

## **Maryland's TMDL Implementation Framework**

The following framework document is intended to give a brief sketch of Maryland's evolving TMDL implementation framework. It is not intended to be comprehensive guidance, but rather, it provides a broad orientation and serves as a reference point for on-going discussion with stakeholders that have an interest in TMDL implementation.

### **Overview:**

TMDL implementation is a multi-disciplinary field involving planning and decision-making for different types of pollutants, across different scales and sectors. This "Overview" provides an outline of the remainder of this "Framework" document.

Maryland's TMDL implementation framework has two primary prongs:

- 1) TMDL Institutionalization
- 2) Implementation Planning and Execution
  - a. Plans and operational procedures to reduce excessive pollutants
  - b. Procedures for off-setting new sources of pollutants
  - c. Procedures for protecting high quality waters (anti-degradation policy)

In addition to the broad framework, outlined immediately above, the State's TMDL implementation framework reflects several other elements. These include the following:

- 3) State Geography
- 4) Types of Pollutants (Impairments)
- 5) Types of Waterbodies

### **TMDL Institutionalization:**

Long-term success of anything depends on institutionalizing it. This can be done by ensuring knowledge is passed between generations, which can take many forms including written documentation, formal agreements, laws, cultural norms and traditions.

The Maryland Department of Environment (MDE) will inform potential responsible parties of TMDLs that are approved by EPA. MDE makes information about approved TMDLs readily available via the internet for this purpose<sup>1</sup>. Currently, notifications of approved TMDLs are sent to key State agencies, local government representatives, and stakeholders who have expressed interest in the TMDL. These parties are encouraged to ensure that their future actions are consistent with the TMDL and strive to routinely incorporate these considerations into their planning, decision-making and budgeting processes. In addition, State and local government agencies that conduct permit reviews should add "TMDL consistency review" to their review checklists.

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<sup>1</sup> See TMDLs Submitted to EPA:  
<http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/Sumittals/index.asp>

MDE institutionalizes TMDLs by adjusting permit limits to reflect waste load allocations, and by considering TMDL implementation needs when setting funding priorities through various loan and grant procedures. Additional detail on ways TMDLs can be institutionalized will be documented in the State's [Continuing Planning Process \(CPP\)](#) and in [Maryland's 2006 guidance for local governments](#) (a little dated, but still insightful).

The [Chesapeake Bay TMDL](#) is also institutionalizing an "Accountability Framework" for nutrients and sediments. This will further institutionalize the accounting of new sources and controls to reduce nutrients and sediment loads.

## **Implementation Planning and Execution:**

The traditional notion of "implementation" involves developing implementation plans, executing those plans, tracking and evaluating progress, and adjusting the plans based on information from the evaluations. This planning must address the reduction of excessive pollutants, off-setting new sources, and protecting high quality waters<sup>2</sup>.

Role of TMDL Documents: Implementing a TMDL should be founded on a familiarity with the TMDL. Maryland's TMDL documents include a brief section entitled, "Assurance of Implementation," which identifies programs that support TMDL implementation. In addition, technical memoranda are typically issued with TMDLs, which provide additional information about allocations. Finally, technical support material for each TMDL project is archived for future reference. [See Maryland TMDLs Submitted to EPA.](#)

Implementation Plan Documentation: Although TMDL implementation plans are not required under the federal Clean Water Act, a framework is beginning to take shape. The following are some of the elements of that evolving framework:

- Nested Plans: Watershed plans operate at different scales and for different purposes. Although not formally adopted policy, a proposed vision for TMDL implementation planning recognizes the value of nested plans that explicitly reference related plans. The remaining bullets elaborate on this.
- State Water Quality Management Plans: Federal TMDL regulations require that TMDL allocations be reflected in State Water Quality Management (WQM) Plans. Maryland's Continuing Planning Process (CPP) specifies that this may be done by reference to other plans, which is consistent with the nesting concept described above.
- Bay TMDL Watershed Implementation Plans (WIPs): Although limited to nutrients and sediments, and developed at a fairly broad scale, the WIPs establish an accountability framework that will greatly influence other watershed planning activities. That said, more

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2. See Antidegradation under <http://www.mde.state.md.us/programs/waterprograms/tmdl/wqstandards>

detailed local plans will continue to play a role as suggested by the following examples of such plans.

