2015 Annual Progress Summary

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Introduction

To meet Maryland's requirement in the Bay TMDL, we must reduce pollution to the Bay by more than 10 million pounds of nitrogen and 0.5 million pounds of phosphorus from 2010 levels. These reductions will come, in aggregate, from four key source sectors (point source wastewater, agriculture, urban stormwater, and on-site septic systems). Current estimates of nitrogen sources in the State indicate that agricultural lands represent about 40% of the load delivered to the Chesapeake Bay, point source wastewater is about a quarter of the load, urban stormwater runoff contributes about 20% of the load and on-site septic systems contribute about 5% of the load.

According to modeling results produced by EPA for the 2015 progress run, we estimate the State is now 36% toward our 2025 nitrogen goal, 102% toward our phosphorus goal[1] and 326% toward our sediment goal. For nitrogen we are on pace toward meeting the 2017 midpoint commitments and following the strategy detailed in our Watershed Implementation Plan and supported by our 2-year milestones. Our plan projected that by 2017 we would more than meet the 60% requirement for nitrogen and likely be at more than 100% for both phosphorus and sediment.

In our Phase I and II WIP we recognized that "progress is not the same for each pollutant because they may be reduced at different rates by each sector" and "the rapid progress in the wastewater sector will balance a slower start in other sectors". Because reductions in Wastewater Treatment Plants (WWTPs) will be credited by 2017, the remaining reduction is expected to be largely accomplished by the non-point source sectors. We are taking action on this through agricultural initiatives such as the Phosphorus Management Tool, MS4 permit issuances, revisions to their Bay Restoration Fund legislation to include opportunities for stormwater funding and fully funding the Chesapeake Bay and Atlantic Coastal Bays Trust fund this year.

The Phase III Watershed Implementation plan, combined with supporting 2-year milestones, will address reductions needed from 2018 to 2025.

[1] Please refer to section B and Table 1 for a qualifying condition to this statement.

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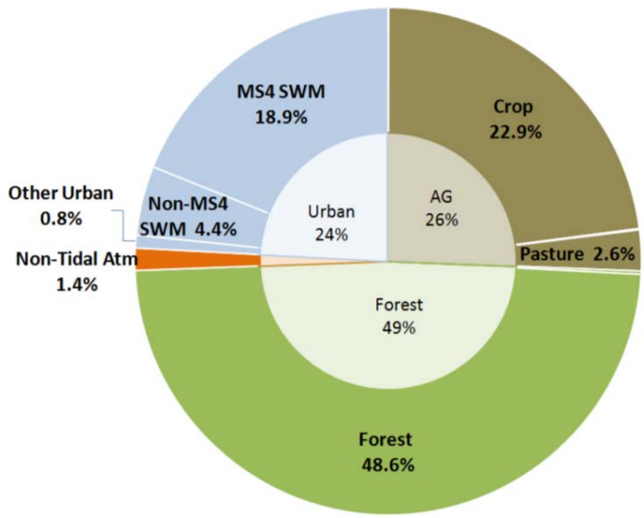
A. Land Use and Sources of Pollutant Loads

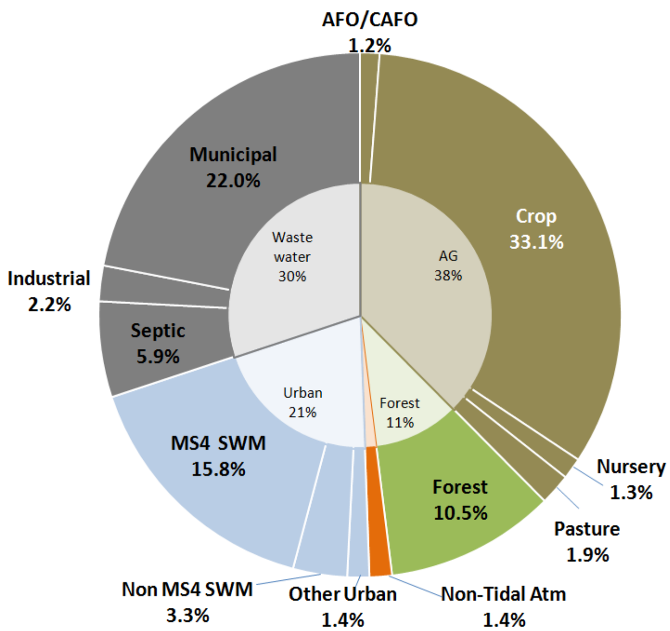
Figure 1 shows the land uses associated with three key pollutant source sectors in Maryland's Chesapeake Bay region. Figures 2 through 4 summarize the phosphorus, nitrogen and sediment loads from the urban, agriculture (AG), forest and wastewater source sectors.

Figure 1. Percentage of Acreage by Sector[2]



5,907,424 acres in MD Bay Watershed

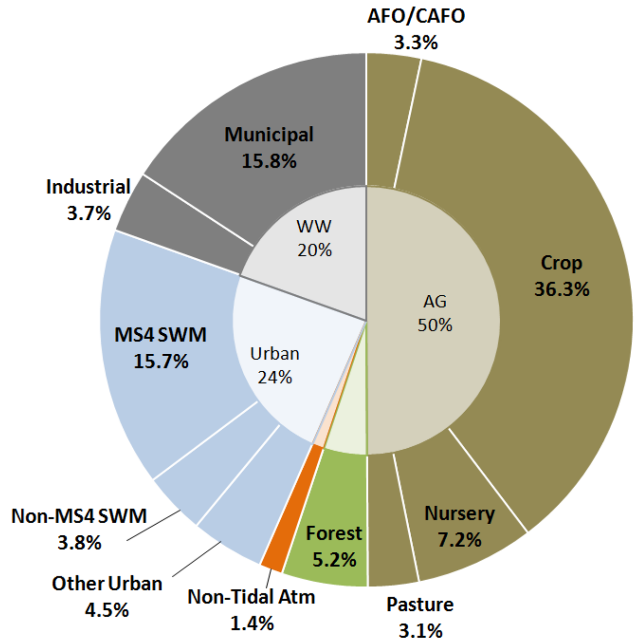
Figure 2. Percentage of Nitrogen Load by Sector



