

## Keeping Private Forest Land in the Chesapeake: New Way to Quantify Clean Water Benefits

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Forests are the best land cover for clean water, but every day, the [Chesapeake Bay watershed loses approximately 100 acres of forests to development](#).

To reverse this trend, policies and practices that keep forests as forests are now credited toward clean water goals throughout the Chesapeake Bay watershed. While the importance of trees has long been recognized by the [Chesapeake Bay Program](#), only recently has the continued existence of all forests as reportable, trackable best management practices (BMPs) been overtly credited. After years of collaboration between States and Federal agencies (e.g., Environmental Protection Agency, U.S. Geological Survey, and U.S. Forest Service), the Chesapeake Bay leadership committee agreed to a landmark decision, the first of its kind: conservation practices, such as zoning and easements, that maintain beneficial land cover, especially private forests, into the future will be credited toward meeting the Bay's regulated water quality goals.

In order to ensure that the Chesapeake Bay watershed's goals for clean water are met, the Chesapeake Bay leadership committee recently decided to recognize State and local policies that maintain forests and other green infrastructure as best management practices.



*Retaining forested cover is a critical component of the continued recovery of the Chesapeake Bay. (Courtesy photo by Matt Rath/Chesapeake Bay Program)*

**How does it work?** Computer models project that forests—the vast majority of which are privately owned—will continue to be lost into the future. When a State or jurisdiction can downscale or reverse that trend, it gets credit for averting pollution. This is sometimes referred to as avoided deforestation while accounting for growth. And it is a cost-effective practice. In a recent study conducted by the Virginia Department of Forestry, jurisdictions along the Rappahannock watershed could avoid \$125 million of restoration costs by retaining certain forests. In addition to high water quality, many other co-benefits of forests (improved air quality, habitat, fiber and fuel, and recreation, among others) would result.

The Chesapeake Bay Land Use Change Model will be used to simulate future land use conditions in the Bay watershed and the effects of conservation and zoning practices on those future conditions. From these model runs, Chesapeake Bay partners can calculate the acreage of forest land conversion with and without conservation and zoning practices. The ratio of these two numbers can show how future growth has been off-set by practices that result in reduced loss of forest cover.

These ratios will vary spatially based on the probability of conversion. For example, as land becomes less available, the effects of conservation and zoning will increase. Likewise, in rural areas that are not expected to be developed, less credit is given to maintain existing forests.

#### **Forest Restoration on Private Lands**

Along with forest retention, BMPs that establish new forests are a relatively easy and effective way to restore the Bay. With existing tools, Bay partners can easily determine the quantitative nutrient and sediment reduction benefits of various forest restoration and tree planting BMPs. [High-resolution land cover data](#) (1 m/pixel resolution) for the entire 64,000-square-mile watershed is also available to partners. This improved data helps users better identify lands for forest restoration and forest harvesting BMPs. This same high-resolution data will be used in a change analysis as proof of the credit for avoided deforestation.

#### **National Forest System Lands and the Bay Total Maximum Daily Load (TMDL)**

Along with States and local governments, the Clean Water Act requires that Federal agencies that manage land in the Chesapeake Bay watershed also participate in regional and subwatershed planning and restoration programs for the Bay TMDL. Bay partners have issued a report, [Protocol for Setting Targets, Planning Best Management Practices and Reporting Progress for Federal Facilities and Lands](#).

The U.S. Forest Service is the largest Federal land manager in the Bay watershed with land in Virginia and West Virginia—1.2 million acres in the George Washington & Jefferson National Forests and the Monongahela National Forest. The Forest Service is working with the jurisdictions of Virginia and West Virginia to ensure that they have all the information (e.g., acres of each land use and all BMPs and actions affecting water quality) required for reporting and addressing the pollution reductions necessary in the TMDL.