- Water Resource Elements (WREs) of local land use plans: WREs offer the State and local governments an opportunity to conduct a coarse assessment of future land use planning’s effects on pollutant loads. This watershed-based planning activity needs to be coordinated with the Chesapeake Bay WIPs and other local watershed plans.
- NPDES Stormwater Permits: Maryland’s permits for Phase I jurisdictions have included a “Watershed Assessment” requirement for several years. These assessments identify opportunities for restoration projects. More recently MDE has begun to include a requirement to develop “TMDL Implementation Plans” within one year of issuing the permit. Because these plans must be developed for many areas, many pollutants and in a short period of time, they will likely build upon the previous watershed assessments, but otherwise tend to consist of “table-top” analyses.
- Various Local Watershed Plans: Some local jurisdictions have established systematic procedures for developing watershed-based plans. The development of these plans typically takes a couple of years and includes a significant stakeholder involvement process. Ideally, in addition to addressing point sources, these plans address the nine (9) key elements of a nonpoint source watershed-based plan per federal Section 319 Nonpoint Source Program guidance (See Appendix A).

In a limited number of cases, watershed planning frameworks have been institutionalized. The following examples provide a natural organizational framework for future TMDL implementation planning:

- 1) Anacostia Watershed Restoration Plan (Anacostia Watershed Agreement & Partnership)  
<http://www.anacostia.net/about.html>
  - 2) Baltimore Reservoir Action Strategy (Reservoir Watershed Management Agreement)
  - 3) Baltimore Watershed Action Plan (Agreement between City and County)  
<http://www.baltimorecountymd.gov/Agencies/environment/watershedagreement/index.html>
  - 4) Maryland Coastal Bays Comprehensive Conservation Management Plan<sup>3</sup>
- Other Watershed-Based Planning: It’s recognized that other significant planning initiatives are conducted on a watershed basis in Maryland, such as land use conservation plans, forest management plans, flood management plans. Furthermore, the planning and development of some management systems is also conducted on a watershed basis, such as nutrient trading systems, tracking and reporting systems. These types of plans have a significant impact on TMDL implementation and can be considered a part of watershed-based TMDL implementation planning.

The State maintains an annotated index of the implementation plans for each TMDL in the State WQM Plans. In addition, the MDE documents the State permitting actions that implement the

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<sup>3</sup> This planning framework is authorized under the federal Clean Water Act Section 320 National Estuaries Program; however, it is implemented by a non-governmental organization ([Maryland Coastal Bays Program](#)).

waste load allocations (WLAs) of the TMDLs. The procedures for doing this are documented in the State's Continuing Planning Process (CPP).

Coordination: Maryland has a number of existing forums being used to coordinate the TMDL implementation. Key forums include the following:

- **Local Primary TMDL Contacts:** MDE maintains a list of people in each local government who serve as the primary contact on TMDL matters. This person serves as a liaison between the State and local governments on most TMDL coordination matters. See [List of Local Primary TMDL Contacts](#) [PDF]
- **Maryland's Chesapeake Bay Workgroup and Bay Cabinet:** The Bay Workgroup is composed of State agency senior managers and staff. This body coordinates among State agencies and reports to the Bay Cabinet, which is composed of key State agency secretaries.
- **WIP Action Team:** State staff coordinating the development of the Chesapeake Bay Watershed Implementation Team
- **Maryland's Tributary Strategy Implementation Steering Committee:** This group is composed of the chairs and vice-chairs of Maryland's ten Tributary Strategy Implementation Teams (Trib Teams). This group is involved in the Stakeholder Advisory Committee for the Chesapeake Bay TMDL and WIP development process.
- **BayStat Agencies:** Maryland's BayStat process involves senior management and supporting staff who are responsible for the various measures tracked via the BayStat process. (See the [BayStat Website](#)).
- **Various Chesapeake Bay Program Committees:** A number of Chesapeake Bay Program committees serve important TMDL implementation coordination roles at an interstate level. (See [Bay Program Committees](#)).
- **Watershed Assistance Collaborative:** Maryland's Watershed Assistance Collaborative (WAC) includes key State agencies, the Chesapeake Bay Trust, and the EPA's Mid-Atlantic Environmental Finance Center. The WAC was conceived to enhance the capacity of local governments to develop "shovel-ready" implementation projects that can receive State funding.

Tracking and Evaluation: MDE's Science Services Administration (SSA) consolidates BMP tracking information and transmits it to the Chesapeake Program's watershed modelers for annual progress evaluations. This tracking and evaluation framework is fed by sources like agricultural, urban stormwater, point sources, wetlands, etc.

