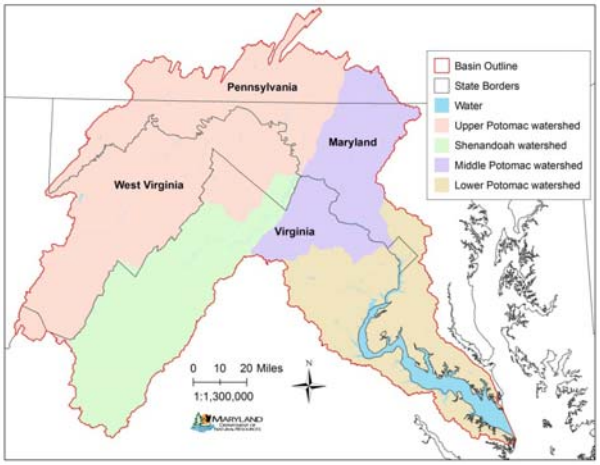
Potomac River Water Quality and Habitat Assessment Summary

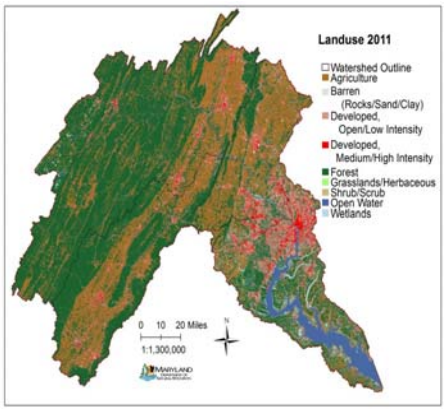
September, 2016

Potomac River

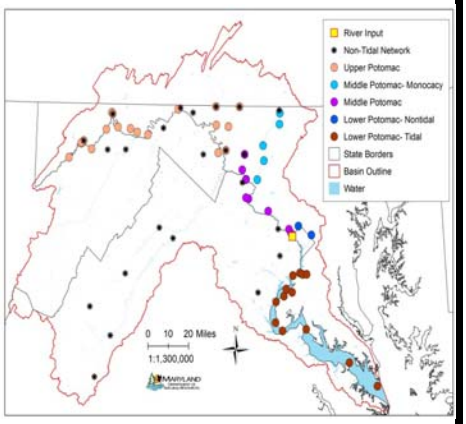
The Potomac River is divided into four regions: Upper Potomac, Shenandoah, Middle Potomac, and Lower Potomac. The Upper Potomac basin includes parts of Maryland, Pennsylvania, West Virginia, and Virginia. The dominant land uses in the Upper Potomac is forest (69%) and agriculture (22%), and impervious surfaces cover 1% of the Maryland portion of the Upper Potomac basin. The Shenandoah watershed is almost entirely in Virginia with a small area in West Virginia. The dominant land uses in the Shenandoah watershed is forest (56%) and agriculture (34%). The Middle Potomac basin drains parts of Maryland, Virginia, Pennsylvania, and Washington DC. The dominant land use in the Middle Potomac is agriculture (44%), followed by forest (32%), and developed areas (20%). Impervious surfaces cover 7% of the Maryland portion of the Middle Potomac basin. The Lower Potomac basin includes parts of Maryland, Virginia, and Washington DC. The dominant land use in the Lower Potomac is forest (41%), followed by developed areas (30%), and agriculture (16%). Impervious surfaces cover 9% of the Maryland Portion of the Lower Potomac basin.



Land Use/Land Cover



Monitoring Stations



Overall Conditions (1999—2015)

Upper Potomac

- Nitrogen levels decreased in most areas
- Phosphorus levels decreased in many areas and sediment decreased in some areas, but increased in Georges Creek
- Newer concerns include algal blooms in the farthest upstream region, and presence of harmful invasive species such as *Didymo*

Shenandoah

- Phosphorus levels decreased at North Fork, but other parameters were unchanged

Middle Potomac

- Nitrogen decreased in the Monocacy River and Seneca Creek, and at one main river location
- Phosphorus levels decreased in most areas but sediment levels were unchanged

