

Building Strong Collaborative Relationships for a Sustainable Water Resources Future:

STATE OF MARYLAND

SUMMARY OF STATE WATER PLANNING

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The findings contained in this report are based on the information collected from the literature search and interviews for this initiative and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

STATE OF MARYLAND

1. STATE/REGIONAL WATER PLANNING STATUS

In 2004, the first Advisory Committee on the Management and Protection of the State's Water Resources submitted its final report to Governor Ehrlich (Wolman, 2004). The committee was tasked with reviewing available information on the state's surface water and groundwater resources and assessing the adequacy of current management practices at protecting those resources. The committee concluded that given its limited time to complete the report and provide recommendations (two years), the state should continue its investigation of water supply issues. As a result, in 2005, Executive Order 01.01.2005.25 (Erhlich, 2005) established the second Advisory Committee on the Management and Protection of the State's Water Resources.

In addition to continuing its review of available information and assessing current programs and policies, the second committee was charged with developing a comprehensive strategy to meet current and future water demand through 2030. The committee released a two-volume final report in July 2008 (Wolman, 2008a and 2008b) entitled "Water for Maryland's Future: What We Must Do Today." This final report emphasizes the need to develop a statewide comprehensive water supply plan that includes planning and management of the water quality for drinking water sources. Maryland has set an objective to complete the water supply plan in the next three years, however, the recent downturn in the economy will likely impact the funding available to develop the plan. Local government comprehensive plans, which require a water resources element, are scheduled to be completed by the fall of 2009 and it is hoped that the needs for baseline water supply data and statewide planning guidance expressed in the local plans will provide a push for funding to complete Maryland's comprehensive water supply plan.

According to "Water for Maryland's Future," planning and decision-making for water supply is conducted by local governments and the state has a rather limited role. In 2006, House Bill 1141 was adopted and signed into law that requires counties and municipalities who exercise planning and zoning authority to incorporate a water resources (supply) element into their comprehensive plans by October 1, 2009. This element (§1.03(a)(1)(iii), Code of Maryland):

- 1. Identifies drinking water and other water resources that will be adequate for the needs of existing and future development proposed in the land use element of the plan, considering available data provided by the Department of the Environment.*
- 2. Identifies suitable receiving waters and land areas to meet storm water management and wastewater treatment and disposal needs of existing and future development proposed in the land use element of the plan, considering available data provided by the Department of the Environment.*
- 3. Has been reviewed by the Department of the Environment to determine whether the proposed plan is consistent with the programs and goals of the Department reflected in the general water resources program required under § 5-203 of the Environment Article.*

Currently, Maryland does not have a statewide water supply or water quality plan. However, the state is part of the Chesapeake 2000 Agreement among Virginia, Pennsylvania, the Chesapeake Bay Commission, the U.S. Environmental Protection Agency (USEPA), and the District of

Columbia. Ten of the 13 major subbasins in the state are part of the Chesapeake Bay Watershed (Figure 1): Choptank River, Lower Eastern Shore, Lower Potomac River, Lower Western Shore, Middle Potomac River, Patapsco-Back Rivers, Patuxent River, Upper Eastern Shore, Upper Potomac River, and Upper Western Shore. For those subbasins, Maryland maintains a Tributary Strategy Implementation Plan (MDE, Jan. 24, 2008).