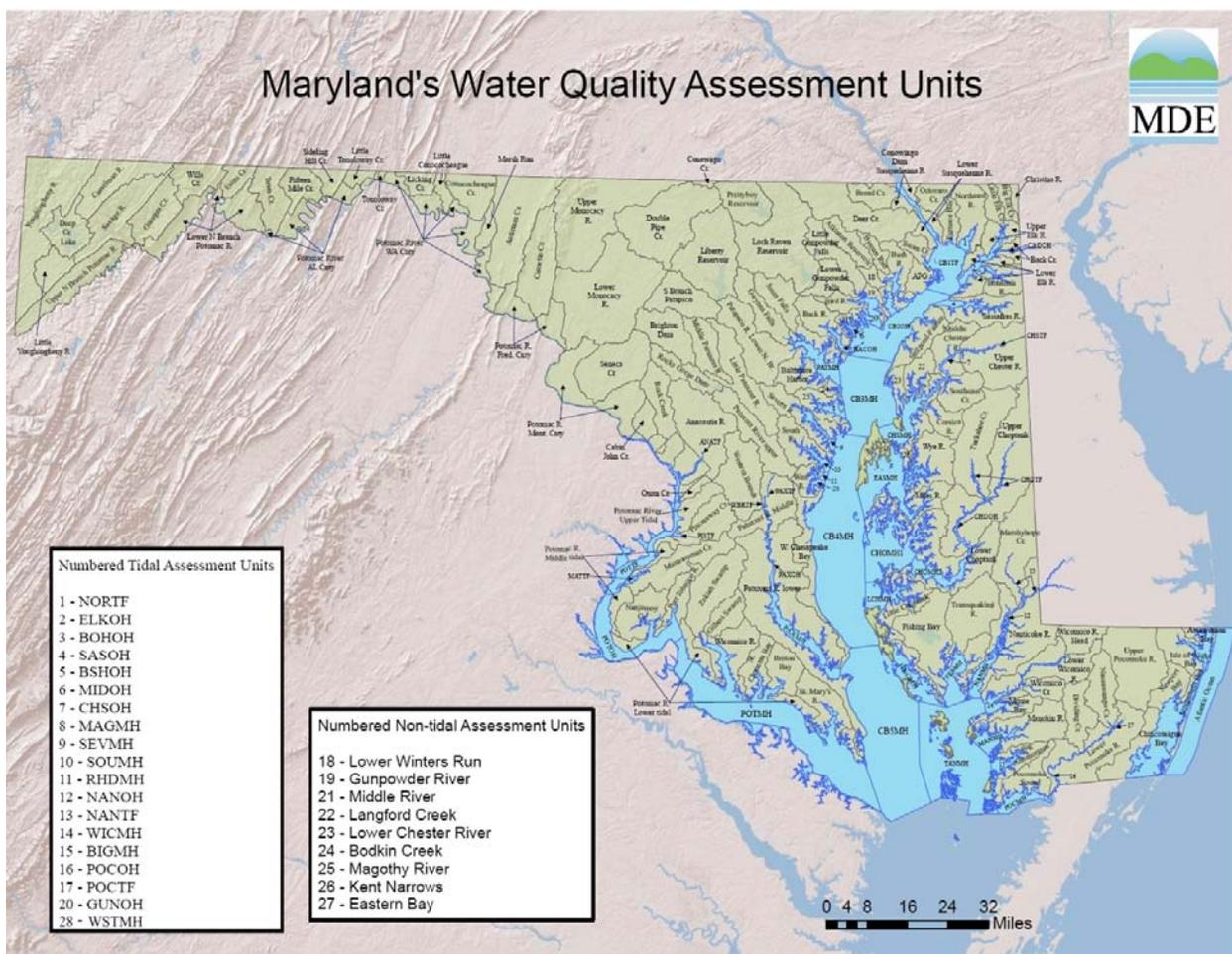
This system is undergoing refinement as part of the evolving Chesapeake Bay "[Accountability System](#)." The Bay Program is adopting the [National Environmental Information Exchange Network \(NEIEN\) protocols for transmitting nonpoint source BMP information](#). (PDF Presentation). Refinements are also being made to support multiple end-users of implementation information including [Maryland's BayStat](#).

