us/portal/server.pt/community/proposals/14008. 

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