48.06 million lbs nitrogen delivered to Bay

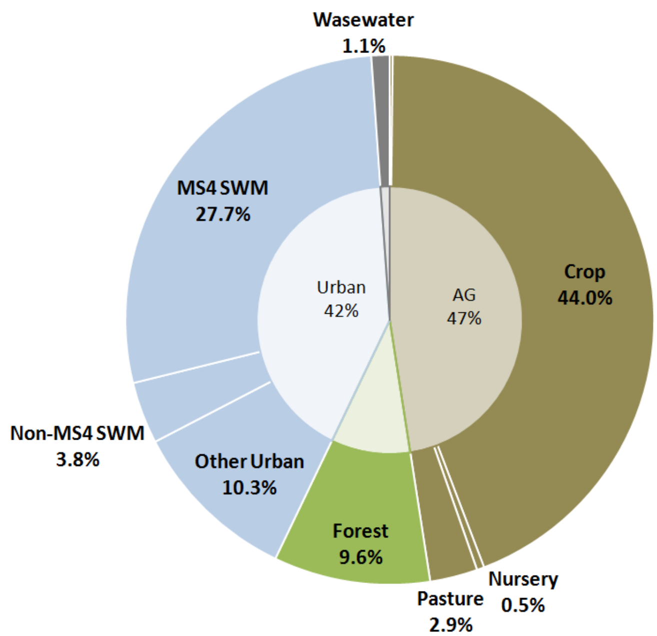
[2] The urban category includes stormwater runoff from areas under federal municipal separate storm sewer system (MS4) permits, similar areas without MS4 permits and the "other urban" category, which includes construction sites and extractive lands (mining).

Figure 3. Percentage of Phosphorus Load by Sector



2.8 million lbs phosphorus delivered to Bay

Figure 4. Percentage of Sediment Load by Sector



1.25 billion lbs sediment delivered to Bay

B. Status of Overall Reduction

Between 2009 and 2015 nitrogen loads from Maryland to the Chesapeake Bay decreased by 3.3 million pounds, phosphorus loads decreased by 0.482 million pounds and sediment loads decreased by 72,453 tons. Maryland is on track to meet its commitments for the 2017 loading target and the 2025 targets are within reach.

Table 1. 2015 status toward meeting 2025 TMDL goals

Pollutant	% to 2025
Nitrogen	36%
Phosphorus*	102%
Sediment	326%

* Caution is warranted when interpreting the Phosphorus progress results. Two studies by the United States Geological Survey (USGS), released in 2013 and 2015, indicate increasing phosphorus trends on Maryland's Eastern Shore. Based on these monitoring results and other available science, such as phosphorus saturation and transport in soils, EPA believes that the level of effort to manage phosphorus may increase and has advised Maryland to consider additional actions to manage phosphorus in its 2016-2017 milestones and Phase III WIP.

The following three figures and accompanying tables show the change in nutrient and sediment loads to the Chesapeake Bay since 1985. Horizontal lines mark the 2015, 2017 and 2025 load reduction targets.

Figures 5 and 6 show that nutrient loads from agriculture and wastewater decrease significantly from 1985 to 2015. Figure 5 and the accompanying table show that although nitrogen loads from septic systems have grown since 1985, the rate of increase has slowed in more recent years as septic upgrades generally counteract growth[3]. Urban/Suburban runoff loads show long-term increases in nitrogen and sediments, with fluctuations in more recent loads. Phosphorus loads from urban/suburban land show a long-term decline.

[3] The septic reduction also reflects slower growth in land development following the 2008 recession and adjustments to the State's inventory of known septic systems.

