Martin O'Malley, Governor

Governor O'Malley's Chesapeake Bay Restoration Plan

Accelerating Actions to reach a Healthier Bay Tipping Point by 2020

Introduction

The Chesapeake Bay and its many tributaries endure an array of assaults from our actions in the air, water and land. The Bay's worst problem is nutrient pollution, specifically too much nitrogen and phosphorus from fertilizers, human and animal waste, and vehicle and power plant emissions. The best science available tells us that Maryland needs to reduce the amount of nitrogen entering the Bay by about 32%, and the amount of phosphorus entering the Bay by about 21%, from 2008 levels in order to realize a restored Chesapeake Bay.

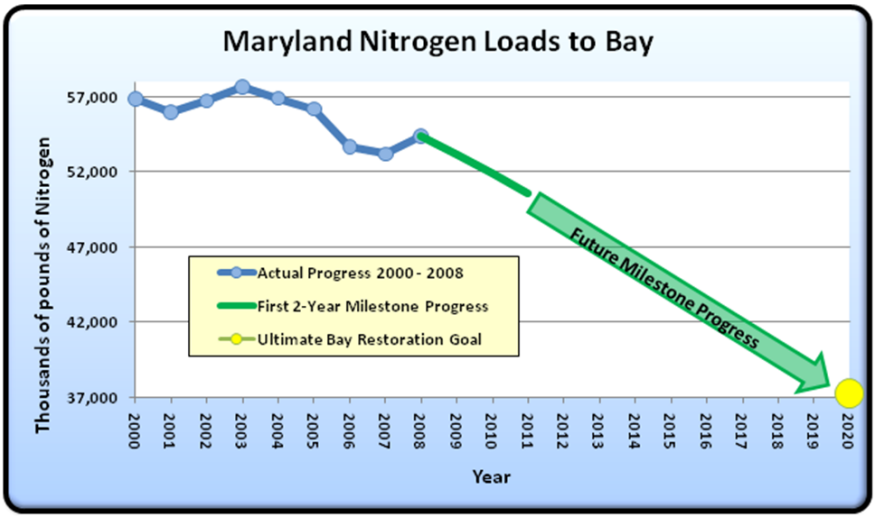
For over a quarter century, Maryland, Virginia, Pennsylvania, the District of Columbia, and the federal government have worked to together to address these problems and restore Chesapeake Bay. While there have been successes, it is clear that we are not collectively realizing the results we need in order to reach our Bay restoration goals. Part of the reason for our lack of sufficient progress has been that we have set large goals far off into the future - allowing us to delay difficult decisions and hard actions to future administrations.

Maryland's First 2-Year Milestones

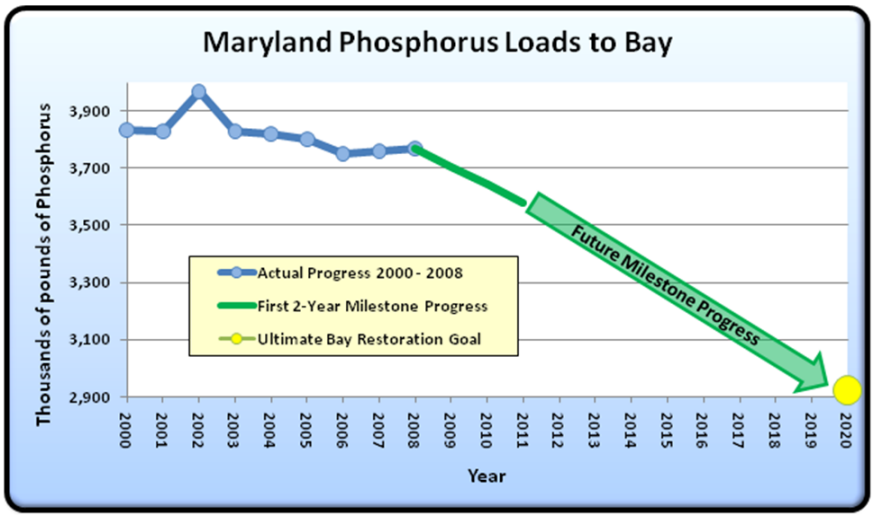
Under Governor O'Malley's leadership, Maryland and our Bay restoration partners have now taken a new and dramatically different approach to realizing a restored Chesapeake Bay. We recently adopted the first set of "2-Year Milestones" that will allow us to hold ourselves – and not some future group of policy makers – accountable. These 2-Year Milestones are specific actions that will be completed in the near term - by December 31, 2011 – not general goals to be completed decades in the future, and will put us on the pace we need to be on in order to reach our ultimate Bay restoration goals by 2020. As Maryland moves forward on implementing this first set of 2-Year Milestones, we will also be developing the second series of 2-Year Milestones to carry us from 2011 through 2013, and maintain the progress we need in order to achieve a restored Chesapeake Bay by 2020.

