UNIVERSITY OF MARYLAND EXTENSION | MASTER GARDENER

Frederick County Office
330 Montevue Lane
Frederick, Maryland 21702
TEL 301-600-1594
FAX 301-600-1588
http://extension.umd.edu/frederick-county

WHY THE CHESAPEAKE BAY NEEDS *YOUR* HELP

Wiley W. "Pete" Horsley, Jr, Frederick County Master Gardener

Formed over 10,000 years ago by melting glaciers that overflowed the Susquehanna River valley, the Chesapeake Bay is a timeless treasure of the Mid-Atlantic. The second largest fresh-water estuary on the planet, it covers more than 4,480 square miles and has a shoreline of more than 11,000 miles. Beyond the spectacular scenery of flora and fauna, the vital history of the bay and the surrounding watershed shows what a tremendous economic impact the bay has had on our state.

The health of the bay has deteriorated during the past century, largely due to agricultural runoff, untreated or inadequately treated sewage, overuse of lawn chemicals, increased housing and paved areas, and industrial development. Last May, the University of Maryland Center for Environmental Science ranked the bay's overall health a C-, or 44 percent, its lowest score since 2011.

Following are some specific areas of concern, according to the Chesapeake Bay Foundation (cbf.org).

Agricultural impacts
Agricultural use throughout the watershed contributes nitrogen, phosphorus, and sediment to the waterways that feed the bay. Best management practices, including stream buffers, stream fencing, nutrient management plans, cover crops, rotational grazing, and continuous no-till, are among the most cost-effective ways of protecting and improving the bay. In March 2020, the Maryland General Assembly passed legislation (co-sponsored by Senator Ron Young, D-Frederick, and Delegate Dana Stein, D-Baltimore County) to help farmers with these practices; however, continuing federal and state government investments are needed to aid farmers in these vital efforts.

Air pollution
According to CBF, the primary polluters in the Chesapeake Bay watershed are people—about 18 million of them, growing by 150,000 per year. Much pollution comes from vehicle emissions, as well as from nitrogen, phosphorus, and mercury (the latter contaminates fish in the bay) from coal-fired power plant smokestacks, even from states west of the Mid-Atlantic and as far north as Canada.

Chemical contamination
Toxic chemicals enter the Chesapeake Bay and its rivers and streams via wastewater, agriculture, stormwater, and air pollution. PCBs (polychlorinated biphenyls) and PAHs (polycyclic aromatic hydrocarbons) are also key contaminants. Notably, much of this type of pollution comes from the coal-fired power plant emissions mentioned previously, as well as from stormwater and industrial facilities. For example, a study at Sparrows Point showed that wastes from the steel plant there included benzene, chromium, lead, naphthalene, and zinc (cbf.org).

Habitat degradation
Excess pollution in the bay reduces essential oxygen levels and impacts underwater grasses so vital to blue crabs and other key bay denizens. CBF notes that the Chesapeake Bay is home to almost 350 species of finfish and over 170 species of shellfish. Dead zones, areas with minimal to zero oxygen, literally suffocate fish, crabs, oysters, and other aquatic life. The zones are caused by excessive nitrogen and phosphorous pollution from agricultural runoff, and nutrients from fertilizers, septic systems, and other pollutants in urban/suburban runoff. Fortunately, according to CBF, Maryland is on track to meet its nutrient reduction targets by 2025, due in part to investments to upgrade sewage treatment plants, which have exceeded goals.

Forest losses
In a recent 25-year period, over 700,000 acres of forest in the bay watershed were lost to development. The dual effect of this was loss of effective filtering habitat and greatly increased sediment into the bay. On the positive side, CBF says that trees and shrubs planted along streams reduce up to 65 percent of the nitrogen; 45 percent of the phosphorus; and 60 percent of the sediment that would otherwise enter adjacent streams. Tree buffers also shade and cool streams and stabilize stream banks to reduce erosion.

