



2013

State of the Nation's River

A comprehensive assessment of the Potomac River's health resulting in an overall grade of



Introduction

Fast Facts About the Potomac River

- Provides drinking water for nearly 5 million people
- Named America's #1 Most Endangered River in 2012
- Contributes one-quarter of the water that flows into the Chesapeake Bay
- Over 25% of the river basin is protected land

Every two years, the Potomac Conservancy seeks to answer the fundamental question, "How is the river doing?" in its State of the Nation's River report. This inaugural report card establishes a baseline and set of benchmarks to measure our progress going forward.

The 2013 State of the Nation's River report gives the Potomac River's health an overall grade of C. After suffering the effects of historical overfishing, pollution and habitat destruction for decades, it is no wonder that the Potomac River's recovery is a slow one. Fortunately, there has been a renewed commitment at the start of the 21st century to return the Potomac to full ecological health. And we're starting to see some signs of progress as evidenced in this report.

For this report card, we identify and present data on five significant areas — fish, habitat, pollution, land and people — each of which includes several sub-areas of particular interest. Each grade represents Potomac Conservancy's rating for the particular sub-area.

GRADING SYSTEM	
A	80-100%
B	60-79%
C	40-59%
D	20-39%
F	0-20%
<i>i</i>	<i>incomplete data</i>

Fish	Striped Bass	B-	White Perch	C
	American Shad	A		
Habitat	Underwater Grasses	D	Forested Buffers	C-
	Tidal Water Quality	C-	Stream Water Quality	D
Pollution	Wastewater	A-	Nitrogen	B
	Phosphorus	D	Sediment	B-
Land	Current Land Use	C+	Protected Lands	A
	Future Development	C-		
People	Access Points	B	Fishing Licenses	<i>i</i>
	Outdoor Recreation	<i>i</i>		

Fish

In our assessment of the Potomac River, we focus on three fish species: striped bass (or rockfish), white perch, and American shad. Due to the migratory nature of fish populations — as well as regional effects like weather, predation, and food availability — Potomac River-specific status numbers and established benchmarks are difficult for scientists to develop for any particular species.

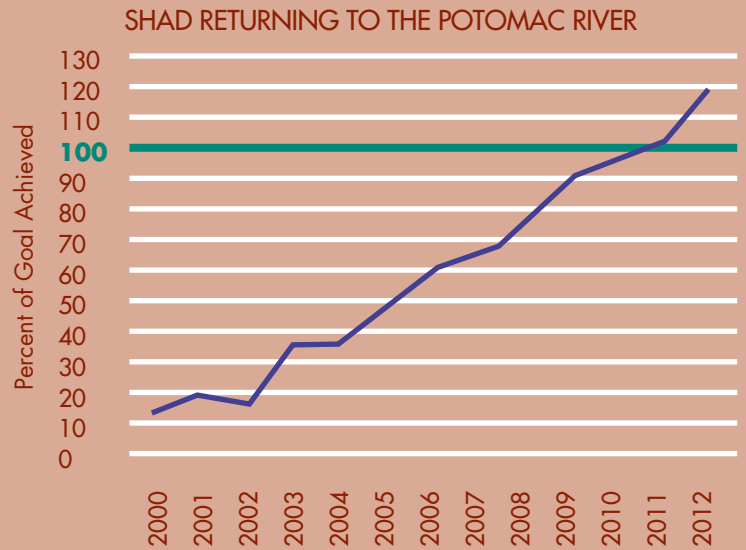
The only Potomac River fish that currently has an established benchmark is American shad. For white perch and striped bass, we offer the best available information from the Maryland Department of Natural Resources Potomac River Surveys, but note that these data do not necessarily represent a larger trend.

Issues of deep concern for fish health in the Potomac River are invasive predators (snakehead and blue catfish) as well as the harmful effects of heavy metals and emerging contaminants (hormone disruptors). In Maryland alone, nine species of fish present in the Potomac River are the target of State Fish Consumption Advisories due to harmful levels of mercury, PCBs, and/or pesticide contamination. (For details, please visit <http://www.mde.state.md.us/> and search for “Fish Consumption Advisory.”)

American Shad

A

The largest member of the herring family, the American shad, has historically spawned in nearly every available river and tributary along the Atlantic coast. The Potomac River hosts one of the strongest populations on the entire East Coast. As of 2012, shad within the Potomac River have surpassed 100% of the goal established by NOAA (which is based upon the populations present in the 1950s).