In addition to tracking new pollutant sources and implementation actions, MDE and DNR are involved in monitoring the waters of the Chesapeake Bay. This is done in coordination with

EPA's Chesapeake Bay Program and other states. (See [Maryland's 2004 Monitoring Strategy \[PDF\]](#) – 2009 update pending approval by EPA).

## State Geography

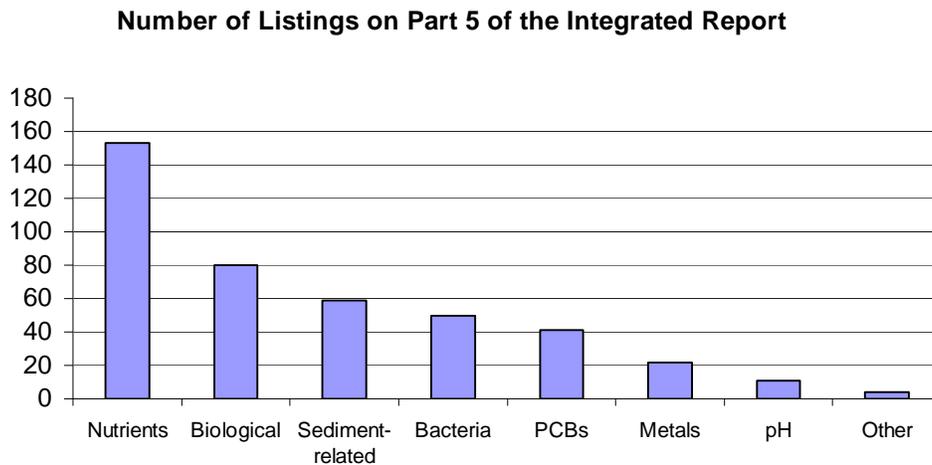
Maryland's framework for TMDL Implementation is founded on the State's geography. It recognizes the western region with coldwater streams, the central region with the Chesapeake Bay and Maryland's Coastal Bays and Atlantic shore. We also recognize the tiny piece of land in Cecil County that drains north to the Delaware Bay via the Christina River. The differences of these regions are reflected in Maryland's TMDL implementation framework, elaborated on below.



**Figure 1 – Map of Maryland**

## Types of Pollutants:

TMDLs have been developed for a variety of different types of pollutants. Different types of impairment can require significantly different approaches to TMDL implementation. Bacteria in Shellfish waters, low pH due to the legacy of past coal mining, mercury from combustion products that enter the water from the air, and nutrients entering the Chesapeake Bay are several diverse examples.



**Figure 2**

Figure 2 shows the distribution of the types of pollutants (impairments) that are included on Maryland's 303(d) list of impaired waters.

Nutrients: The management of nitrogen and phosphorus significantly shape Maryland's TMDL framework. This more pronounced in Maryland than some other places because of dominance of the Chesapeake Bay on the State's landscape. The federal accountability system associated with the Chesapeake Bay TMDLs makes tracking and reporting of new sources and nutrient reduction controls essential. See EPA's webpage that describes the [Bay TMDL accountability system](#) (EPA Site), which is a significant element of Maryland's TMDL implementation framework.

In addition to establishing the Bay TMDL and WIPs, the Bay restoration framework has adopted a system of 2-year Milestones, which serve as near-term accountability goals. (See Maryland's 2-Year Milestones).

Existing systems are in place to help fund progress on restoration:

- Agriculture: Funding for agricultural nutrient reductions is available from State programs like the [Maryland Agricultural Cost Share](#) (MACS) program and federal programs managed by the US Department of Agriculture resource funded through the [Farm Bill Conservation Programs](#) (USDA Site).

- Waste Water: Waste water treatment plant upgrades and septic system upgrades are funded to a great degree by [Maryland's Bay Restoration Fund](#) (BRF).
- Nonpoint Source: [Maryland's Chesapeake and Atlantic Bays Trust Fund](#) provides resources for controlling nonpoint source nutrient pollution and restoring the biological integrity of streams.

Nutrients also affect other regions of the State and types of water bodies besides the Chesapeake Bay. For example, Maryland's Coastal Bays, near Ocean City and Assateague Island, are being impacted by nutrients. Major public water supply impoundments are also impacted, where algal blooms can affect the taste drinking water. Programs currently exist for these water bodies, which are evolving to more directly address TMDL implementation.

