



**CHESAPEAKE BAY  
FOUNDATION**  
Saving a National Treasure

# Maryland Milestones

## 2014-15 INTERIM PROGRESS



**Choose  
Clean  
Water**  
COALITION

In 2010, the Environmental Protection Agency (EPA), using its authority under the Clean Water Act, established science-based limits for nitrogen, phosphorus, and sediment for the Chesapeake Bay watershed at levels needed to restore the Bay and its tidal rivers to health. To achieve these limits, the six Bay watershed states and the District of Columbia developed, and are implementing, state-specific clean-up plans, with the goal of having practices and programs in place to achieve 60 percent of the needed pollution reductions by 2017, and 100 percent by 2025. In addition, the Bay jurisdictions have adopted milestones that describe the practices and programs they commit to implement every two years on the path to achieve the pollution limits. These two-year milestones are critical components to restoration efforts because they provide the mechanism to hold government accountable for short-term progress toward long-term pollution-reduction goals. This year is the halfway point for the 2014-2015 milestones.

For this report, the Chesapeake Bay Foundation (CBF) and the Choose Clean Water Coalition (CCWC) have taken a closer look at some of the most important pollution-reduction practices to determine whether Maryland's progress with regard to these practices is sufficient to allow the state to achieve its 2014-2015 milestone commitments and, more importantly, to achieve 60 percent implementation by 2017. Specifically, we have evaluated implementation progress for four practices: **wastewater**, **animal waste management systems**, **poultry phytase**, and **cover crops**. Practices were deemed "on track", "slightly off track", or "off track" to meet 2017 goals.

EPA recently evaluated Maryland's progress to date, their findings are summarized below. EPA's report indicates the state is slightly off track for nitrogen and on-track for phosphorus and sediment. Our analysis of some of the most important practices suggests more will need to be done to meet 2017 goals.

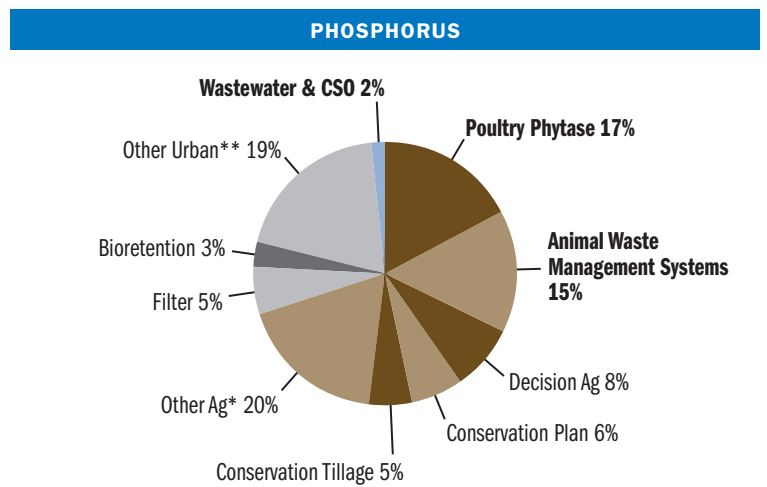
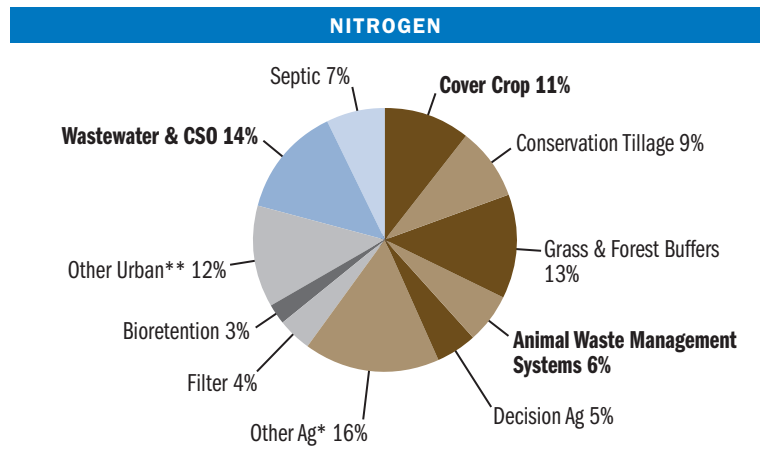
SOURCE	NITROGEN	PHOSPHORUS	SEDIMENT
AGRICULTURE	ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET
URBAN RUNOFF	MORE THAN 10% OFF TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET	MORE THAN 10% OFF TRACK FOR 2017 TARGET
WASTEWATER & CSO	WITHIN 10% OF BEING ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET
SEPTIC	MORE THAN 10% OFF TRACK FOR 2017 TARGET	N/A*	N/A*
<b>ALL SOURCES</b>	WITHIN 10% OF BEING ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET	ON TRACK FOR 2017 TARGET