For Maryland, the first 2-Year Milestones consist of a suite of 27 specific and accelerated actions that will result in an additional reduction of 3.75 million pounds of nitrogen and 193,000 pounds of phosphorus from reaching the Bay by the end of 2011

beyond the reductions already being realized through existing programs. Achieving this goal will put us on the nitrogen and phosphorus reduction rate that we need to maintain in order to meet our ultimate Bay restoration goals by the end of 2020.



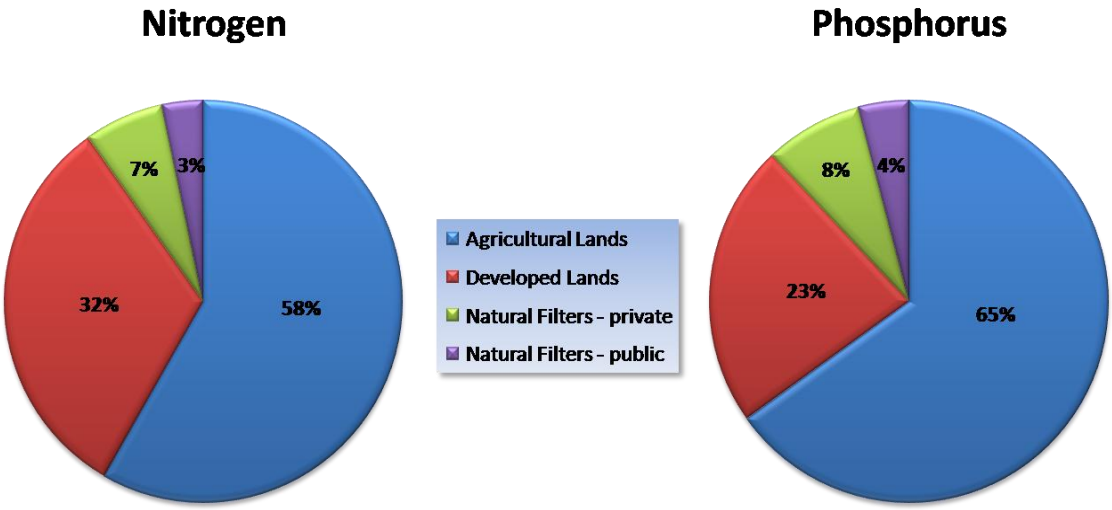
Importantly, these 27 actions are specific and measureable. Lead State agencies are developing detailed implementation strategies for each action which will be published on the Baystat website when complete. These implementation strategies represent our best projections to date on how to achieve our goals, but with the flexibility and understanding that we will need to change and adapt as we move forward. Maryland will use Governor O'Malley's BayStat process to publicly and transparently track our progress at implementing these actions, and to hold ourselves accountable to achieving them.



The suite of 27 actions to be implemented by 2011 span four major sectors:

- Agriculture – Implementing Best Farming Practices
- Reducing Pollution from Developed Lands
- Restoring Natural Filters on Private Lands
- Restoring Natural Filters on Public Lands

Additional Nitrogen and Phosphorus Reductions by Sector:



Fully implementing these programs will not be easy, and will require the active participation of many partners from each of the identified sectors.

Following is a list of the 27 2-Year Milestones, a brief description of each, expected additional nitrogen reductions, and the accelerated level of implementation over 2008 levels. Detailed Action Plans identifying monthly actions, benchmarks of progress, and acceleration of efforts for each of the 27 milestones will be published on the BayStat website in the near future. All of these will be tracked on the BayStat website and will be modified via BayStat as necessary as we proceed.