Biological Impairments: Most of the biological impairments on Maryland's 303(d) list are due to the degradation of small, fairly shallow, free-flowing streams<sup>4</sup>. MDE has initiated a *Biological Restoration Initiative* (BRI) to target resources to streams with the greatest recovery potential. This restoration initiative, a part of [Maryland's 319 Nonpoint Source Program](#), is coordinated with [Maryland's Chesapeake and Atlantic Bays Trust Fund](#) through the Fund's [system of targeting resources](#) [PDF].

Maryland's *Biological Restoration Initiative* works in concert with the State's [anti-degradation policy implementation](#) designed to protect high quality streams. These streams are identified using the Department of Natural Resources [Maryland Biological Stream Survey \(MBSS\) Program](#) data. These high quality streams receive additional scrutiny to ensure that their biological integrity is protected.

Biological restoration of streams is also conducted via agricultural conservation programs; local government programs, including the federal NPDES Stormwater permit program administered by MDE; and various other State and federal initiatives.

Sediment-related: Sediment impairments take several forms. In reservoirs, sedimentation over time fills the reservoir displacing its volume and making it shallower; in some extreme cases, the reservoir can fill in completely.

In tidal waters, like the Chesapeake Bay, sediments from the watersheds, from coast lines and churned up from shallow bottoms make the water cloudy. This lack of water clarity blocks sun light from reaching underwater grasses that provide oxygen and living spaces for fish and other life. Implementation of the Chesapeake Bay TMDL will help to address this problem.

In small streams, the sediment impairments often take the form of bank erosion of sediments that are washed down stream where they deposit and choke the live. The end result is the loss of biological integrity. In addition to restoration of the Bay, which will also improve local streams, the *Biological Restoration Initiative* noted above will help address sediment problems in streams.

The subject of toxic substances in sediments is discussed below.

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<sup>4</sup> Some biological impairments are associated with bottom life in tidal waters; however, most of these cases are expected to improve with increased oxygen expected to result from the control of nutrients to the Chesapeake Bay.

Bacteria: Fecal bacteria from warm-blooded animals is an indicator of potential disease pathogens spread by animal's waste. Maryland's framework for controlling bacteria is multi-faceted. In all cases, the primary focus is on the control of human sources of bacteria to minimize risk of transferring human-borne diseases. Bacteria TMDL implementation is generally organized by the following categories:

- Shellfish Harvesting Area Management (Tidal Waters): Some of Maryland's shellfish harvesting waters are closed to harvesting due excessive levels of bacteria. Shoreline sanitary surveys conducted by [MDE's Shellfish Program](#), which help identify and remediate sources of bacteria.
- Beaches: Maryland's beaches program, managed in part by local governments, helps ensure that beaches are safe for swimming. Beaches are closed if monitoring identifies high bacteria concentrations. In such cases, State and local investigations are undertaken to remediate the problems when possible.
- Other Areas (Generally non-tidal waters): Bacteria in streams can come from many sources. The management depends on the setting. In agricultural areas, particularly those with livestock, management is conducted through various agricultural programs. In urban areas, NPDES stormwater permits provide the avenue of implementation.

[Maryland's Clean Marinas](#) program helps provide waste management systems for boaters. The DNR Police and the US Coast Guard also have some authority to ensure that boaters are not illegally discharging waste; however, enforcement is challenging due to practical considerations of limited policing resources. Therefore, reports of violations from the public are a key ingredient of a successful implementation framework.

Toxic Substances: Maryland's 303(d) list includes a variety of toxic substances. The protection of human health is Maryland's priority for addressing toxic substances. Small concentrations of some toxins can accumulate in the food chain until they are concentrated in the meat of fish. For this reason, MDE's fish consumption advisory process is a critical element of Maryland's water resource management framework.

The most common substances found in fish tissue include PCBs (heat resistant fluids commonly used in electrical transformers in the past), and mercury (for which the most prevalent source is from the air due to combustion of materials containing mercury), and persistent pesticides such as DDT, chlordane, dieldrin and heptachlor epoxide.

Although PCBs and these pesticides have been banned, Maryland's Science Services Administration also conducts source assessments to identify areas concentrated toxic substances that could be subject to remediation. MDE's Land Management Administration, through its various hazardous waste mitigation programs also helps to reduce the sources of these legacy pollutants. In time, this framework of remediation activities and natural recovery will help reduce the incidences of fish tissue accumulation of toxic substances.