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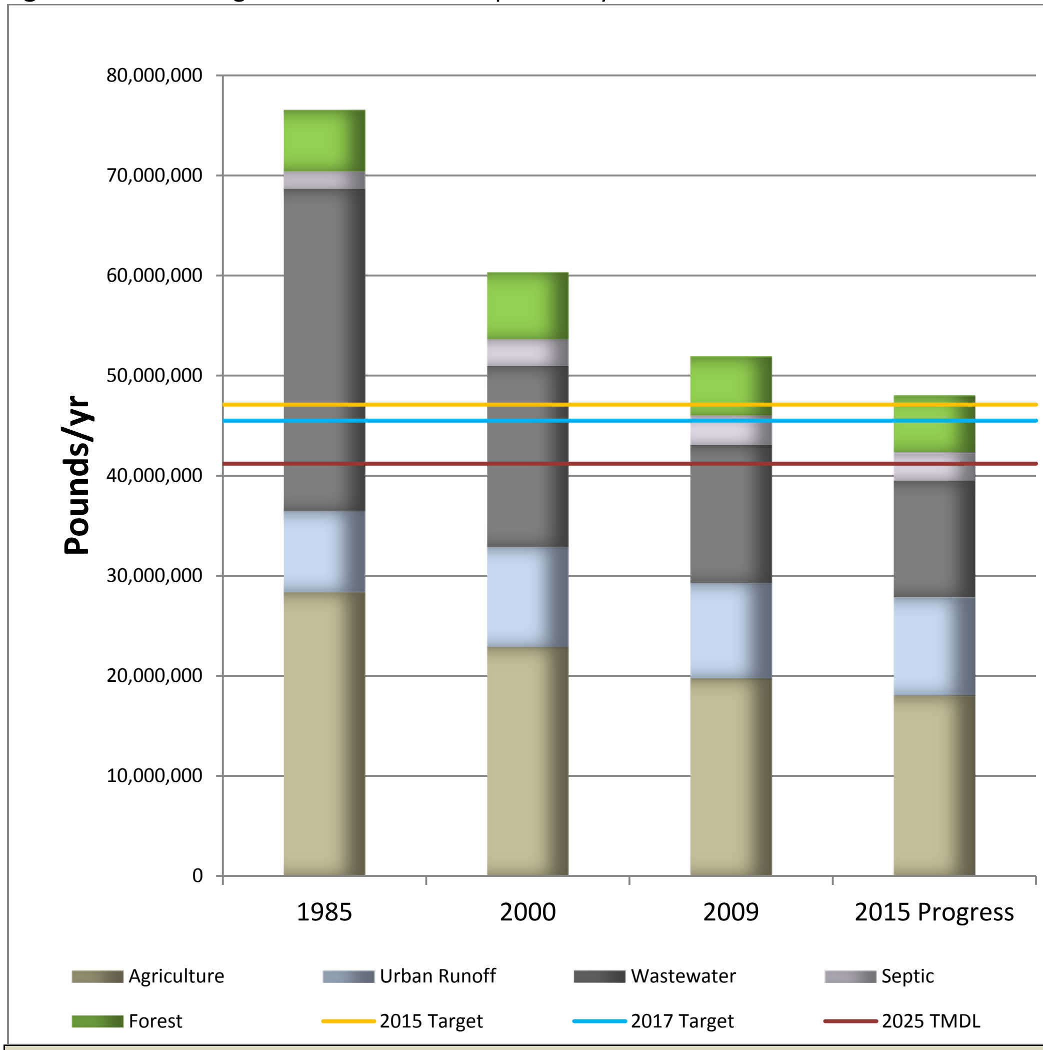
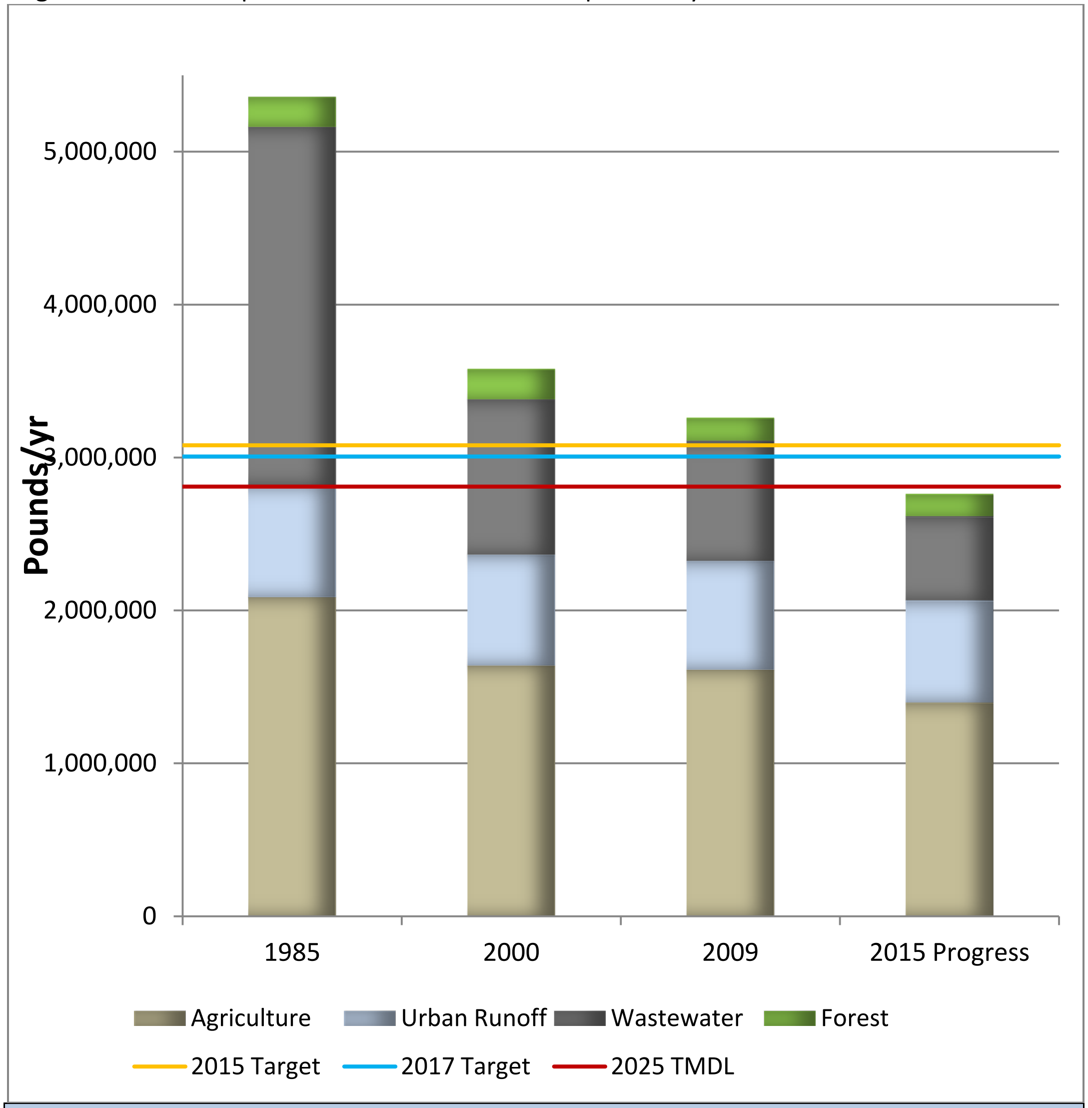
Figure 5. Total Nitrogen Delivered to Chesapeake Bay