■ ON TRACK FOR 2017 TARGET  
■ WITHIN 10% OF BEING ON TRACK FOR 2017 TARGET  
■ MORE THAN 10% OFF TRACK FOR 2017 TARGET  
 \*NO CONTRIBUTION FROM THIS SOURCE SECTOR

Source: [www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/RestorationUnderway.html](http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/RestorationUnderway.html)  
 Chart based on data from the Chesapeake Bay Program's 2014 Reducing Pollution Indicator:  
[www.chesapeakebay.net/indicators/indicator/reducing\\_nitrogen\\_pollution](http://www.chesapeakebay.net/indicators/indicator/reducing_nitrogen_pollution)

### Maryland Relative Nutrient Load Reduction

The pie charts below show the relative importance of the various best management practices in terms of pollution reductions needed by 2025. That is, the bigger the slice of pie, the more important the practice is in terms of achieving Maryland's pollution-reduction goals for nitrogen and phosphorus.



■ WASTEWATER TREATMENT PLANT   
 ■ URBAN   
 ■ AGRICULTURE

**BOLD = EVALUATED PRACTICES**

\* 'Other Ag' includes practices such as land retirement, pasture management practices, and stream restoration that individually account for less than 5% of nutrient reductions.

\*\* 'Other Urban' includes practices such as urban nutrient management, impervious surface reduction, and urban tree planting that individually account for less than 5% of nutrient reductions.

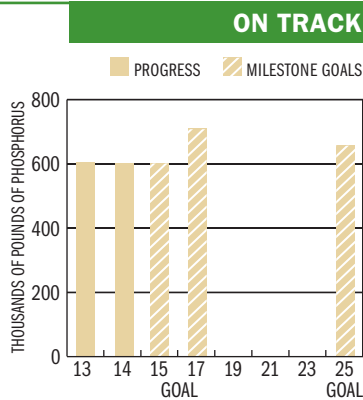
Source: [www.chesapeakebay.net/.../sweeney\\_bmp-source\\_wiprelativeinfluence\\_041113.pdf](http://www.chesapeakebay.net/.../sweeney_bmp-source_wiprelativeinfluence_041113.pdf)

# Assessment of Maryland's Progress on Selected Pollution-Reduction Practices

## Wastewater Treatment Plants

Thanks to the capital raised through Maryland's "Flush Fee," the Bay Restoration Fund has helped finance significant upgrades to wastewater treatment plants. These upgrades have made documented improvements to local water quality by decreasing how much microscopic algae is in the water column. The water is now much clearer, resulting in submerged aquatic vegetation returning to some tributaries after decades of absence. Largely because of the progress on this practice, Maryland is on track overall to meet its phosphorus reduction targets for 2017. For nitrogen, progress is slightly off-track for 2017, but with upgrades that are in progress, nitrogen loads should also be reduced in the next few years.

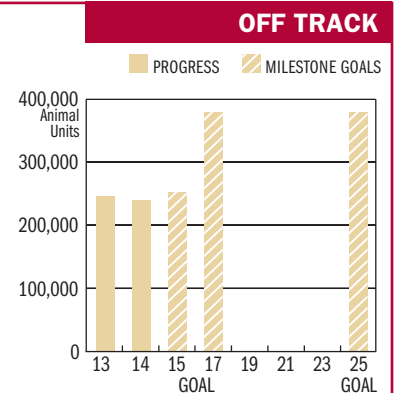
**Action Needed:** Continue to upgrade wastewater treatment plants, but accelerate implementation of pollution reductions from other source sectors as pollution loads from wastewater are projected to increase in the future.



