

Comprehensive Multi-Sector Pollution Reduction Strategies to Restore Chesapeake Bay

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The Chesapeake Bay Agreement was signed in 1987 by the states of Maryland, Virginia, and Pennsylvania, and the District of Columbia, committing to achieving a 40% reduction of 1985 nutrient levels (nitrogen and phosphorous) in the Chesapeake Bay by the year 2000 and capping nutrient levels thereafter. Although the goal was not met, significant nutrient reductions were achieved. To remove the Bay from the Federal list of impaired waters, significant additional reductions (approximately 60%) are necessary from all major sectors including waste water treatment plants, agricultural operations, septic systems, and storm water. The largest source of pollution to Chesapeake Bay is from the agricultural sector, followed by human waste and storm water.

To date, the cost to reduce nutrients and restore the Bay has been over \$4 billion and there remains a funding gap of over \$15 billion Bay-wide to achieve the nutrient goals. However, recent analysis has shown that 80% of the nutrient goal can be achieved with just 20% of the cost. In 2006, Maryland established the "Chesapeake Bay Restoration Fund" which charges every homeowner \$30 per year with business paying based on water usage. This Fund raises over \$60 million per year but is leveraged through bonds to support over a billion dollars to upgrade the largest waste water treatment plants. As there is still a significant funding gap, Maryland recently established a "Non-Point Source Trust Fund" that is largely being applied to further support agricultural best management practices and enhanced storm water management. Agricultural best management practices are generally the most cost effective way to reduce pollutants, however their implementation tends to be on a voluntary basis as opposed to a regulatory regime such as waste water and storm water treatment.

Following the principles of adaptive management, Maryland's current Governor established BayStat in 2007. The purpose of BayStat is to review monthly progress and relentlessly assess the effectiveness of nutrient reduction programs from all sectors and consider changes to increase their efficiency. The Governor personally convenes most meetings which consist of the relevant agency Secretaries and top scientists. The focus of BayStat has largely been on ensuring that



upgrades to waste water treatment plants are progressing, agricultural best management practices are effectively marketed and well targeted, land conservation programs are prioritized, and natural resources such as planting trees and restoring oysters are significantly enhanced.

Since 1985 the rate of decline in the health of the Chesapeake Bay has decreased under significant population increases and development pressure. Nutrient pollution has been reduced from all sectors except from storm water. Areas generally dominated by non-point sources of pollution with poor buffering capacity have continued to decline while other areas with significant natural buffers (such as riparian trees, wetlands, and submerged aquatic vegetation) have shown recent improvements. Through the BayStat process, scientists are actively analyzing the improving areas to hopefully find key nutrient reduction practices that can be replicated throughout the region.