These are just a few of the issues involved in making the Chesapeake Bay healthy. In a subsequent article, we will describe other impacts on the health of the Chesapeake and how you can help save the Chesapeake through best practices applied to your own house and property. As well, you can become Bay-Wise certified through the UMD Master Gardeners program that accredits individual properties for efforts to save the Chesapeake Bay from further deterioration (https://extension.umd.edu/frederick-county/home-gardening/bay-wise).

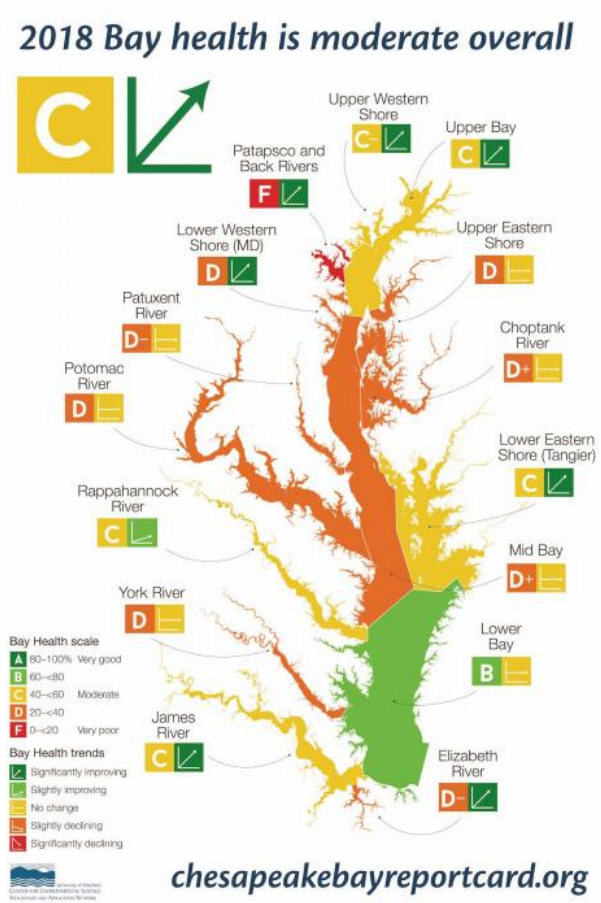
For upcoming virtual seminars, Master Gardener certification classes, or other announcements, go to http://extension.umd.edu/frederick-county/home-gardening, or call us at 301-600-1596.

For more information concerning Bay-Wise certification and other gardening issues, visit the following web sites:

- Chesapeake Bay Foundation: www.cbf.org
- Bay-Wise certification: https://extension.umd.edu/frederick-county/home-gardening/bay-wise
- Chesapeake Bay watershed map: https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/pollution-limits/pollution-limits-by-state.html
- Legislation on conservation practices (see pollution reductions): https://www.cbf.org/news-media/newsroom/2020/maryland/legislation-aimed-at-increasing-long-term-conservation-practices-on-maryland-farms-becomes-law.html
- Frederick County Master Gardeners: http://extension.umd.edu/frederick-county/home-gardening

Chesapeake Bay Watershed map: Agricultural use in the Chesapeake Bay watershed contributes nitrogen, phosphorus, and sediment to the waterways. Contaminants flow from as far away as upstate New York. (illustration courtesy of Lucidity Information Design)

2018 Bay Health map: The Chesapeake Bay Foundation rated the Bay's health as a C- in 2018 and in 2020, although the organization noted in 2020 that the Clean Water Blueprint for pollution limits by states is beginning to show improvement in the Bay, with fewer and smaller dead zones and less pollution. Check the website in our sidebar for state-by-state lists of pollution reduction expected by 2025. (illustration courtesy of the Chesapeake Bay Foundation)



Annapolis creeks: Annapolis harbor and nearby creeks and rivers get lots of boat traffic year-round, which also contribute to bay pollution. (photo courtesy of the author)

For more information about the Frederick County Master Gardener/Horticulture Program, visit: http://extension.umd.edu/frederick-county/home-gardening or call Susan Trice at the University of Maryland Extension Frederick County office, 301-600-1596.
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