## Animal Waste Management Systems

Manure management includes a means of collecting, scraping, or washing animal manure wastes from confinement areas into appropriate waste storage structures. This allows the farmer to spread manure or separated nutrients onto crops at appropriate agronomic rates. Unfortunately, the state is currently not on track to achieve their 2015 or 2017 goals for this practice.

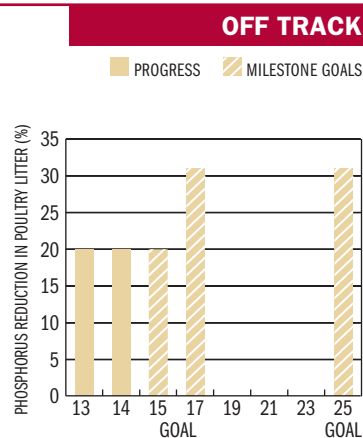
**Action Needed:** The state's new Animal Feeding Operations general permit and the Phosphorus Management Tool (PMT) regulations provide the policy vehicles to drive better nutrient management and reduce polluted runoff, particularly of phosphorus. However, success relies, in part, on the implementation of animal waste management systems or a switch from conventional livestock systems to pasture-based systems. More technical and financial resources are needed.



## Poultry Phytase

Phytase is an enzyme added to poultry feed that improves birds' ability to take up phosphorus from the feed, so that less needs to be added to meet their nutritional requirements. The end result: less phosphorus in the litter. Maryland has required the use of phytase by poultry growers since 2001, resulting in a decrease in average phosphorus concentrations in poultry manure of roughly 18 percent. However, Maryland is relying on even greater reductions (roughly 32 percent) to achieve their pollution-reduction goals and recent data suggests that phosphorus concentrations are starting to trend back up.

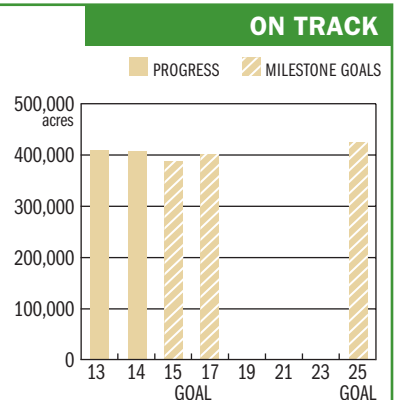
**Action Needed:** Maryland needs to work with the poultry industry to ensure that the benefits of the use of phytase and other feed adjustments are maximized.



## Cover Crops

Maryland is on-track to achieve their 2015 and 2017 goals for this practice. Moving forward, however, the state needs to target resources to farms that have not adopted the practice or where it would deliver the most water-quality benefits. In addition, the cover crop program should target cost-share for multi-species mixes, including legumes. Legumes can provide a source of nitrogen for crops, reducing the need (and expense) of adding commercial fertilizer. This benefit may be particularly important for farmers that need to reduce manure application under the new phosphorus management tool regulations. Multi-species cover crops also can build soil health and provide protection from the effects of drought.

**Action Needed:** Targeting of funds to maximize water quality and soil health benefits.



## Conclusions

Maryland generally is on track to clean up its portion of the Chesapeake Bay and the creeks and rivers that feed it, but much of that progress is due to upgrades to wastewater treatment plants, most of which are currently operating below their design capacity. That capacity will eventually be used up as more people move into the region, so beyond 2017, pollution from wastewater treatment plants will increase and pollution reductions will need to come from other sources and practices.

Much more work needs to be done to meet the 2017 goal for animal waste management systems. The state's new Animal Feeding Operations permit keeps track of where manure is land applied if at the farm of origin, but lacks mechanisms to track land application at receiving farms. We expect that implementing the

phosphorus management tool will require accelerating this practice in the coming years and more transparent accounting of where manure is used as fertilizer.

Maryland has the highest per acre payment to farmers for cover crops than any other state in the Chesapeake watershed, which has resulted in rapid and widespread adoption of the practice with associated water pollution reductions that may serve as a model to other states. However, any continued investment in the practice needs to be more targeted to farmers not currently using them and to encourage the inclusion of mixed species. Farmers that have already adopted the practice of single species or commercial cover crops should be expected to continue the practice without cost assistance from the state.