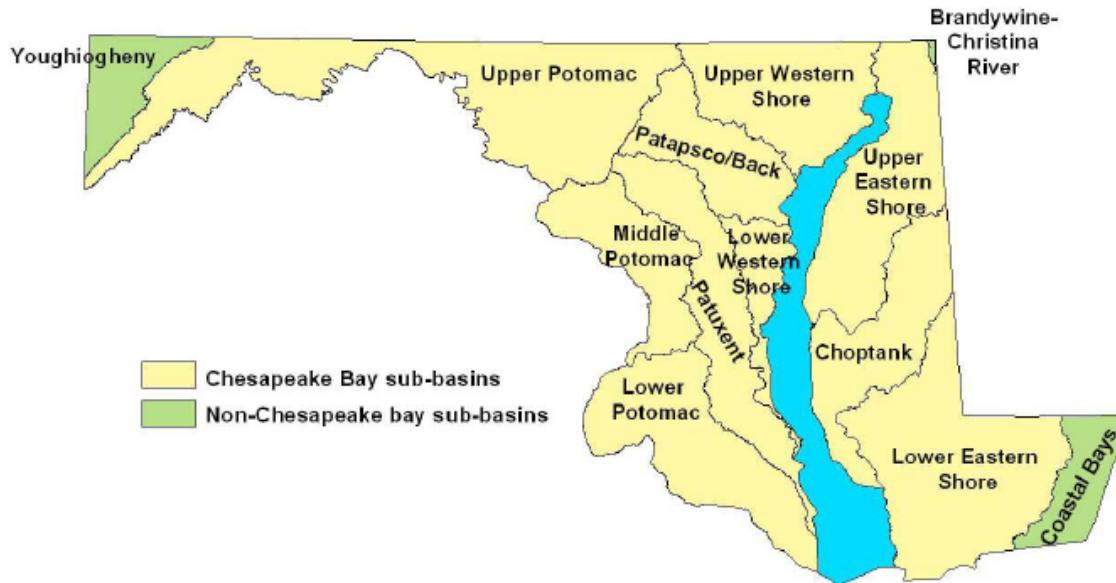


Figure 1. Major Subbasins of Maryland (from Watershed Planning Guide).

A Department of Natural Resources (DNR) led tributary team is responsible for coordinating the development of the individual tributary plans. Tributary teams are comprised of citizens, business leaders, farmers, watershed organizations, and local, State, and Federal government representatives. Plans are updated every 2 years to allow for the inclusion of new practices, programs, and technologies.

The water quality management plan for Maryland’s coastal area is Coastal Bays 2000 Comprehensive Conservation Management Plan (DNR, 1999). Brandywine-Christina River Subbasin, which is part of the larger Delaware River Watershed, and Youghiogheny Subbasin, which is part of the Ohio River Watershed, are not covered in local, state, or regional water quality plans.

Maryland also has a State Wetland Conservation Plan (MDE, 2003) administered by the Department of the Environment’s (MDE) Water Management Administration (WMA) Wetlands and Waterways Program.

2. RESPONSIBLE STATE AGENCIES/REGIONAL ENTITIES

MDE and DNR are the main state agencies providing water resources management and planning. MDE’s WMA oversees: the compliance program, water quality infrastructure, wastewater permits, wetlands and waterways program, mining, water supply, and sediment, stormwater and

dam safety. DNR heads the state's Chesapeake Bay Program, assists with watershed planning, and manages Maryland's wildlife, plants, fish, and shellfish.¹

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The Advisory Committee on the Management and Protection of the State's Water Resources comprises 15 members: one member from the House of Delegates, one member from the Senate, the Secretaries of MDE, DNR, the Department of Health and Mental Hygiene, the Department of Agriculture, and the Department of Planning, and eight members appointed by the Governor. Both the first and second committees were headed by Dr. Wolman of Johns Hopkins University.

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¹ As of the date of this summary, there has not been a designated POC for this assessment.

3. WATER MANAGEMENT VISION AND GOALS

“Water for Maryland’s Future,” envisions Maryland “thriving in 2030 because the Governor, the General Assembly, State agencies, and local governments, with strong citizen support, coordinated the management of land and water resources, obtained essential data, secured adequate funding for water resources planning and management, prepared a Statewide plan, and embraced water conservation. With the help of its citizens, the State’s leaders created a sustainable Maryland for future generations, with healthy aquatic ecosystems, successful agriculture, vibrant communities, and a thriving economy.”

Maryland also seeks to fulfill its promise in the Chesapeake 2000 Agreement. Part I of Maryland’s Statewide Tributary Strategy Implementation Plan is divided into eight strategic areas: point source, urban sources, stormwater, onsite sewage disposal system, growth management, agriculture, air deposition, and other state initiatives. Part II outlines several strategies to achieve, maintain, and monitor water quality: coordination between regulatory and incentive-based programs; cap management; identifying focus areas to target additional research, demonstrations, and outreach; and tracking and monitoring.

