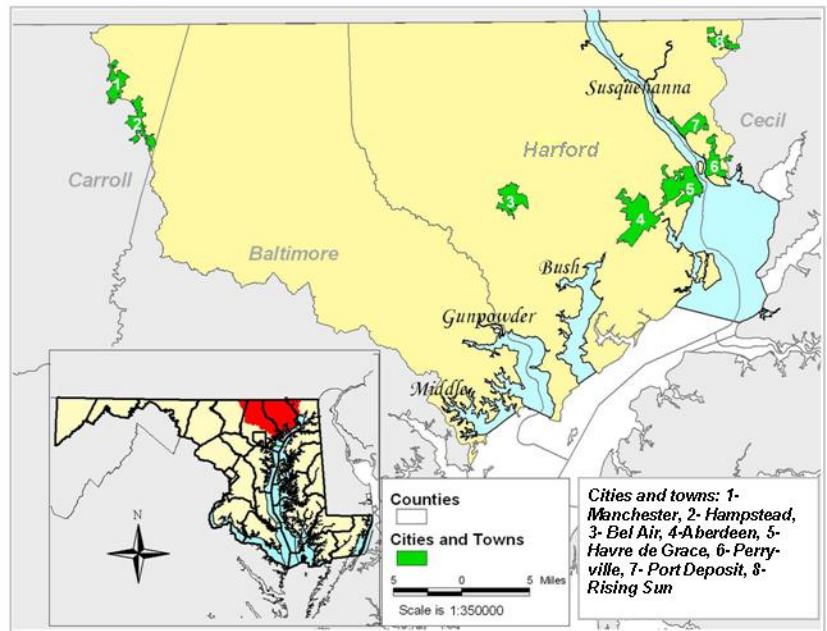


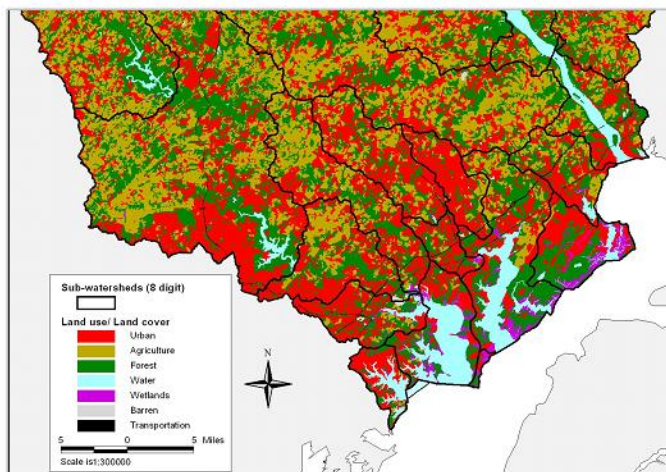
# Upper Western Shore Water Quality and Habitat Assessment

## Upper Western Shore Basin

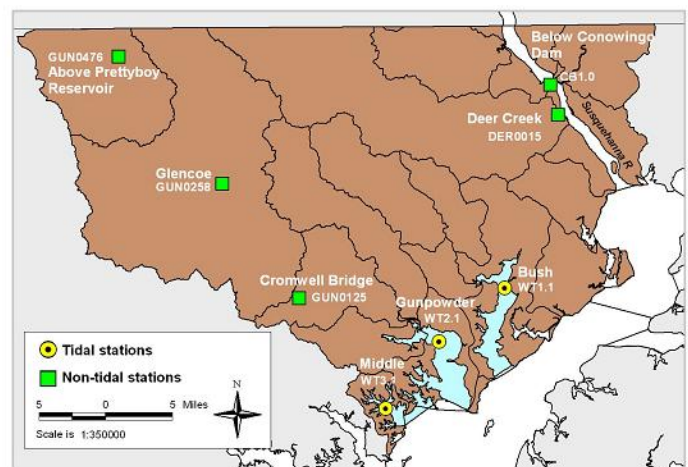
Maryland's Upper Western Shore basin drains approximately 900 square miles in Harford County and portions of Carroll, Baltimore, and Cecil Counties. This basin includes the Bush, Gunpowder and Middle Rivers. The basin also includes the Susquehanna River, which is not included in this report because conditions are largely influenced by out-of-state activities. In 2010 there were approximately 540,000 people living in the basin in Maryland and an additional 8,000 in Pennsylvania. Land use in the Upper Western Shore basin is roughly one-third urban, one-third forest and one-third agriculture. Between 2000 and 2010, urban land use increased by 11% and impervious surfaces cover 7% of the overall basin.



### Land Use/Land Cover



### MD DNR Monitoring Stations



## Overall Conditions

### Bush River

- Fair to good water quality, but with degrading phosphorus levels
- Poor water clarity has led to declining underwater grass habitat since 2005—grass coverage is 34% of restoration goal
- Summer bottom dissolved oxygen levels are good and bottom dwelling animals healthy in middle and lower river; unhealthy in upper river

### Gunpowder River

- Fair to good water quality, but with degrading phosphorus levels
- Impaired underwater grass habitat due to high sediment, high algal densities, and poor water clarity—grass coverage is 32% of restoration goal
- Bottom dwelling animals healthy and bottom habitat good

### Middle River

- Nitrogen levels improving; phosphorus levels degrading; sediment levels good
- Low algal densities, but decreasing water clarity has led to declining habitat for underwater grasses—grass coverage is 35% of restoration goal
- Summer bottom dissolved oxygen levels are good and bottom dwelling animals healthy

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

- Upgrades to the largest wastewater treatment plant that discharges into the Bush River will be completed by 2014; previous upgrades reduced nitrogen loadings into the river by half
- Upgrades to the largest treatment plant that discharges into the Gunpowder River will be completed by 2013; previous upgrades drastically reduced nitrogen and phosphorus loads into the river
- 191 septic system retrofits were completed between 2008 and 2010, and stormwater retrofits have reduced nitrogen loadings and prevented 50,00 pounds of nitrogen from entering the rivers since 2003
- In 2010, 9,500 acres of cover crops were planted between growing seasons to absorb excess nutrients and prevent sediment erosion
- Fencing on over 14,600 acres of farmland was used to keep livestock out of streams and prevent streambank erosion and 3,080 acres of stream buffers are in place to reduce runoff and erosion
- More than 450 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
- Over 18,000 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
- Efforts to lower nitrogen and sediment loadings from urban and agricultural areas are needed to improve water clarity, and reducing nitrogen loadings from septic systems should also be a priority
- The full assessment is available through the link: <http://tinyurl.com/c89cc9y> or by scanning:



*Winters Run flows through the Harford Glen Outdoor Education Center in Bell Air.*

## What Can You Do?

There are many things you can do to help improve water and habitat quality on the Upper Western Shore.

- **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 Upper Western Shore are available at:

[www.eyesonthebay.net](http://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**

Martin O'Malley, Governor

Joseph P. Gill, DNR Secretary



Maryland Department of Natural Resources; Taves 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](http://www.dnr.maryland.gov)



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