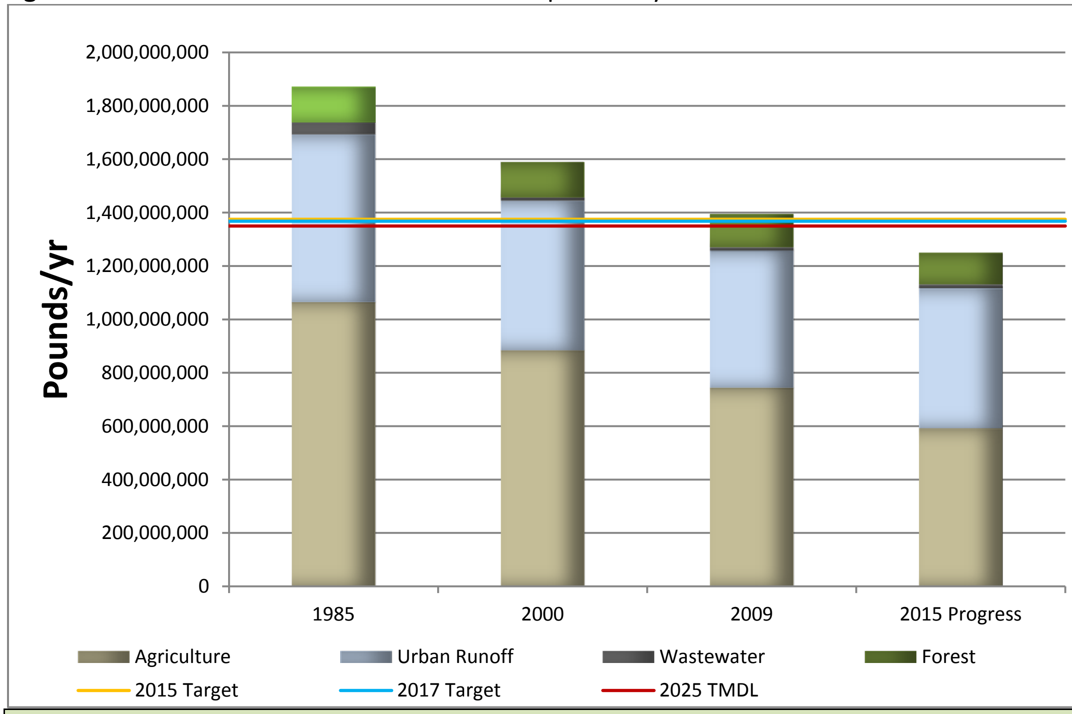
Source	1985	2000	2009	2015 Progress
Forest	6,140,000	6,670,000	5,920,000	5,720,000
Septic	1,750,000	2,690,000	2,970,000	2,830,000
Wastewater	32,190,000	18,070,000	13,750,000	11,670,000
Urban Runoff	8,140,000	10,010,000	9,530,000	9,830,000
Agriculture	28,340,000	22,890,000	19,760,000	18,040,000
Total Nitrogen Load	76,560,000	60,320,000	51,950,000	48,090,000

Figure 6. Total Phosphorus Delivered to the Chesapeake Bay



Source	1985	2000	2009	2015 Progress
Forest	200,000	200,000	150,000	140,000
Wastewater	2,340,000	1,020,000	760,000	550,000
Urban Runoff	730,000	730,000	710,000	670,000
Agriculture	2,090,000	1,640,000	1,610,000	1,400,000
Total Phosphorus Load	5,360,000	3,580,000	3,300,000	2,800,000

Figure 7. Total Sediment Delivered to the Chesapeake Bay



Source	1985	2000	2009	2015 Progress
Forest	134,000,000	132,200,000	124,700,000	118,900,000
Wastewater	44,400,000	12,500,000	11,900,000	13,300,000
Urban Runoff	627,600,000	559,900,000	514,100,000	525,100,000
Agriculture	1,065,300,000	884,900,000	744,400,000	593,000,000
Total Sediment Load	1,871,300,000	1,589,500,000	1,395,100,000	1,250,200,000

Table 2 shows which source sectors are on pace towards meeting their respective 2025 TMDL goals as measured from the 2009 baseline year. Green values indicate a sector is on pace to meet 2025 TMDL goals. Yellow values indicate a sector needs greater attention for reducing pollutants. More detailed interpretation of these results is provided in the section below on Sector Highlights.

Table 2. 2015 progress toward meeting 2025 TMDL goals by Sector

Sector	Pace Towards 2025 TMDL goals
Nitrogen	
Wastewater	On Pace
Agriculture	On Pace
Stormwater	Needs Attention
Septic Systems	Needs Attention
Phosphorus	
Wastewater	On Pace
Agriculture	On Pace
Stormwater	Needs Attention