The mission of MDE “is to protect and restore the quality of Maryland’s air, water, and land resources, while fostering smart growth, economic development, healthy and safe communities, and quality environmental education for the benefit of the environment, public health, and future generations,” and its vision is “is to ensure a clean environment and excellent quality of life for Marylanders.” MDE’s goals are (MDE, 2008):

1. Promoting land redevelopment and community revitalization
2. Ensuring safe and adequate drinking water
3. Reducing Maryland citizens' exposure to hazards
4. Ensuring the safety of fish and shellfish harvested in Maryland
5. Improving and protecting Maryland’s water quality
6. Ensuring the air is safe to breathe
7. Providing excellent customer services to achieve environmental protection

The mission of DNR is that it “preserves, protects, enhances and restores Maryland's natural resources for the wise use and enjoyment of all citizens.” Its departmental goals are (DNR, 2008):

1. Sustainable populations of living resources and aquatic habitat
2. Healthy Maryland watershed lands, streams and non-tidal rivers
3. Natural resources stewardship opportunities for Maryland’s urban and rural citizens
4. Conserved and managed statewide network of ecologically valuable private and public lands
5. Diverse outdoor recreation opportunities for Maryland citizens and visitors
6. Diverse workforce and efficient operations

4. SCOPE OF WATER RESOURCES PLANNING AND MANAGEMENT

Water quality planning in Maryland is conducted at the watershed level (8-digit HUC) while water supply planning is done by local governments through the Water Resources Element Law.

Similar to other states in the eastern U.S., Maryland stands to experience significant population growth over the next few decades. It is anticipated that population will grow by 27 percent between 2000 and 2030, placing a strain on water supply infrastructure and affecting water quality through increased land development leading to additional runoff and pollution. The issue of water quality is especially pertinent to the efforts undertaken and scheduled to continue to restore the Chesapeake Bay. Another potential threat to water resources in Maryland is the overall lack of funding available to support planning and management programs. Underfunding of water resources programs makes it difficult to collect base data and fund large studies that support comprehensive planning. Currently, the highest funding priorities for water resources in Maryland are for basic data studies and monitoring programs.

In 2005, the Center for Watershed Protection (CWP, 2008) prepared a report for DNR called, “A User’s Guide to Watershed Planning in Maryland,” (CWP, 2005). The guide emphasizes the benefits of watershed planning and presents “a common watershed planning framework for Maryland communities, assembles planning resources into one place, integrates regulatory drivers, and presents the methods necessary for completing a local watershed plan.” The guide introduces an 8-step framework for developing a watershed plan followed by 27 principles of an effective plan. The resultant local watershed plans focus primarily on watershed/habitat restoration and water quality. According to the guide, watersheds and subwatersheds (< 10 sq mi) are the most practical units for watershed planning.

In the past Maryland has developed strategies and programs to address issues of water quality and placed less emphasis on water supply. More recently water supply issues have been garnering more attention. The findings and recommendations in the Wolman Report indicate the need to integrate water supply and water quality planning and to report on the impacts of water supply on water quality. New sources of funding will be required to migrate from a system of regulatory programs with schedules and legal actions to a more integrated management approach. Water resources planning itself also needs to become more of a priority in Maryland. According to a point of contact interviewed in the follow up discussion for this summary, planning has traditionally not been a high priority in Maryland and there is an explicit need to encourage support for more planning. A comprehensive water resources plan will support local government planning by providing baseline data and help to guide development as populations grow.

In addition to development and implementation of the various water quality plans, Maryland has two websites aimed at providing data and information on water quality monitoring and the status of the Chesapeake Bay. The first is BayStat, created in 2007 by Executive Order 01.01.2007.02 (BayStat, 2008), and the second is DNR’s Eyes on the Bay, which contains data collected by DNR’s Chesapeake Bay and Coastal Bays Water Quality Monitoring Programs.

