

CHAPTER 7.6 CHESAPEAKE BAY PROGRAM INITIATIVES

The Commonwealth of Virginia has 120 miles of Atlantic Ocean coastline and approximately 2,200 square miles of estuary. The estuarine waters of Chesapeake Bay and its tidal tributaries are valued for their commercial fishing, wildlife, sporting, and recreational opportunities, as well as its commercial values in shipping and industry. In the late 1970's, adverse trends in water quality and living resources were noted and prompted creation of the Federal-Interstate Chesapeake Bay Program (CBP).

Through participation in the CBP and implementation of special state initiatives, Virginia maintains a firm commitment to rehabilitate and wisely manage its estuarine resources. This chapter provides an overview of the state's initiatives intended to restore and preserve the Chesapeake Bay and its tidal tributaries.

Federal - Interstate Chesapeake Bay Program

In 1983, Virginia, Maryland, Pennsylvania, the District of Columbia, the Environmental Protection Agency, and the Chesapeake Bay Commission signed the first Chesapeake Bay Agreement, formally initiating the restoration and protection of the Bay using a cooperative Chesapeake Bay Program approach. This approach established specific mechanisms for its coordination among the Program participants. Over the past decades several updated and new Bay Agreements, Executive Council Directives and pollution reduction strategies have been adopted by the Bay Program partners, generally refining and making the goals and objectives of the restoration effort more specific, establishing timelines and measurable outcomes to gauge progress.

On June 28, 2000, the Chesapeake Executive Council signed Chesapeake 2000 – a far-reaching agreement that has been guiding Maryland, Pennsylvania, Virginia, the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency (EPA) in their combined efforts to restore and protect the Chesapeake Bay. Chesapeake 2000 outlined over 100 commitments in five program areas – Living Resource Protection and Restoration, Vital Habitat Protection and Restoration, Water Quality Protection and Restoration, Sound Land Use, and Stewardship and Community Engagement – detailing protection and restoration goals critical to the health of the Bay watershed. From pledges to increase riparian forest buffers, preserve additional tracts of land, restore oyster populations and protect wetlands, Chesapeake 2000 pushed improving water quality as the most critical element in the overall protection and restoration of the Bay and its tributaries.

Despite some reductions in pollution resulting from nutrient load reduction efforts, the Chesapeake Bay and most of its tidal tributaries have been placed on the “impaired waters” list due to non-attainment of water quality standards. Per Section 303(d) of the Clean Water Act, this action necessitated the development of a “total maximum daily load” (TMDL). Since 2005 DEQ and regulatory agencies across seven jurisdictions (Virginia, Maryland, Delaware, West Virginia, Pennsylvania, New York, and the District of Columbia) have been actively involved with EPA in the development of this TMDL, the largest ever developed to date. The Chesapeake Bay TMDL, approved December 31, 2010 by EPA, is an aggregation of smaller TMDLs representing the 92 individual tidal segments (39 of which belong to Virginia) comprising the Bay and its tributaries. The TMDL sets Bay watershed annual limits of 185.9 million pounds for nitrogen (25% reduction), 12.5 million pounds of phosphorus (24% reduction), and 6.45 billion pounds of sediment (20% reduction). These limits are divided by jurisdiction and major river basin as determined by modeling, on-the-ground monitoring data, and peer-reviewed science. A goal has been set to put all pollution control measures in place by 2025, with 60% of actions being completed by 2017. Increased dissolved oxygen concentrations, improved water clarity and growth of submerged aquatic vegetation (SAV), and the reduction in the frequency and size of algal blooms (as measured by chlorophyll *a* concentrations) are among the anticipated outcomes in water quality from these actions. More about the Chesapeake Bay TMDL can be found here: <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>.

In Virginia, the Department of Environmental Quality (DEQ) has primary responsibility for point source
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discharge issues, bringing together programs in the areas of surface and groundwater protection, waste management, and air pollution control. The Department of Conservation and Recreation (DCR) has the lead for nonpoint source control programs. Other state agencies that provide vital support include: Game and Inland Fisheries, Forestry, Health, Marine Resources Commission, Agriculture and Consumer Services, along with higher education units Virginia Institute of Marine Science and Old Dominion University.

Watershed Implementation Plan

Virginia's Watershed Implementation Plan (WIP) for the Bay TMDL is an evolution of Virginia's Tributary Strategies Program started in 2005. It is designed through collaboration of agencies under the Secretary of Natural Resources, local and regional non-regulatory governmental bodies, concerned citizen groups, and the regulated community to accomplish the allocation goals set by the Bay TMDL. The first of three phases of the WIP establishes the authorities, actions, and control measures that will be implemented to achieve the non-point and point source TMDL allocations. It allocates basin-specific pollution loads to wastewater treatment plants, agriculture, forest, urban stormwater, septic, and air sources. It is anticipated that many of these allocations will be achieved through the enforcement of current and proposed regulations. Proposed tax credits and existing grant programs (such as Virginia's Water Quality Improvement Fund) will facilitate Best Management Practices (BMPs) and system upgrades that prevent and/or reduce nutrient and sediment pollution. Use of the existing Nutrient Credit Exchange program is also incorporated into the plan. Additionally, the WIP charts out a study designed to evaluate the numeric chlorophyll *a* standards used to determine nutrient impairment in the tidal portion of the James River. More information about Virginia's Phase I WIP can be found at the following website: <http://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayWatershedImplementationPlan.aspx>.