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Agriculture – Implementing Best Farming Practices		
Plant 460,000 acres of Cover Crops (MDA): Cover crops are small grains such as wheat or rye that are planted in the fall after the harvest of corn, soybeans, and other summer crops to absorb unused fertilizers that remain in the soil. Cover crops also provide a ground cover to reduce soil erosion in the winter.	1.37 million pounds	**156%**

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Increase Nutrient Management Plan Enforcement on an additional 100,000 acres (MDA): Nutrient management plans detail the optimum use of farming practices to minimize nutrient loss while maintaining crop yield, and are required of all farmers. Although over 1.2 million acres of farmland are in compliance, MDA enforcement actions will address the remaining 100,000 acres.	311,000 pounds	9%
Update Soil Conservation and Water Quality Plans on 257,049 acres (MDA): A Soil Conservation and Water Quality Plan is a comprehensive plan for a farm that addresses natural resource management and recommends best management practices that minimize nutrient and sediment loss.	159,370 pounds	22%
Construct Heavy Use Poultry Area Concrete Pads on 400 farms (MDA): Concrete pads are constructed at entrances to poultry houses and waste storage structures to safeguard water quality during cleanouts.	88,000 pounds	*New Program*
Construct 145 Livestock Waste Structures (MDA): Animal waste structures serve as means to store waste generated from animal confinement operations until it can be used as crop fertilizer or transported to another location, thereby reducing the amount that washes off into waterways and the Bay.	76,995 pounds	13%
Construct 200 Water Control Structures (MDA): Water control structures include a variety of means to slow the flow of water off of drained fields (primarily on the Eastern Shore) and thereby decrease the amount of pollutants washing off the fields and into the Bay.	75,000 pounds	*New Program*
Implement Dairy Manure Incorporation Technology on an additional 2,500 acres (MDA): On fields that utilize dairy manure as fertilizer, the manure is incorporated into the soil at the time of application using low disturbance technology. This practice can reduce ammonia loss to the atmosphere by up to 95% compared to traditional surface application.	22,000 pounds	*New Program*

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Expand Stream Protection with Fencing on an additional 3,000 acres (MDA): Livestock that are allowed to wade into streams cause a significant amount of streambank erosion and pollutant loss from pastures into the Bay. Stream protection with fencing involves fencing narrow strips of land along streams to completely exclude livestock.	20,370 pounds	71%
Expand Manure Transport Program by 10,000 tons (MDA): Excess manure is transported away from farms with high soil phosphorus levels to other farms or locations that can use the manure safely.	20,000 pounds	13%
Implement Poultry Manure Incorporation Technology on 2,500 acres (MDA): Poultry litter is incorporated into the soil at the time of application as fertilizer utilizing minimum disturbance technologies which significantly reduce ammonia loss.	13,000 pounds	*New Program*
Construct 53 Poultry Waste Structures (MDA): These structures protect poultry waste from rain and resulting runoff into streams and the Bay until it can be used as a crop fertilizer or transported to another location.	11,130 pounds	4%
Expand Stream Protection without Fencing on an additional 3,000 acres (MDA): This management practice involves the use of troughs or "watering holes" in remote locations away from streams as well as the placement of stream crossings. These systems help protect stream banks from erosion and pollutant runoff that may be caused by livestock.	10,200 pounds	9%
Establish 75 Runoff Control Systems (MDA): Runoff control systems use a variety of techniques to direct rainwater to places where it will minimize nutrient runoff or soil erosion. Gutters and downspouts on barns and grading of the land are examples of ways to direct runoff from rainfall.	5,175 pounds	8%

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Reducing Pollution from Developed Lands		
Upgrade 14 Wastewater Treatment Plants to Enhanced Nutrient Removal (ENR) technology (MDE): Upgrading WWTPs to ENR brings them to the limit of technology for removing nitrogen and phosphorus pollutants from their discharge.	740,000 pounds	6%
Implement the Maryland Healthy Air Act (MDE): More than 1/3 of the pollution entering the Chesapeake Bay comes from the air, primarily from power plants and vehicles. Emission controls on power plants required by the MD Healthy Air Act will significantly reduce the amount of these pollutants entering the Bay.	305,882 pounds	*New Program*
Upgrade Blue Plains WWTP to Biological Nutrient Removal (MDE): Blue Plains WWTP is one of the largest treatment plants in the world. The planned upgrade of its treatment capabilities to BNR is an interim step in its eventual upgrade to ENR and will significantly reduce the amount of pollutants that it releases into the Potomac River.	190,000 pounds	*New Program*
Retrofit Stormwater Management systems on 90,000 acres (MDE): Stormwater management systems help control nonpoint source pollution through the use of structural and non-structural techniques that intercept, filter, and treat runoff from developed lands.	119,700 pounds	41%
Required retrofits of 1,080 Septic Systems in the Critical Area to Best Available Technology (MDE): Traditional septic systems discharge substantial amounts of nitrogen to groundwater and, eventually, the Bay. Today, better septic systems are available that significantly reduce nitrogen pollution, and these improved systems are now required in the Critical Area. MDE will help homeowners pay for these upgraded systems.	13,133 pounds	*New Program*