Maryland is also considering climate change in its comprehensive water resources planning. In 2008, the Maryland Commission on Climate Change published its Climate Action Plan (Maryland Commission on Climate Change, 2008). The Action Plan includes an appendix outlining the findings and recommendations of its Adaptation & Response Working Group. Some of the recommendations include integrating planning for coastal erosion, coastal storms, and sea level rise; improving integrated GIS for mapping, modeling, and monitoring; developing a green economic development initiative; increasing public awareness, outreach, training and capacity building; adopting new criteria for identifying natural resources priority protection areas; and adopting sustainable shoreline and buffer area management practices. Many of the strategies outlined in this appendix are tied with current or future water resources planning initiatives. For example, “Water for Maryland’s Future” states that climate changes imposes additional water resources challenges and that more monitoring and data are need to help track the effects of climate change on water resources.

Interstate conflicts for water in Maryland are mainly centered on the resources of the Chesapeake Bay. The amount of water reaching the bay and the quality of that water is influenced by actions and events occurring upstream in other states in the watershed. The Susquehanna River provides about half of the water coming into the Chesapeake Bay and is also a major source of water for the city of Baltimore. Maryland conducts a heavily supported program aimed at restoring the waters and coastal resources of the Bay. The EPA is the lead agency that oversees the restoration effort; however, it allows states to set varying standards for water quality, creating the potential for interstate conflicts. Maryland is part of the Susquehanna River Basin Commission which serves as a useful forum for addressing and solving interstate water resources issues.

A comprehensive water resources plan will also help to address conflicting water needs, both within the state and among other states in the region. Maryland relies on regulatory methods, such as its water allocation permitting system to manage water supply for competing needs within the state. Statewide and tributary strategy teams have been set up to address conflicting issues; however, the operating programs are carried out independently without an overarching plan to guide them in an integrated manner. At the local level a comprehensive plan would help to form a link between local government planning and state planning and would provide direction in issues of conflicting water needs.

While the “Water for Maryland’s Future” is not an actual statewide water supply plan, it provides a series of recommendations on how the state must conduct water resources planning and management:

- Maryland must develop a more robust water resources program based on sound, comprehensive data:
 - Maryland faces new challenges in attempting to manage water sustainably.
 - Critical basic data must be obtained.
 - A statewide water supply plan should be developed.
 - State and local governments should coordinate and plan regionally.
- The staffing, programmatic and information needs of the water supply management program must be adequately and reliably funded:

- Establish a permit fee to fund the cost of administering the permitting system.
- Fund the hydrologic studies with a separate appropriation.
- Provide funding for local governments.
- Improve the recruitment and retention of personnel.
- Specific legislative, regulatory and programmatic changes should be implemented:
 - The state should take specific steps to promote collaborative local planning and to facilitate regional planning.
 - MDE should codify its water allocation policies.
 - The State should require local jurisdictions to protect source waters.
 - State and local governments should strengthen their programs for water conservation, water reuse, and demand management.
 - Maryland should strengthen the regulation of individual wells to better protect public health.
 - State and local governments should discourage the use of individual wells in areas at high risk for well contamination.
 - MDE should make greater use of Water Management Strategy Areas.
 - The General Assembly should authorize administrative penalties for violations of water appropriation permits.
 - Maryland should develop an effective water supply outreach program

5. PARTNERSHIPS, STAKEHOLDER, AND PUBLIC INVOLVEMENT

MDE and DNR work closely with the Maryland Departments of Planning, Agriculture, Transportation, and General Services; the Maryland Energy Administration, and the University of Maryland's Center for Environmental Science to implement water resources planning and management. They also have the cooperation of regional entities such as the Metropolitan Council of Governments, the Chesapeake Bay Commission, the Maryland Water Monitoring Council, the Susquehanna River Basin Commission, and the Interstate Commission on the Potomac River Basin.