Water Quality and Habitat Monitoring Initiatives

Chesapeake Bay Program

Monitoring is vital to understanding environmental problems, developing strategies for managing the Bay's resources, and assessing progress of management practices. The purpose of the Chesapeake Bay Program (CBP) Water Quality and Habitat Monitoring Program is to assess status and trends in water quality and living resources throughout the Virginia portion of the Bay and its major tidal tributaries. Parameters monitored include those directly related to Water Quality Standards (e.g. dissolved oxygen, water clarity, chlorophyll *a*, etc...) as well as basic ecological health indicators such as primary productivity, nutrients, phytoplankton species, etc. A general description of Virginia's Chesapeake Bay monitoring program is:

- Water quality monitoring at 38 fixed stations on the Rappahannock, York and James Rivers;
- Water quality monitoring at 27 fixed stations in the Chesapeake Bay mainstem;
- Water quality monitoring and estimates of nutrient loading at stations on the James, Rappahannock, Mattaponi, Pamunkey, Shenandoah, Appomattox, Chickahominy and other smaller rivers throughout the Bay watershed;
- Monitoring of phytoplankton communities in the mainstem of the Chesapeake Bay at 7 stations and in the tributaries at 6 stations;
- Monitoring of benthos communities in the Bay and its tributaries at 19 fixed stations and 100 random stations per year;
- Spatially and temporally intensive monitoring of selected water quality parameters on a rotating waterbody basis for 3-year periods.

Estuarine Probabilistic Monitoring Program (Coastal 2000)

A less extensive monitoring program which probabilistically samples all of VA's estuarine waters

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(including those outside the Bay watershed such as on the Atlantic coast of the Eastern Shore, Back Bay, and North Landing River) is the “National Coastal Assessment (NCA) Program”, formerly known as the “Coastal 2000 Initiative”. A detailed description of this program is provided in Chapter 3.2.

Toxics, Pollution Prevention and Businesses for the Bay Initiative

The 1987 Chesapeake Bay Agreement committed signatories to develop, adopt and begin implementation of a basin-wide toxics strategy to achieve a reduction of toxic pollutants consistent with the Water Quality Act of 1987. Following the implementation of a multi-jurisdictional effort to define the nature, extent, and magnitude of toxics problems, the strategy was further strengthened with the adoption of the 1994 Basin-Wide Toxics Reduction and Prevention Strategy. The primary goal of the 1994 strategy was to have a *“Bay free of toxics by reducing and eliminating the input of chemical contaminants from all controllable sources to levels that result in no toxic or bioaccumulative impact on living resources that inhabit the Bay or on human health”*.

Building upon progress achieved through the implementation of the 1994 Strategy, the Chesapeake Bay Program adopted a revised strategy in December 2000 known as the “Toxics 2000 Strategy”. With the retention of the 1994 goal, new objectives and commitments were developed and incorporated. An important strategy objective is to strive for zero release of chemical contaminants from point and non-point sources through pollution prevention and other voluntary means. For those areas with known chemical contaminant problems referenced as Regions of Concern, such as the Elizabeth River in Southeastern Virginia, the strategy includes commitments leading to their restoration. Finally, the strategy includes commitments that will provide the means to measure progress toward meeting the overall strategy goal. One approach consists of toxics characterization derived from concurrent biological and chemical monitoring.

Pollution prevention (or P2) is a hierarchy of activities and techniques to reduce or eliminate wastes at their source of generation. P2 was embraced by the Chesapeake Bay Program because many P2 techniques not only decrease chemical discharges and waste generation, but also result in increased production efficiency and reduced waste disposal costs for businesses. For this reason, business and industry have been the leaders in developing many P2 techniques and are proponents of this voluntary approach to eliminating or reducing the generation of wastes.

Businesses for the Bay is a voluntary team of forward-looking businesses, industries, government facilities and other organizations within the Chesapeake Bay watershed. The program is committed to implementing pollution prevention in daily operations and reducing releases of chemical contaminants and other wastes to the Chesapeake Bay. Businesses for the Bay is administered by the EPA's Chesapeake Bay Program office in Annapolis, MD and coordinated by the state pollution prevention program of the signatory states (VA, MD, PA, and DC). Businesses for the Bay members make annual commitments to reduce wastes, and they report on their successes. Members are eligible for public recognition and prestigious awards from the Chesapeake Bay's Executive Council. Currently, Virginia has over 170 Businesses for the Bay members and 70 volunteer mentors; and the entire program has nearly 300 members and over 110 mentors. All 110 mentors are included in the Virginia Mentoring Network and available to provide assistance to Virginia companies and other organizations.