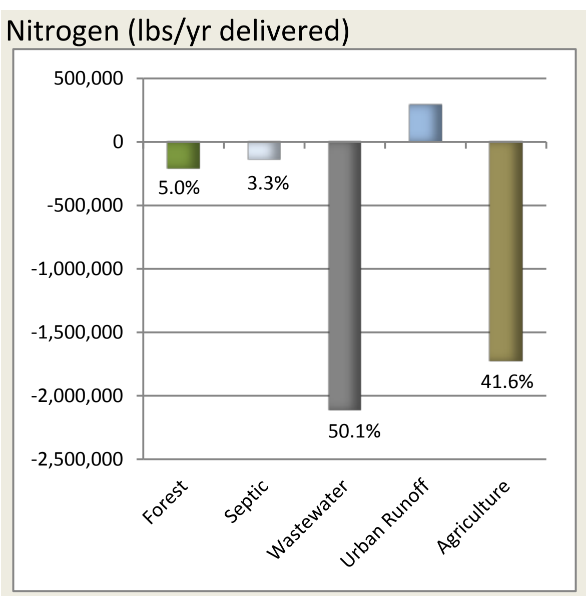
Legend
On Pace
Needs Attention

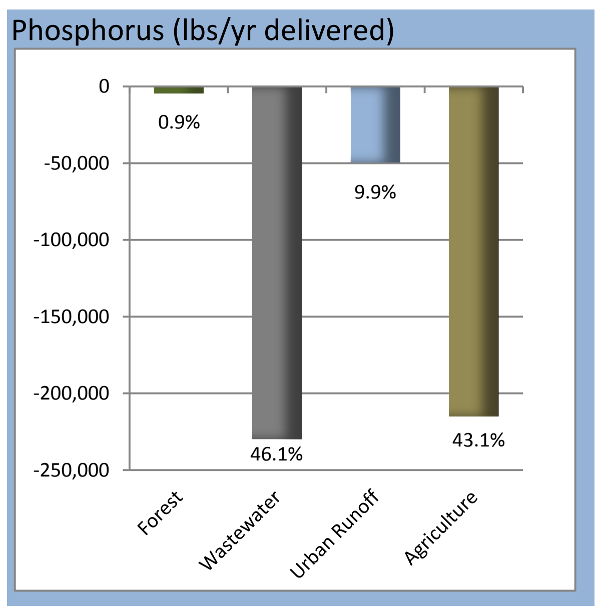
Where are the reductions coming from?

Figure 8 and the accompanying Table 3, show where nitrogen and phosphorus reductions to the Bay are coming from by sector between 2009 and 2015. Some of the total nitrogen reduction (4.18 million pounds) is offset by an increase in the urban stormwater runoff sector. The wastewater sector accounts for 50.1% of the reduction, agriculture accounts for 41.6%, the forestland sector accounts for 5.0% and septic system reductions account for 3.3%. The urban sector shows a 290,000 pound increase in nitrogen resulting in an overall net reduction of 3.89 million pounds. The increase in urban nitrogen load is due, in large part, to new land development.

Of the 501,000 pound reduction in phosphorus, the wastewater sector accounts for about 46%, agriculture accounts for 43%, the forestland sector accounts for about 1% and urban runoff reductions account for about 10%[4].

Figure 8. Relative contribution of sectors to pollutant load changes (2009 – 2015)





*Percentages reflect Total Reduction

[4] Urban phosphorus reductions are due to a decrease in construction acres from 2009 – 2015 as well as BMP implementation.

Table 3. Load Changes by Sector: 2009 – 2015

NITROGEN Load Changes 2009-2015	
Sector	**Load Reductions (lbs/yr) del**
Forest	-207,562
Septic	-136,958
Wastewater	-2,081,062
Urban Runoff	293,682
Agriculture	-1,726,354
Net Reduction	-3,858,253
Total Reduction	-4,151,953

PHOSPHORUS Load Changes 2009-2015	
Source	**Load Reductions (lbs/yr) del**
Forest	-4,473
Wastewater	-229,631
Urban Runoff	-49,406
Agriculture	-214,829
Total Reduction	-498,339

As discussed in the next section, the changes in loads are due to a variety of competing drivers. These include changes in load calculation methods that are not consistent among progress evaluation years[5]. Although this makes the results difficult to interpret, there are some things that can be explained. Wastewater load reductions are largely due to upgrades of major municipal wastewater facilities. Agricultural reductions are largely due to management actions; however, some reductions are due to land conversion to urban/suburban land. Septic system nitrogen load decreases were largely due to an adjustment of the estimated number of septic systems, which was incorporated in the 2013 progress evaluation. Urban nitrogen load is increasing due to sector growth and delays in reporting management actions. However, despite these delays, urban phosphorus is decreasing due to a reduction in the estimated area of land under construction at any time, as well as estimated reductions due to implementation of the Fertilizer Use Act of 2011.

What are the drivers?

Management actions, baseline information changes and other accounting issues contribute to shifts in estimates of pollutant loads within the Chesapeake Bay and its tributaries. Management actions are defined as best management practices, technological upgrades and any other pollution controls. Baseline changes are defined as changes in population on sewer and septic systems, changes in farm animal populations and associated manure, and land use changes. These include estimates of actual changes as well as changes due to various accounting issues between 2009 and 2015. These accounting issues are discussed in a separate section below.

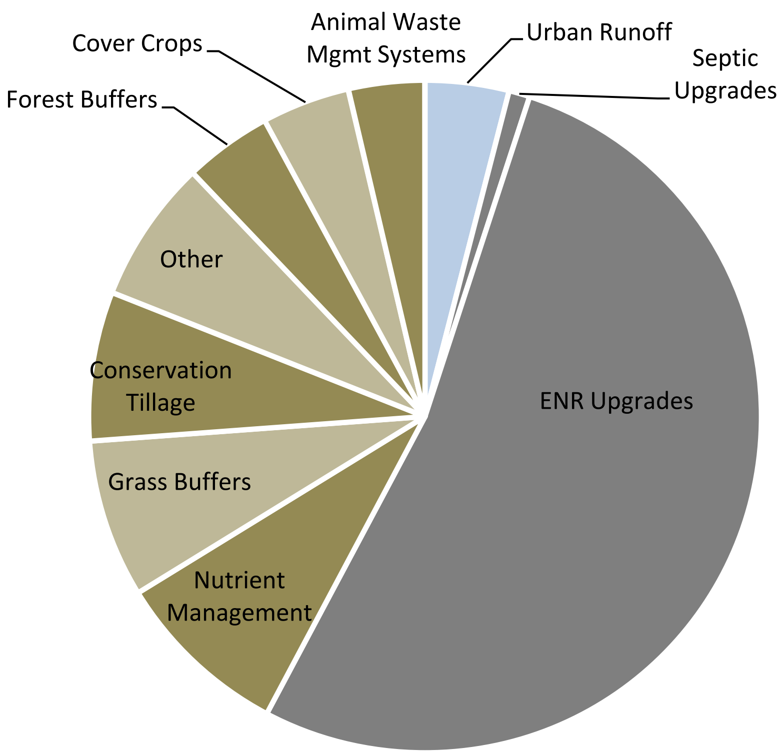
A detailed analysis of the drivers would involve isolating the effect of management actions on changes in loads, baseline changes and accounting issues. This is not possible to do within the timeframe given to produce this report. However, we are able to provide estimates of the relative importance of key management actions[6].