Maryland's planning activities are supported by a number of federal agencies, particularly the EPA, the U.S. Geological Survey (USGS), the Department of Agriculture (USDA), and the U.S. Army Corps of Engineers (USACE). These agencies are important supporters in implementing water resources programs and regulatory policies and their involvement generally occurs on a one-to-one basis, for example, the MDE coordination with EPA in administering provisions of the Safe Drinking Water Act. A notable exception occurs with the USACE's participation as the federal member of the SRBC and its role as facilitator of the implementation of the SRBC Comprehensive Plan through coordinating and tracking the participation of all the federal agencies in the basin.

The public is engaged throughout the planning process for each of the various planning initiatives.

6. PLAN IMPLEMENTATION STRATEGY

For water quality and related environmental purposes, the Statewide and Individual Tributary Strategies are used as guides to the implementation process. The Chesapeake Bay Tributary Strategy Statewide Implementation Plan contains timetables, budgets, and corresponding actions to achieve goals established with two year milestones. Existing state programs working to implement the strategy, such as the Statewide Stormwater Management Program, are regulatory- and incentive-based, and require cooperation of local government, Soil Conservation Districts, private landowners, and others.

“Water for Maryland’s Future” does not provide a clear-cut strategy to develop a comprehensive statewide water supply plan. It also does not give specific guidance on how that plan will be implemented but concludes that:

...water resources management must be integrated with the growth management and land use responsibilities delegated to local governments and the water resource responsibilities of other State agencies. Implementation of Maryland’s water resources program will require increased and sustained support from elected officials, agency leaders, the regulated community and the public to create the institutional structure for successful programs and to provide adequate funding (Wolman, 2008(a), pg. 4).

Implementation of local water supply element plans is the responsibility of local governments, and, in part, the public through voluntary measures.

7. OUTCOMES ASSESSMENT PROCESS

Success of the Tributary Strategies is measured by the percent nutrient reduction relative to the Chesapeake 2000 Agreement’s water quality goals (MDE, 2008). The Tributary Strategy Statewide Implementation Plan states that these goals are:

The watershed’s jurisdictions — six States and the District of Columbia — must cut current nutrient loads to the Bay in half to meet the Chesapeake 2000 Agreement water quality goals. This means reducing annual nitrogen and phosphorus loads baywide by 110 million pounds and 6.3 million pounds, respectively, from 2000 levels (pg. 2)

The baywide nutrient loading caps are 175 million pounds of nitrogen and 12.8 million pounds of phosphorous. Maryland’s allocation of the cap is 37.25 million pounds for nitrogen and 2.92 million pounds for phosphorous. Achieving these caps will require more than a 50 percent reduction of the 1985 nutrient runoff levels from all sources (pg. 4)

In February 2007, Governor Martin O’Malley created Bay Stat by Executive Order to assess, coordinate, and target Maryland’s Bay restoration program efforts and to inform the public on progress. Under the direction of the Governor, Bay Stat meets monthly to determine if the State’s restoration work is on track and, if not, to take the appropriate corrective action.

A significant tool available to Bay Stat for its assessment process is data generated from each of the Tributary Basins' Best Management Practices Implementation to determine the progress made toward meeting tributary goals. Because the Bay jurisdictions have not met the goals established in 2000, and are not expected to because of the large disparity between the goals and actual progress, a Bay TMDL is being established.