Although mercury is not banned, its use is being significantly curtailed by a [variety of programs](#), most of which are managed in Maryland through the Land Management Administration. This helps to reduce the amount of mercury reaching waste incinerators.

In addition, MDE's Air and Radiation Management Administration regulates a variety of air sources to help reduce mercury emissions through [Maryland's Healthy Air Act](#) (HAA). When the HAA rules are adopted, mercury emissions will be reduced by 80% in 2010 from major emissions sources. A second phase of controls will reduce mercury emissions by 90% by 2013 from those sources. These emission reductions are based on a comparison to a 2002 emissions baseline.

### **Types of Water Bodies:**

The framework for implementing TMDLs differs depending on the type of waterbody involved. This is due to a variety of reasons, including the scale of the problem. This can range from the degradation of a small stream to the impairment of the main part of the Chesapeake Bay. Furthermore, there can be an interaction between different scales; the restoration of small streams not only improves those streams, but also benefits the downstream water quality of tidal rivers and eventually the Chesapeake Bay.

### **Chesapeake Bay and Tidal Rivers:**

Just as the Chesapeake Bay dominates the geography of central Maryland, the [Chesapeake Bay TMDLs](#) greatly influence Maryland's TMDL implementation framework. The Bay TMDL is actually a set of limits for 58 subwatersheds many of which correspond to separate tidal rivers.

Prior to the Bay TMDL, Maryland was already actively striving to reduce nutrient loads to the Bay via of [2-year Milestone Implementation goals](#). [Tracking of the 2-year Milestone progress](#) is part of the accounting framework for TMDL implementation.

Concurrent with the development of the Bay TMDL, EPA has charged the Bay watershed states and DC with developing **watershed implementation plans (WIPs)** that will provide "reasonable assurance" that the jurisdictions can and will achieve the nutrient and sediment reductions necessary to implement the TMDL within their respective boundaries. The WIPs, under development in 2010 (Phase I WIP) and 2011 (Phase II WIP), provide another part of the TMDL implementation framework. They provide a broad quantitative road map for nutrient and sediment reductions. (See [Maryland's WIP Development Process](#)).

The [EPA Chesapeake Bay Program](#), located in Annapolis, Maryland, coordinates a multi-state management system. The Maryland Department of Natural Resources serves as Maryland's lead agency in coordinating with the Chesapeake Bay Program.

Another key category of tidal water in Maryland is "Shellfish Waters," addressed below.

### **Shellfish Waters:**

Some of Maryland's tidal waters are designated by water quality standards to support shellfish harvesting. The term "shellfish" in this context includes clams, oysters, and mussels, not crabs, lobsters, or shrimp. Some of Maryland's shellfish waters are closed to harvesting due excessive levels of bacteria. [Detailed maps](#) are available showing the status of shellfish harvesting and closure areas. Shoreline sanitary surveys conducted by [MDE's Shellfish Program](#), which help identify and remediate sources of bacteria.

### **Reservoirs (Lakes):**

Reservoirs can trap pollutants, making them potentially more sensitive than other types of water bodies. Because reservoirs contain fresh water (not salt water), they tend to be more affected by phosphorus than nitrogen. Because of the propensity of phosphorus to bind to sediments, and sediments to get trapped by reservoirs, much of the phosphorus entering the reservoir gets trapped. Phosphorus causes algal blooms, which can cause low dissolved oxygen, leading to fish kill events. Some types of algae cause odor and taste problems for drinking water supplies. All of this suggests that controlling sediments, which carry phosphorus, is a key element of a TMDL implementation framework when considering reservoirs. Another benefit of controlling sediments is to slow down the inevitable filling of the reservoir with sediments, which reduces its functionality.

Mercury is another pollutant that has a notable association with reservoirs. Reservoirs create conditions that cause the creation of methyl-mercury, the type of mercury that accumulates in fish tissue. For this reason, the vast majority of Maryland's mercury impairments are in reservoirs. It is notable that the primary source of mercury is from atmospheric deposition. A framework for solving the reservoir mercury problem depends on solving an air pollution problem, which depends, in part, on removing mercury from the solid waste that is incinerated. MDE's Air and Land administrations have programs addressing these sources (See Toxic Substances above).

Several large reservoirs are notable. The Triadelphia, Rocky Gorge, Little Seneca and Jennings Randolph reservoirs North of Washington DC, are managed by the Washington Suburban Sanitation Commission (WSSC) in coordination with State and local governments. [The 2009 Annual Report of the Reservoir Technical Advisory Committee](#) includes recent activities associated with controlling the nutrients entering the reservoirs.