[5] Annual progress evaluation results generated in 2009, and other past years, are not updated to incorporate refined data and BMP reduction efficiencies, which have been made in subsequent annual progress evaluations. Consequently, it is difficult to interpret the comparison of current progress with 2009 progress.
[6] Due to the laborious modeling needed to isolate the pollution reduction effects of individual management practices, these results are based on progress in 2014 with slight adjustments based on supplemental information.

Nitrogen: The key management actions driving the reduction of nitrogen are occurring in the wastewater and agricultural sectors as shown in Figure 9. Enhanced Nutrient Removal (ENR) upgrades at Maryland's largest municipal WWTPs are driving about half of the reductions.

Within the agricultural sector, nitrogen reductions are being driven by nutrient management that controls the use of animal manure as fertilizer, grass buffers, conservation tillage practices, forest buffers, cover crops and animal waste management systems. Additional nitrogen reductions in the agricultural sector come from a large number of other practices that together represent a notable amount.

Figure 9. Relative contribution of BMPs to nitrogen load changes (2009 – 2015)[7]

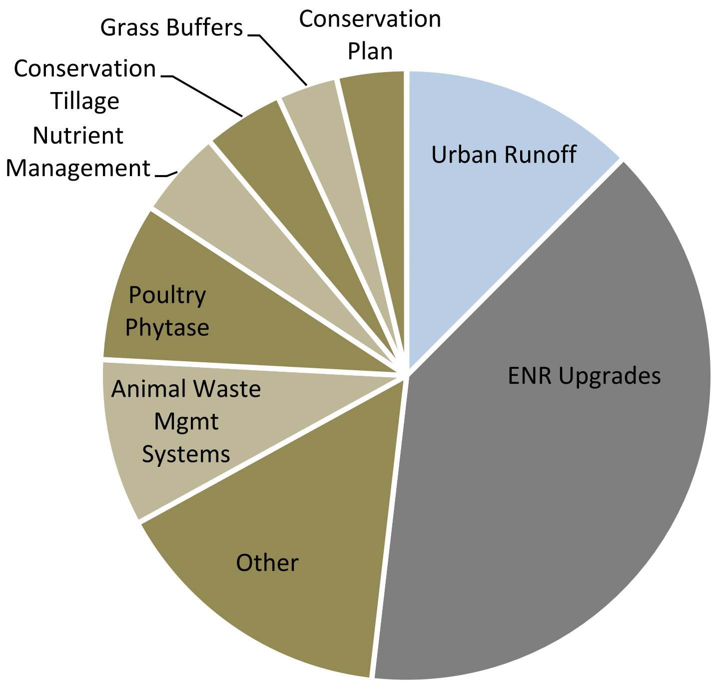


Phosphorus: The key management actions driving the reduction of phosphorus are occurring in the wastewater and agricultural sectors as shown in Figure 10. Phosphorus reductions from the wastewater sector are split about evenly between municipal and industrial sources. The municipal reductions are primarily due to ENR upgrades. The industrial reductions are primarily due to improved accounting of pollutants associated with large numbers of small industrial sources for which general permits typically do not require monitoring (landfills, marinas, swimming pools, food processors, ready mix, sand and gravel pits, etc.).

[7] To simplify the analysis the proportions between agriculture and wastewater reflect pollutant load reductions since 2009. The proportions amongst agricultural BMPs reflect EPA analysis of the relative contribution to load reduction from these practices from 1985 to 2013.

Within the agricultural sector, phosphorus reductions are being driven by animal waste management storage, poultry phytase, conservation tillage, various practices performed under soil and water conservation plans, grass buffers, nutrient management plans that minimize the use of animal manure as fertilizer, and grass buffers.

Figure 10. Relative contribution of BMPs to phosphorus load changes (2009 – 2015)[8]



Sector Highlights

Wastewater

ENR upgrades of 19 major WWTPs account for a significant portion of the TN and TP reductions within the State during the 2009-2015 timeframe (Table 4). Three minor WWTPs were also upgraded. These upgrades were enabled by legislation in 2012 that doubled the Bay Restoration Fund (BRF) fee that was originally adopted in 2004.

Because annual variability in precipitation can cause large swings in flows and loads, it can be difficult to observe anticipated reductions generated by ENR upgrades. However the State has developed a supplemental indicator[9] (SI) to remove the annual variability and reveal the effects of treatment plant upgrades on nutrient loads. The SI results indicate that with the annual variability removed, 1.8 million lbs of TN and 124,000 lbs of TP were removed from WWTP annual discharges from 2009 - 2015. Of that load 495,000 lbs of TN and 4,000 lbs of TP were reduced from Industrial WWTPs. These reductions occurred despite an increase in of about 233,000 people using sewer systems since 2009 as reflected in Table 4.

[8] To simplify the analysis, given time constraints, the proportions between agriculture and wastewater reflect progress since 2009. The proportions amongst agricultural BMPs reflect EPA analysis of the relative contribution to load reduction from these practices from 1985 to 2013.

[9] Wastewater supplemental indicator developed by Maryland in coordination with the Chesapeake Bay Program Partnership: http://www.mde.state.md.us/programs/Water/TMDL/ChesapeakeBayTMDL/Pages/Supplemental_Wastewater_Indicator.aspx

Table 4. Wastewater Metrics: 2009 – 2015

Key Metrics	2009 Baseline Year	2015	Change 2009 - 2015	Average Annual Change
Population on sewer	4,631,000	4,864,000	233,000	39,000
Municipal Wastewater flow (million gallons per day)[1]	557	564	7	1.1
BMP Implementation Since 2009				
Major Upgrades to ENR	11	30	19	NA
Minor Upgrades to ENR	0	3	3	NA

1. This estimate of flow from municipal wastewater treatment plants removes variability associated with wet and dry years in order to discern the effect of population growth on effluent flow.

