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## **THE ECONOMIC BENEFITS OF IMPLEMENTING THE BLUEPRINT IN MARYLAND**

Nature plays an important role by providing clean air and water, reducing flooding risks, and delivering food and recreational opportunities. These and other natural benefits can be quantified. The Chesapeake Bay Foundation's new report, *The Economic Benefits of Cleaning Up the Chesapeake*, for the first time assesses those benefits to determine what the current dollar value is, and how much it will increase with the implementation of the Chesapeake Clean Water Blueprint. The report also documents the loss of services if the Blueprint is not implemented.

Everyone will benefit from reducing pollution. The report estimates that in 2009 the value of nature's benefits in the region was \$107.2 billion and implementing the Blueprint will increase that value by \$22 billion. If we fail to continue to reduce pollution, the value of natural services would decline by \$5.6 billion annually.

Implementing the Blueprint will have a significant, positive benefit for Maryland's economy. Once the Blueprint is fully implemented, and the benefits fully realized, the value of the natural services provided would increase by \$4.6 billion annually, from \$15.8 to \$20.4 billion. That increase is largely driven by the enhanced value of:

- Aesthetics, the role that healthy natural areas play in attracting people to live, work, and recreate in a region, showed an increase in value of \$2.1 billion annually; and
- Waste treatment is the removal or breakdown of pollution by vegetation, microbes, and other organisms will result in fewer, less toxic, and/or lower volumes of pollutants in the system. The report estimated an increase in value of \$1.7 billion annually.

Failure to implement the Blueprint would reduce natural benefits that Maryland receives by \$700 million annually.

Examples of how those benefits work in Maryland include:

- In Maryland, about 50 community water systems, including Baltimore City, rely on surface water. Those systems serve about 80 percent of the population using public water systems. An EPA study of drinking water source protection efforts concluded that for every \$1 spent on source water protection, an average of \$27 is saved in water treatment costs (Groundwater Protection Council, 2007)
- In the tidal portions of the Chesapeake Bay, wetlands, underwater grasses, oysters, and other sedentary biota play a crucial role in removing nitrogen, sediment and/or phosphorus from the water. For example, marshes of the tidal fresh portions of the Patuxent River remove about 46 percent and 74 percent of the total nitrogen and phosphorus pollution, respectively (Boynton et al., 2008).
- Increased dissolved oxygen and underwater grasses result in more effective nutrient cycling and regulation in the tidal parts of the Bay. For example, Kemp et al. (2005) estimate that if underwater grasses in the upper Bay were restored to historic levels, they would remove roughly 45 percent of the current nitrogen inputs to that area.
- In urban areas, natural filters to reduce polluted runoff and trees helps reduce the "heat island" effect by reducing the amount of paved surfaces that trap the most heat. For example, differences in summer temperatures between inner-city Baltimore and a rural wooded area are commonly 7° C or more (Heisler, 1986).

- Healthy forested areas also provide quantifiable aesthetic benefits for individuals and communities. A study in Baltimore, Maryland, for example, revealed that as the percent of tree canopy cover increases, residents are more satisfied with their community.
- The Baltimore study also showed that when neighborhood forest cover is below 15 percent, more than half of the residents consider moving away (Grove, 2004). Other studies substantiate the idea that degraded landscapes are associated with economic decline (Power, 1996).

More broadly across the region other benefits include:

- Agricultural lands account for approximately 22 percent of the acres in the Chesapeake watershed (US EPA, 2010a) and the value of Chesapeake Bay region agricultural sales in 2007 was about \$9.5 billion— 24 percent from crops and 76 percent from livestock (U.S. Department of Agriculture, 2007).
- Scientists estimate that the 1.2 million acres of urban forest in the Chesapeake region collectively remove approximately 42,700 metric tons of pollutants annually (Sprague et al., 2006).
- In 2009, tourists spent \$58 billion in Maryland, Pennsylvania, Virginia, and Washington, D.C., directly supporting approximately 600,000 jobs and contributing \$14.9 billion in labor income and \$9.4 billion in taxes. Tourists spent \$25.7 billion in the Chesapeake Bay Gateways Network region alone (Stynes, 2012).
- In 2001, more than 15 million people fished, hunted, or viewed wildlife in the Chesapeake region's forests alone and contributed approximately \$3 billion to the regional economy (Sprague et al., 2006).

CBF's study addressed only benefits, not costs. While there are no recent estimates of the total costs of implementation, a 2004 estimate put costs in the range of roughly \$6 billion per year.

Considering federal, state and local investments in clean water in the 10 years since that time, we estimate the current number is closer to \$5 billion annually. And once capital investments are made, the long-term annual operations and maintenance costs will be much lower.

The result--the Blueprint will return benefits to the region each year at a rate of more than four times the cost of the clean-up plan.



CHESAPEAKE BAY FOUNDATION  
Saving a National Treasure

Founded in 1967, the Chesapeake Bay Foundation is a nonprofit 501(c)(3) conservation organization dedicated to saving a national treasure—the Chesapeake Bay and its rivers and streams. Its motto, Save the Bay, defines the organization's mission and commitment. With headquarters in Annapolis, MD, offices in Maryland, Virginia, Pennsylvania, and the District of Columbia, and 17 field centers, CBF works throughout the Chesapeake Bay's 64,000-square-mile watershed to build an informed citizenry, advocate pollution-reduction strategy, and enforce the law. CBF is supported by more than 200,000 active members and has a staff of 170 full-time employees. Approximately 80 percent of CBF's \$23.6 million annual budget is privately raised.

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