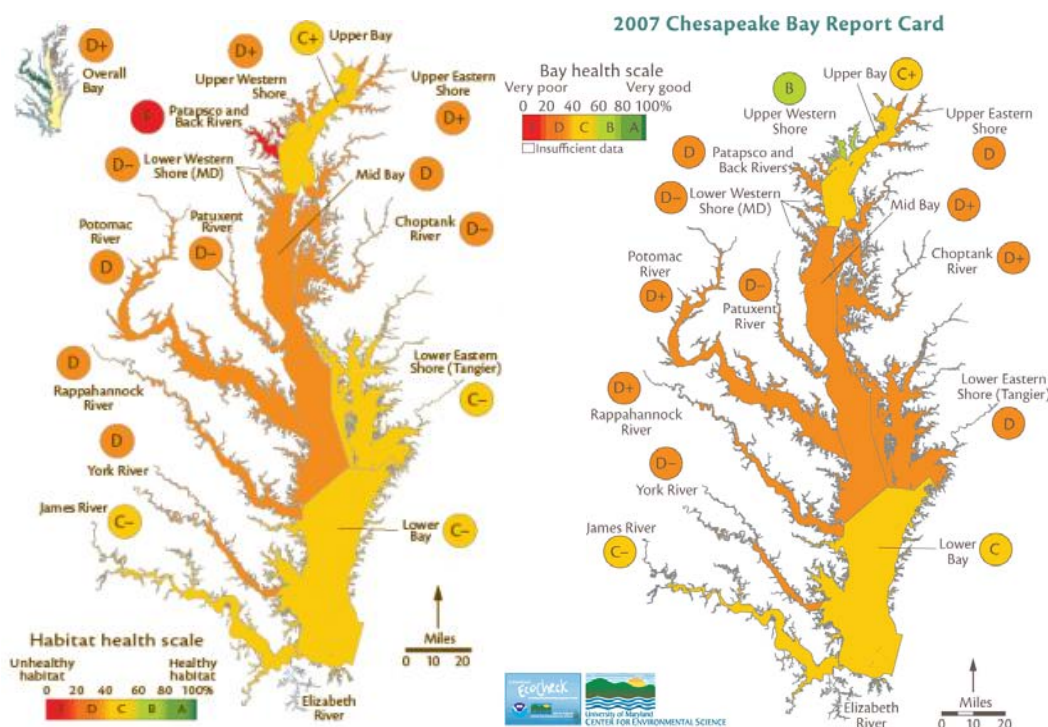


Figure 2. Chesapeake Bay Health Report Cards (Right, 2006. Left, 2007) (Chesapeake Ecocheck, 2006 and 2007)

In an independent analysis by the University of Maryland's Center for Environmental Science, researchers gave the Chesapeake Bay an overall grade of C- in 2007, indicating improving but far from optimal conditions (Figure 2). The change in grade from a D+ in 2006 was mainly due to significant improvements in the Upper Western Shore basin. The grade for each subbasin was determined using a water quality index (based on chlorophyll a, dissolved oxygen, and water clarity data) and a biotic index (based on aquatic grasses [GASSES?] [no grasses, the grasses are aquatic], benthic index of biotic integrity, and phytoplankton index of biotic integrity data). Data are collected and compiled by the USEPA's Chesapeake Bay Program.

8. NEEDS, CHALLENGES AND CRITICAL PRIORITIES - INTERVIEW INSIGHTS

The key water resources issues/needs in Maryland are:

- Further developing the elements of a comprehensive statewide water supply plan.
- Once a water supply plan is developed, integrating it with the state's existing water quality programs and plans to develop an integrated statewide water resources plan.

- Meeting the water supply and quality needs of a population that stands to grow 27 percent by 2030 and developing in a manner that reduces the impact of population growth on water resources.
- Provide local governments with guidance and direction in planning for water resources in their own comprehensive plans.
- Continuing to work towards restoring the waters and coastal resources of the Chesapeake Bay.
- The need for funding to support basic studies and monitoring programs that will form the basis for a comprehensive water supply plan.

With the recent findings and recommendations from the report “Water for Maryland’s Future: What We Must Do Today”, it is clear that Maryland needs to improve its planning and management for water supply. Maryland has set a goal to develop a water supply plan within three years. Funding to support studies and programs needed to develop a plan are inadequate and uncertain. A major first priority is stabilizing the existing water supply programs so that it will be easier to make plans for the future.

Partnerships will be a key to future water resources planning. The State of Maryland will have to work with local governments within the state in developing a water supply plan and an integrated water resources plan. Coordination will ensure that development to meet a growing population is carried out in a sustainable fashion. Maryland will also need to continue working as a member of the Susquehanna River Basin Commission to solve interstate conflicts and to maintain communication with other states. In addition, federal partnerships will continue to be important to the State of Maryland. Cooperative relationships with USGS, the EPA, the Department of Agriculture and the USACE will need to continue to carry on and enhance the state’s water resources programs and policies, with the aim of more mutually beneficial relationships developed as a result of collaborative efforts conducted on a more systematic basis.

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