Agriculture

This sector has had several challenges and many successes from 2009-2015. The 2012 Agricultural census revealed increased crop acreages and changes in the types of crops (e.g. soybeans), which resulted in increased estimates of nitrogen loads. The census also revealed reduced farm animal populations, which resulted in decreased estimates of phosphorus loads. Increases in annual BMP implementation (e.g. cover crops and conservation tillage) have contributed greatly to the reductions seen in the 2015 progress. The acreage of BMPs covered under Soil Conservation and Water Quality Plans has also increased notably.

Table 5. Agricultural Metrics: 2009 – 2015

Key Metrics	2009 Baseline Year	2015	Change 2009 - 2015	Average Annual Change
Land Use Acreage (acres) [2]	1,532,923	1,513,279	-19,644	-3,724
Animal Units[1]	405,859	389,086	-16,773	-2,800
BMP Implementation Since 2009[2]				
Cover Crops[3] (acres)	208,000	456,000	248,000	41,000
Conservation Tillage[3] (acres)	663,000	768,000	105,000	17,500
Nutrient Management[3,4] (acres)	1,061,000	877,000	-184,000	-31,000
Manure Mgmt Structures (AU)	201,000	246,000	45,000	7,000
Natural Filters (acres)	66,000	75,000	9,000	1,500
Pasture Management (acres)	33,000	60,000	27,000	4,500
Soil Cons & WQ Plans (acres)	735,000	888,000	153,000	25,500

1. An animal unit (AU) is a standard for equating different animals based on size and manure production, e.g., one cow equates to about 200 chickens.
2. Growth andBMP accounting for this summary begins at the 2009 baseline year.
3. Annual practices that must be repeated each year.
4. Loss of acreage with Nutrient Management was due to a change in reporting policy from EPA. 2009 reflects the full acreage covered under nutrient management plans, whereas 2015 incorporates a compliance rate of approximately 70% based upon compliance inspections. Most non-compliance can be attributed to plans that are being followed, but have not been updated in the proper time frame. The State is seeking to bring those plans back into compliance through outreach and increased field visits.

Urban Runoff

Urban and suburban land use in the model has grown by an average of about 11,300 acres/year since 2009. Implementation of stormwater controls has also grown as well, however, growth coupled with lag time and under reporting of stormwater controls to create a net increase in nitrogen loads. Despite this, phosphorus loads have decreased due largely to fewer annual construction acreage compared to 2009 and the implementation of the Fertilizer Use Act of 2011.

Table 6. Stormwater Metrics: 2009 – 20151

Key Metrics	2009 Baseline Year	2015	Change 2009 - 2015	Average Annual Change
Land Use Acreage (acres) [1]	1,360,000	1,428,000	68,000	11,300
BMP Implementation Since 2009[1]				
Stormwater Treatment (acres)	394,000	478,000	84,000	14,000
Forest Plantings & Buffers (acres)	350	2,200	1,850	308
Stream Restoration (linear feet)	153,000	238,000	85,000	14,000
Urban Nutrient Management (acres)	0	636,000	636,000	106,000

Editorial Note: Pre-BMP acres (does not include FCA, which will ripple thru when accounted for)

1. Growth and BMP accounting for this summary begins at the 2009 baseline year.

Forest Land

Forest acres have continued to decline despite increased implementation of forest creation BMPs. This net change is due in part to loss of forests to urban development, lack of reporting for plantings and challenges in finding areas to install these practices.

Table 7. Forest Metrics: 2009 – 2015

Key Metrics	2009 Baseline Year	2015	Change 2009 - 2015	Average Annual Change
Land Use Acreage (acres) [1]	2,931,308	2,882,970	− 48,338	− 8,056
BMP Implementation Since 2009[1,2]				
Tree Planting on Ag (acres)	16,659	19,259	+2,600	+433
Forest Plantings & Buffers on Ag (acres)	20,428	22,776	+2,348	+391
Forest Conservation (acres)	88,662	111,525	+22,863	+3,811

1. Baseline change and BMP accounting for this summary begins at the 2009 baseline year.
2. Forestry BMPs are land use change BMPs and increase the amount of forest in the State.

Accounting issues

Interpreting the results can be challenging because a number of accounting issues can mask changes in pollution loads due to actual management actions and growth (positive or negative). Anomalies arise because the 2015 results include information that is not reflected in the 2009 results. The Chesapeake Bay Program is planning to re-assess the 2009 results in a way that is more consistent with the 2015 assessment; however, this is not reflected in the current results presented in this summary.

When reviewing the changes in loading rates from 2009-2015, previous policy decisions (e.g. using compliance rates for nutrient management), BMP efficiency updates and baseline changes need to be addressed. There is rarely an opportunity to compare accepted progress years based on similar conditions, so when assessing progress by sector it is important to try to look outside of the current annual progress to help inform our interpretation of the results.

