



Scenario A: It All Goes Somewhere Scientific and Historical Background Information



The decline in water quality of the Chesapeake Bay is a result of an overload of sediments and nutrients. The top three contributors are effluent from wastewater treatment plants, urban and agricultural runoff. In 2000 the six Chesapeake Bay watershed states and Washington, DC signed an agreement and adopted measures designed to meet clean water standards in the Chesapeake Bay and its tributaries by the year 2010. In response to continued deterioration in water quality, the state of Maryland enacted additional legislation in 2004 that was used to establish the Bay Restoration Fund (Senate Bill 320). By signing this bill, Maryland sought to reduce the state's overall nutrient loading of phosphorus and nitrogen.

Initially, the law provided for a fee of \$2.50 per month from each home served by a wastewater treatment plant. Commercial and industrial users were assessed fees based on calculations of total water usage. A primary purpose of the revenue collected was to produce dedicated funding for upgrades to wastewater treatment plants, with “enhanced removal technologies” enabling effluent to be discharged from the facility with a much lower level of contaminants. In addition, upgrades to on-lot septic systems and implementation of cover crops in agricultural operations were to be eligible for funding in order to reduce the amount of contaminants found in runoff from more rural areas.

On March 9, 2012 Maryland's legislature voted to double the state's monthly Bay Restoration Fund fee to \$5.00 per household. In separate legislation, the House of Delegates and the Senate also passed new restrictions on the building of housing developments in the Chesapeake Bay watershed that will use onsite septic systems. The citizens of the state are encouraged to help clean up the Bay by reducing the level of pollutants flowing from their homes into local waterways. The increase in the fees collected is projected to raise \$65 million per year, with the revenue funding projects that will allow Maryland to meet its Total Maximum Daily Load (TMDL) allowances for nitrogen, phosphorus and sediments discharged from sewage treatment plants. At the same time, the Maryland legislature passed laws that restrict the use of on-lot septic systems in new housing developments and tighten stormwater management requirements. (1)



The Environmental Protection Agency (EPA) estimates that discharges of nitrogen from point sources (i.e. septic systems and sewage treatment plants) account for 23% of the excess runoff into the Chesapeake Bay and its tributaries. Untreated stormwater accounts for an additional 10 % of nitrogen and other toxins that are washed from yards, streets, parking lots and driveways.² Excess amounts of nitrogen and phosphorus within the waterways are responsible for algal blooms that occur in the summer and fall. Following an algal bloom, algae die and sink to the bottom of the Chesapeake Bay. After the algae sink, the bacteria that feed on them use most of the available dissolved oxygen in the water, which result in “dead zones,” areas that don’t support the usual fish, crabs, worms and other animal life. This condition is know as hypoxia (little oxygen) or anoxia (no oxygen). Heavy sediment loads from discharge of effluent waters and large storm events coat the bottom of the Bay and preventing sunlight from reaching the aquatic grasses. The resulting loss of aquatic grasses and smothered fish eggs leads to a lack of both food and shelter for young fish, crustaceans and waterfowl.

Sources:

¹ Linskey, A. (2012, April 09). General assembly increases flush tax, sends to O'Malley. *The Baltimore Sun*

² Phase 4.3 Watershed Model. (2011). *Chesapeake Bay Program*. Annapolis, MD: Chesapeake Bay Foundation.

³ United States Geological Survey. *Cheapeake Bay Activities*. chesapeake.usgs.gov/nutrientandsediment.html.