Lower Potomac

- Fair water quality in tidal fresh open waters with high but improving nitrogen levels; phosphorus and sediment levels meet habitat requirements
- Poor water quality in oligohaline waters with high nutrient and increasing sediment levels
- Poor water quality in upper mesohaline with high nutrient levels; good water quality in lower mesohaline with decreasing nutrient and sediment levels
- Fair to poor underwater grass habitat due to poor water clarity and increasing algal densities—2015 grass coverage exceeded the restoration goal in tidal fresh waters, was 97% of goal in oligohaline, and less than 10% of goal in mesohaline
- Summer bottom dissolved oxygen levels are good in tidal fresh and oligohaline open waters, but poor in mesohaline, and bottom dwelling animal populations are not healthy throughout

Improving Water & Habitat Quality: What's been done and what needs to be done?

- Upgrades to the largest wastewater treatment plant in the basin, Blue Plains, have reduced nitrogen loadings by more than two-thirds and reduced phosphorus levels by a third since the mid-1990s; additional upgrades are expected to be completed by 2018 and upgrades are scheduled to be completed at additional wastewater treatment plants within the basin by 2017
- Almost 600 septic system upgrades were completed between 2008 and 2013 and stormwater retrofits have prevented approximately 50,000 pounds of nitrogen from entering streams
- In 2014, over 82,000 acres of cover crops were planted between growing seasons to absorb excess nutrients and prevent sediment erosion
- Fencing on over 14,500 acres of farmland was used to keep livestock out of streams and prevent streambank erosion and over 25,000 acres of stream buffers are in place to reduce runoff and erosion
- More than 1,500 containment structures have been built to store animal wastes and allow these nutrients to be applied to the land in the manner most effective to reduce runoff
- Almost 52,000 acres have been protected and preserved through various programs such as Program Open Space, the Rural Legacy Program, the Maryland Environmental Trust, and the Maryland Agricultural Land Preservation Program
- Reducing sediment loadings from urban areas can be accomplished by retrofitting existing structures with alternatives to conventional building materials and methods that reduce the amount of impervious surfaces
- An integrative assessment of the water and habitat quality of the Potomac River for 1985-2010 is available online at: http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/Potomac_WQ_and_H_Assessment_2013.pdf

Washington DC is located within the Middle Potomac Basin.

What Can You Do?

There are many things you can do to help improve water and habitat quality of the Potomac River.

- **Plant trees along streamside property.** Tree roots will slow erosion and absorb the flow of nutrient runoff.
- **Pump out septic tanks regularly (every 3-5 years).** A failing system can contaminate groundwater.
- **Conserve water.** Use rainwater for plants, take shorter showers, and turn off the faucet when brushing your teeth.
- **Drain gutter spouts into rain barrels or grassy areas.** This will reduce erosion, which adds sediment to rivers.
- **Carpool, or try biking or walking.** Exhaust fumes contain nitrogen oxides, which can end up in rivers and bay.
- **Dispose of household chemicals properly.** Toxic chemicals poured down the drain could end up in rivers.
- **Use fertilizer sparingly**. If you must fertilize, try doing it in autumn, when it will have less of an impact on rivers.
- **Support land protection initiatives**. Preserving existing green space is much easier than restoring degraded areas.
- **Get involved.** Let county, state, and local officials know that water and habitat quality is important to you.

Water quality data from the Potomac River are available at:
www.eyesonthebay.net

Please report fish kills, algal blooms, or any other events or problems to the toll-free Chesapeake Bay Safety and Environmental Hotline at 1-877-224-7229

Larry Hogan, Governor **Mark Belton,** DNR Secretary

Maryland Department of Natural Resources; Tawes State Office Building; 580 Taylor Avenue; Annapolis, Maryland 21401
Toll free : 1-(877)- 620-8DNR(8638) in Maryland Out of state call: 410-260-8638 TTY users call via the Maryland Relay
www.dnr.maryland.gov

This summary is taken from the full Water Quality and Habitat Assessments prepared by members of the DNR Tidewater Ecosystem Assessment Division: Renee Karrh primary author
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