

Middle Potomac River Watershed Assessment: Defining Environmentally Sustainable Flows

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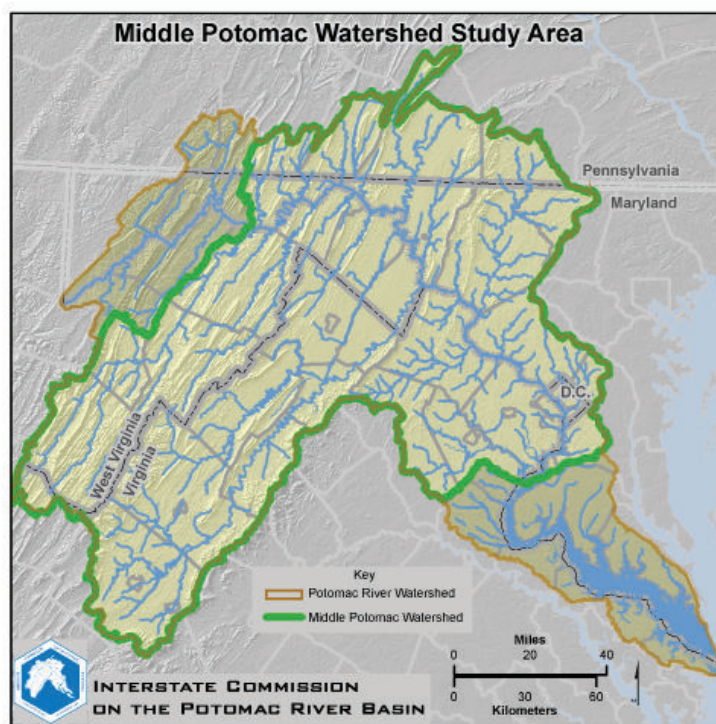
The Potomac is a river of great natural, cultural, and economic value. It provides critical environmental services to the people of our region, including drinking water supply and wastewater removal. The watershed encompasses 14,670 square miles in Maryland, Virginia, Pennsylvania, West Virginia, and the District of Columbia—a diverse landscape with urban, rural, and natural areas. The watershed is home to about 6.1-million residents, most of whom are concentrated in the Washington, D.C., metropolitan area. To protect and restore the Potomac watershed's environmental flows—the flow of water that sustains healthy river ecosystems and the goods and services that humans derive from them—the U.S. Army Corps of Engineers (USACE), The Nature Conservancy (TNC), and the Interstate Commission on the Potomac River Basin (ICPRB) are collaborating on a watershed assessment.

The Potomac is one of the least dam-regulated large river systems in the Eastern United States. Despite this distinction, the Potomac's natural flow regime is, in some areas, at risk due to increased population growth accompanied by increased surface and groundwater withdrawals. Development in the watershed also has brought an expansion of impervious surfaces that increases and accelerates water runoff into streams, which degrades water quality and ecosystem health.

Protecting Environmental Flows

A river's hydrology is critical for ecosystem health; it directly impacts a river's water quality, habitat values, and biotic integrity. The Potomac River's hydrology, like all rivers, is defined by climate, geology, topography, vegetation, and other natural and human-influenced features of its watershed.

The purpose of this project is to develop information resources and analytical tools that will identify and assess human and environmental uses of streamflows in the watershed. This information will support regional planning for the sustainable use of the available water resources for multiple purposes, including ecosystem protection. The watershed assessment will concentrate on the Middle Potomac River watershed—175 river miles and home to approximately 75 percent of the Potomac basin's residents—but the assessment will



include hydrologic and ecological considerations extending upstream to the Potomac's North Branch and downstream to the estuarine Potomac.

The project will assess the impacts of current and future human activities on the river's hydrology—including water withdrawals, dam operations, changes in watershed land use and development, and projected climate change—to determine how they might be balanced and mitigated to prevent water use conflicts and ecological degradation of

the Potomac River's native species and natural communities.

Products

The assessment will generate a number of products to advance our understanding of the dynamics of the Potomac River watershed, including:

- Compilation of a basin-wide database of biological and water quality data.
- Refinement of a hydrologic model and database for the watershed.
- Development of future water use projections.
- Assessments of current hydrologic alteration and projected future alterations based on water demand and climate change.
- Completion of a literature review of basin-wide flow-ecology relationships for flow-dependent species.
- Development of environmental flow recommendations for the mainstem Potomac based on best available science and expert opinion, which can be used to harmonize jurisdictional water management decisions and policies.
- Creation of hydrologic alteration-ecological response relationships that will aid in the development of environmental flow recommendations for classes of tributary streams.
- Distribution of a summary report projected for December 2011 that will inform a potential future basin-wide comprehensive plan.



The project will assess flows required by the Potomac and its tributaries that best support the variety of uses (for example, drinking water supply, recreation, and industrial/commercial) while protecting ecological integrity.

Developing Partnerships

The success of this project will depend on sharing data and knowledge among the multiple agencies responsible for water resource planning and management across the five jurisdictions of the Potomac basin. It also will rely on the knowledge and expertise of academic researchers, watershed groups, and federal, state, regional, and local resource managers. These groups were well represented at the kick-off "webinar" held on September 29, 2009, to introduce the project. An expert workshop to identify large river environmental flow needs was held September 22-23, 2010 at the National Conservation Training Center in Shepherdstown, W.Va. A series of six interactive webinars focused on developing flow alteration-ecological response relationships for classes of smaller tributary streams will be held between April-October 2011. These will be followed by a final project workshop in late November 2011 to discuss potential state- and local-level management and policy applications of these flow alteration-ecological response relationships.

For more information about the MiddlePotomac River Watershed Assessment, visit www.potomacriver.org/sustainableflows

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