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Retrofit 1,920 Septic Systems outside the Critical Area to Best Available Technology (MDE): Septic systems can eventually fail to work effectively, resulting in elevated levels of nitrogen pollution that eventually reach the Bay. With a priority on replacing failing systems, MDE will provide funding and outreach to help homeowners voluntarily upgrade their septic systems.	10,042 pounds	703%
Restoring Natural Filters on Private Lands		
Expand Streamside Grass Buffers by 7,000 acres (MDA): Grass buffers are linear strips of grass or other non-woody vegetation between the edge of fields and streams, rivers, or tidal waters. Grass buffers filter nutrients coming off the land, stabilize the soil, and provide wildlife habitat.	119,420 pounds	18%
Expand Streamside Forest Buffers by 3,000 acres (MDA): Streamside forest buffers are linear wooded areas along rivers and streams that help filter nutrients, sediments, and other pollutants from runoff. They also remove nutrients from groundwater. In addition to their ability to improve water quality, their value at enhancing terrestrial and aquatic habitat make forest buffers a highly desirable practice.	86,160 pounds	15%
Restore 700 acres of Wetlands (MDA and DNR): Wetlands are highly valuable lands in terms of their abilities to both improve water quality and as important habitat for many species. This program will restore 700 acres of wetlands in areas where they used to exist.	20,104 pounds	8%
Retire 1,800 acres of Highly Erodible Land (MDA): Agricultural land that is especially vulnerable to erosion is removed from crop production and is planted in either grass or forest. This land is usually not disturbed for at least 10 years.	17,190 pounds	12%

Program	Accelerated Implementation (over 2008 levels)	
	Additional Nitrogen Reductions	% Increased Implementation
Restoring Natural Filters on Public Lands		
The four programs below are identical to the four under "Restoring Natural Filters on Private Lands", except that they will be implemented on state and local government lands. The Department of Natural Resources along manages approximately 13,000 acres of agricultural land, and the State should be leading by example. While these programs have been implemented to some degree on state lands in the past, they have not been tracked as such, and therefore are identified here as "New Programs".		
Expand Streamside Forest Buffers by 2,100 acres (DNR)	60,312 pounds	***New Program***
Restore 1,000 acres of Wetlands (DNR)	28,720 pounds	***New Program***
Retire 2,000 acres of Highly Erodible Land (DNR)	19,100 pounds	***New Program***
Expand Streamside Grass Buffers by 1,000 acres (DNR)	17,060 pounds	***New Program***

NOTE: While the above 27 programs will significantly reduce nitrogen pollution entering the Bay, they will also be partially offset by new septic systems and development that are expected to add approximately 184,000 pounds of nitrogen. These increases were taken into account in setting the accelerated goal.

***Contingencies*:**

As part of the 2-Year Milestone process, Maryland also identified a series of "contingencies". These are less well defined actions that were identified for two purposes:

1. For implementation should we fall short of our collective 2011 nutrient reduction goals, and
2. As an initial list of actions for consideration for Maryland's next set of 2-Year Milestones to be implemented in 2012 – 2013.

It is important to note that the Contingencies are possible options only. The identified contingencies are not the only options available. It is also recognized that many of these are difficult and would require regulatory and/or statutory changes in order to implement. The BayStat agencies will be reviewing all of these over the next two years, identifying the pros and cons of each, and the steps that would need to be taken in advance if they are to be implemented beginning in 2012.

Maryland Contingencies

Agriculture

- Increase manure transport program to export significantly more poultry litter out of the watershed.
- Increase enrollment of dairy and poultry manure incorporation technology significantly beyond 2,500 acres each annually.
- Implement precision agriculture on 100,000 acres.
- Implement ammonia emissions reduction programs at poultry houses.

Urban / Suburban

- Require all new and failing septic systems statewide to be replaced with best available technology.
- Require 1:1 or 2:1 best available technology septic system offsets for all new septic systems statewide.
- Require each acre of new development to be offset by retrofitting two acres of pre-1985 land for stormwater management.
- Connect septic systems in targeted watersheds with high septic loads (e.g. Magothy, Severn, South rivers) to WWTPs where it is cost-effective and with effective measures to prevent sprawl growth.

Natural Filters

- Substantially increase conversion of state-owned agricultural leases to forests or wetlands.
- Increase implementation of streamside buffers on agricultural and suburban lands.