The Baltimore reservoir system of Prettyboy, Loch Raven and Liberty are owned by Baltimore City. The protection of these reservoirs has been overseen since an early Reservoir Agreement was agreed to in 1979. Under this, and subsequent Agreements, a consortium of local governments and the Baltimore Metropolitan Council (BMC) oversee a [Reservoir Management Program](#). See [2005 Reservoir Agreement](#).

Deep Creek Lake is the largest reservoir in Maryland, located in Garrett County. The lake was created in 1925 as a reservoir for hydropower generation - still a primary use. The lake also provides various recreational opportunities and is a drinking water and commercial water supply. The MD Department of Natural Resources (DNR) manages the lake and buffer area as a Natural Resources Management Area (NRMA) in conjunction with the adjoining Deep Creek Lake State Park. Lake management staff work with local and State agencies, the hydroelectric plant owners and an appointed Lake Advisory Board to establish policies and rules to manage the lake as a public amenity while addressing many competing interests. (More on [Deep Creek Lake Management](#)).

### **Maryland's Coastal Bays:**

Worcester County and the non-profit [Maryland Coastal Bays Program](#) (MCBP) play a local leadership role in managing the Coastal Bays. The MCBP is one of the 28 nationally significant estuaries defined under the federal Clean Water Act's [National Estuary Program](#) (NEP). With support from the NEP and [Maryland's 319 Nonpoint Source Program](#) and other State programs Worcester County has developed five watershed-based TMDL implementation plans. Together, these sub-watershed plans further refine the implementation of goals set in the Comprehensive Conservation Management Plan (CCMP), which covers the Isle of Wight, Assawoman, Sinepuxent, Newport, and Chincoteague bays.

### **Freshwater Streams:**

Most of the impairments of the small, shallow, free-flowing streams in are expressed as the loss of fish and other aquatic life. [This loss of biological integrity is measured using Maryland Biological Stream Survey \(MBSS\)](#) data and data collected by volunteer [Stream Waders](#), both coordinated by Maryland DNR.

MDE has a *Biological Restoration Initiative* (BRI) to target restoration resources to streams with the greatest recovery potential. This restoration initiative, a part of [Maryland's 319 Nonpoint Source Program](#), is coordinated with [Maryland's Chesapeake and Atlantic Bays Trust Fund](#) through the Fund's [system of targeting resources](#) [PDF].

**Protection:** Maryland's *Biological Restoration Initiative* works in concert with the State's [anti-degradation policy implementation](#) designed to protect high quality streams (Tier II waters). These streams are identified using the MBSS data. To ensure that their biological integrity is protected, special provisions are considered during proposed development activities near Tier II waters. DNR's [stronghold watershed](#) designation also guides Maryland's stream protection decisions for the benefit of rare, threatened, or endangered species of fish, amphibians, reptiles, and mussels.

## Appendix A

### **This appendix is excerpted from EPA's FY 2003 Section 319 Grant Guidance**

#### **What elements are appropriate for a watershed plan designed to attain and maintain water quality standards?**

- A. An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed-based plan (and to achieve any other watershed goals identified in the watershed-based plan), as discussed in item (b) immediately below. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., X numbers of dairy cattle feedlots needing upgrading, including a rough estimate of the number of cattle per facility; Y acres of row crops needing improved nutrient management or sediment control; or Z linear miles of eroded streambank needing remediation).
- B. An estimate of the load reductions expected for the management measures described under paragraph (c) below (recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time). Estimates should be provided at the same level as in item (a) above (e.g., the total load reduction expected for dairy cattle feedlots; row crops; or eroded streambanks).
- C. A description of the NPS management measures that will need to be implemented to achieve the load reductions estimated under paragraph (b) above (as well as to achieve other watershed goals identified in this watershed-based plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement this plan.
- D. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement this plan. As sources of funding, States should consider the use of their Section 319 programs, State Revolving Funds, USDA's Environmental Quality Incentives Program and Conservation Reserve Program, and other relevant Federal, State, local and private funds that may be available to assist in implementing this plan.
- E. An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.
- F. A schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.
- G. A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.
- H. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed-based plan needs to be revised or, if a NPS TMDL has been established, whether the NPS TMDL needs to be revised.
- I. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) immediately above.