- **Baseline Changes:** Baseline information includes population on sewer and septic systems, farm animal populations and associated manure, and land use. Baseline changes include actual changes as well as changes due to accounting issues. The accounting issues include changes in estimation methodologies, corrections of past data limitations and errors, and new information like updated census data.
- **Wastewater:** About 25% of Maryland's nitrogen load is from wastewater treatment plants. Annual variation in rainfall can cause nitrogen loads to vary by about 1 million pounds. This natural variability generates results that mask changes due to population growth and pollution control actions. It can also dominate the annual progress evaluation results thereby making it difficult to assess any given year's progress. In a worse-case situation, going from a wet year to a dry year or vice versa, the one-year change can be as much as 2 million pounds due simply to a change in the weather between years. Nonpoint source load progress results avoid this by averaging over multiple years, which smoothes out large inter-annual swings in progress results.
- **BMP Efficiencies:** Changes to BMP efficiencies such as crop nutrient management (more effective) have significant impacts on pollutant loads. These changes are not reflected in the 2009 progress results. This means that some differences between 2009 and 2015 loads can be due to differences in how BMP efficiencies are calculated.
- **BMP Reporting:** There are lags in urban reporting that may be made up in subsequent years, but will not be reflected in updates to past CBP model results. Changing how BMPs are reported (e.g. using compliance rate or changing BMP type) has also had impacts on loads due to loss of treated acres as well as changing the efficiency of an existing BMP.
- **BMP Cutoff:** Limited land availability in the model versus BMP acres reported leads to implementation being removed from the model (38,000 lbs TN & 4,800 lbs TP). This impacts the State's ability to receive credit for implementation. The adoption of new land use in the Phase 6 model should hopefully alleviate this issue.
- **Interim BMPs:** Interim BMPs are those practices currently being implemented on the ground, but no efficiency has been assigned to them in the model. Several BMPs are going into BMP panels and will not be adopted until the Phase 6 model. Estimates show that up to 118,000 lbs TN and 20,000 lbs TP would be removed from the Ag sector with current reported interim BMPs.

BMP Verification

In 2018, the CBPO will transition to a new Bay model. With that transition comes the implementation of BMP verification protocols that will no longer give credit to BMPs without inspection information to identify that practices are still in place and functioning properly.

The State has recently submitted and had its BMP verification protocols approved by EPA. It is anticipated that in FY18 and thereafter, the verification protocols will be incorporated into the Phase 6 model.

MDA has committed to establishing a BMP verification team to increase its compliance rates for Nutrient Management and to meet the commitments they established in our BMP verification protocols. MDE has put forth a proposal for funding to help non-MS4 jurisdictions improve the accounting and reporting of urban BMPs.

Success, Shortfalls and Future Opportunities

Below is a summary of highlights since 2009 and some future opportunities.

Successes:

- ENR upgrades of major municipal wastewater treatment plants, which are a key driver of nutrient reductions, were further enabled by 2012 legislation that doubled the Bay Restoration Fund (BRF) fee originally adopted in 2004.
- The annual pace of Septic System upgrades was doubled since 2009 as a result of the 2012 legislation that doubled the BRF fee; however, the progress remains well off pace.
- Annual agricultural Cover Crop planting, one of the most cost-effective nitrogen controls, has more than doubled since 2009. This was enabled, in part, by the doubling of the BRF fee (about half of the septic system BRF fee is used to fund about half of the State's cover crop expenditures).
- The agricultural Phosphorus Management Tool was adopted through State regulation in 2015 and will be fully phased in by 2021.
- Maryland's 2011 Lawn Fertilizer Law, and implementing regulations, has contributed to significant phosphorus reductions associated with urban runoff.
- The Industrial Stormwater General Permit, renewed in 2014, incorporates a 20% impervious cover treatment requirement for facilities greater than 5 acres to address their share of the Chesapeake Bay targets.
- Municipal Separate Storm Sewer System (MS4) permits for large and medium jurisdictions, and State Highways, were finalized in 2013 through 2015. These permits incorporate watershed planning and impervious area restoration requirements of 20% that address the Chesapeake Bay targets.
- Maryland's 2012 revised Nutrient Management Regulations refine controls of nutrient applications and require animal exclusion from waterways. Beginning in 2016, manure applications to fields in winter will be prohibited, which is driving the construction of more animal waste management structures.
- Maryland's Sustainability and Agricultural Preservation Act of 2012 required land use planning that is projected to decrease the pace of development on septic systems.
- Maryland's 2007 Stormwater Management Act, which became effective in 2010, will help reduce the pace of growth in nutrient loads from future land development thereby helping to

maintain the cap on loads, which is augmented by the State's stormwater restoration requirements.

- Legislation adopted since 2009 formalizes stormwater management resource capacity expectations through financial assurance planning requirements for Maryland's ten largest urbanized jurisdictions.

<u>Shortfalls:</u>

- Although Maryland's Phase I MS4 permits include an ambitious pace of restoration, implementation by this sector is slow due to several factors including construction requirements (e.g. permits, contracts, public support, etc.) as well as funding restrictions and assumptions that even with the new stormwater laws enacted there is still some load from new construction that will not be addressed by stormwater BMPs.
- Forest buffers and tree planting have met greater challenges in implementation than was anticipated; along with the delayed adoption of trading procedures that were envisioned by Maryland's Phase II WIP which are key element to the urban sector's progress.
- Septic system reduction progress is significantly behind pace due to the intrinsically slow nature of this activity and the delayed adoption of trading procedures that were envisioned by Maryland's Phase II WIP to be a key element of this sector's progress.
- Stormwater BMP reporting includes a variety of shortfalls:
    - Underreporting of stormwater controls on new development, and EPA's removal of estimated BMPs of this type, have had a negative impact on urban runoff loads.
    - Incomplete reporting for a significant fraction of known stormwater BMPs makes them ineligible to receive reduction credit.
    - Delays in reporting leads to routine underestimates of progress at any point in time.
- Agricultural Nutrient Management: The acreage covered by nutrient management plans appears to have dropped since 2009; however, that is due non-compliance rates being omitted from the acreage reported in 2009.
- Accounting for Growth in Loads: Despite significant investment in a stakeholder-driven process, Maryland has yet to develop and adopt policies to offset new loads and account for shifts in allocations among sectors as land use changes over time.

<u>Future Opportunities</u>

- Interim BMP inclusion into the model
- Increases in Functional Equivalent Ag BMPs into the model (F.E. are BMPs that do not meet NRCS standards, but are providing some water quality benefit)
- Improved compliance rates for Ag BMPs
- Bay Restoration Fund will be available for stormwater treatment in 2018
- Improved reporting from stormwater entities
- Increases in more effective BMP usage (e.g. Tier 2 and 3 Ag NM)