General

- Implement Bay Bank and/or other effective nutrient and sediment cap and trade programs.
- Increase funding for 2010 Trust Fund as needed and possible.

Assessments of Future Management Actions

A key component of the BayStat process is to continually review and revise the effectiveness of Maryland's Bay restoration programs. Toward that end, several actions were identified during this process which should be undertaken to ensure the maximum possible efficiency of our collective programs. Included in that list of actions are the following:

- Revise nutrient reduction estimates for cover crops to reflect the latest scientific conclusions.

- Conduct an independent review of Maryland's nutrient management planning program and consider options to improve effectiveness based on available science.
- Conduct nutrient mass balance study to better target and implement actions.
- Study the feasibility of extending the Critical Area protective provisions to non-tidal waters.
- Evaluate the potential nutrient reductions gained by moving WWTPs using ENR from 4 mg/l on each plant to 3 mg/l and the potential sprawl implications of that action.
- Create a State Development Plan, as required by Maryland law, to identify changes to State-level programs and policies that could significantly reduce sprawl.

Challenges:

Successfully implementing Maryland's 2-Year Milestones will not be easy, but it is a challenge that we must rise to if we are realize our goal of a restored Chesapeake Bay. In order to reach our goal, we must overcome three major challenges:

Funding: Reaching our first 2-Year Milestones will require significant funding investments from State, federal, local, and private partners. Realizing these funding levels would be challenging in any times, but the current economic climate makes this particularly difficult. Agencies will need to diligently pursue all funding opportunities and continually refine their strategies in order to realize the greatest possible efficiencies.

Voluntary Participation: Only a few of the 27 identified programs are required by law or regulation, or are solely under the control of State agencies – the large majority require the voluntary participation of farmers, homeowners, local governments, watershed organizations, etc. While most of the programs provide funding to cover all or most of the cost of implementation, participation remains voluntary. Agencies are actively implementing outreach programs designed to educate potential participants in the benefits of implementation and to generate the level of participation necessary to realize success.

Public support: Success can only be achieved if we have widespread public support. Implementing these programs will require setting a restored Chesapeake Bay as a priority, and making hard decisions accordingly. The Bay is in the shape it is because of the actions of all Marylanders, and it will require the action and support of all Marylanders to restore it. To do so will require the active and widespread support of the public in implementing actions and in convincing neighbors, co-workers, companies, and elected officials to do the same. A strategy to garner the necessary public support is described below.

***Citizens Call To Action*:**

Governor O'Malley's "Smart, Green, and Growing" initiative is designed to bring Marylanders together to restore the Chesapeake Bay, preserve our land, revitalize our

communities, create green jobs, improve transit, conserve energy and address climate change. A central component of that effort is to inspire a greater stewardship ethic — and with it action among our citizens, businesses, faith- and community-based organizations — through a Citizens Call to Action that speaks to the values of all Marylanders, including urban, suburban and rural audiences. This Call to Action serves as a strategy for engaging all Marylanders in restoring and protecting the Chesapeake Bay and Maryland's environment.

The Call to Action will largely be implemented through a coordinated communication plan involving traditional media, websites, newsletters, greater outreach to stakeholder groups (ex. watershed organizations, Tributary Teams), and public events to relay the message that a restored Chesapeake Bay and environment benefits all Marylanders, but can only be realized through the active engagement of all Marylanders.

New programs are also being implemented by State agencies to provide the public with opportunities to promote environmental stewardship among all citizens. Some of the initial programs include the following. Additional programs will be added as they are developed.

Marylanders Grow Oysters: provides opportunities for waterfront landowners to grow young oysters in protected cages off their docks until they are large enough to be relocated to nearby oyster sanctuaries.
Website: www.oysters.maryland.gov

Marylanders Grow Trees: encourages citizen landowners to purchase, plant, and register on-line trees on their properties with a goal of 50,000 trees planted annually. Coupons for $25 off trees at participating nurseries can be downloaded from the websites. Homeowners can also calculate the monetary benefits afforded by planting different types of trees on their property.
Website: www.trees.maryland.gov

Partnership for Children in Nature: Children are a proven catalyst for getting adults to change behavior, and this program implements a variety of actions to engage children with nature, not only for their own benefit, but their parents' and the Bay's as well.

These and other programs are described on the Maryland Smart, Green, and Growing website (www.green.maryland.gov).

The Citizens Call to Action is already being implemented, and will continue to grow and evolve as we move forward on Maryland's first set of 2-Year Milestones.