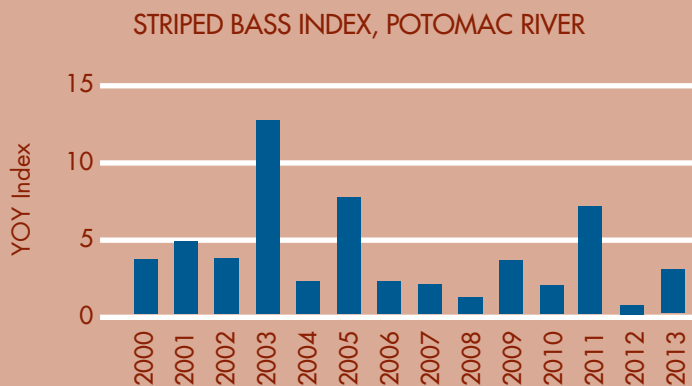


Source: Chesapeake Bay Program

Striped Bass

B-

Striped bass is the Maryland State Fish and the top recreational sportfish in the entire Chesapeake Bay. The coastal population has seen significant conservation success over the past fifteen years. According to the Atlantic States Marine Fisheries Commission assessment, striped bass are currently at sustainable population levels due to strict management controls during the past decades (including fishing moratoriums in the 1980s). Potomac Conservancy has developed a benchmark goal based on index data since 2000. The 2013 index score shows slight improvement compared to 2012 and results in a grade of B-.

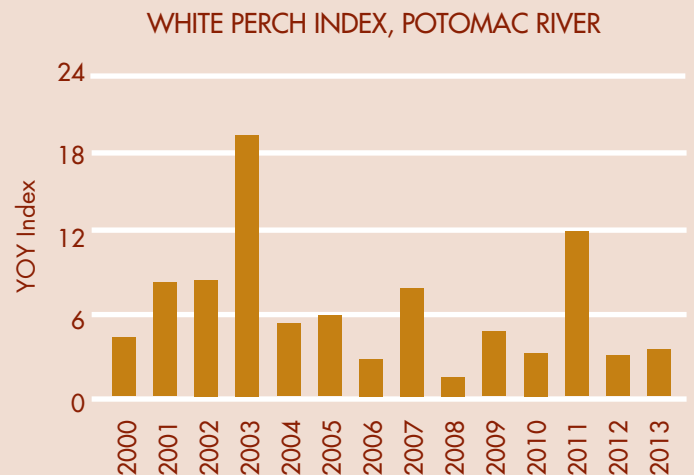


Source: Durell, E.Q., and Weedon, C. 2011. Striped Bass Seine Survey Juvenile Index Web Page. <http://www.dnr.state.md.us/fisheries/juvinindex/index.html>. Maryland Department of Natural Resources, Fisheries Service.

White Perch

C

White perch, a close relative of the striped bass, is one of the most abundant and popular recreational fishes in the Chesapeake Bay. While they are found along most of the Atlantic coast, they tend to remain in local waters throughout their life spans, which makes them strong indicators of an area’s toxic contaminant levels. Potomac Conservancy has developed a benchmark goal based on index data since 2000. The 2013 index score shows improvement compared to 2012 and results in a grade of C.



Source: Durell, E.Q., and Weedon, C. 2011. Striped Bass Seine Survey Juvenile Index Web Page. <http://www.dnr.state.md.us/fisheries/juvinindex/index.html>. Maryland Department of Natural Resources, Fisheries Service.

Habitat

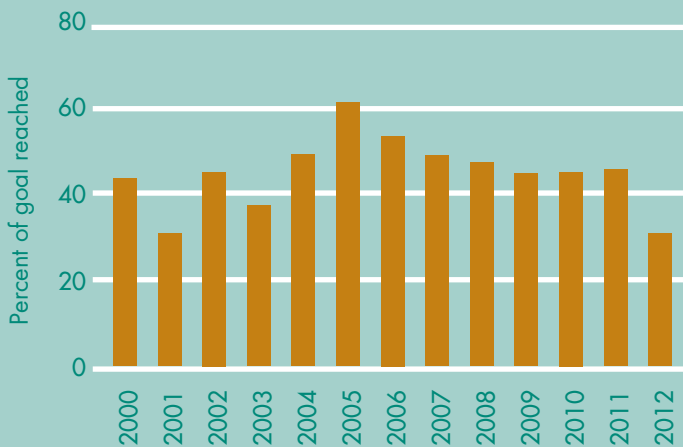
Natural habitat plays a critical role when it comes to reducing pollution in our rivers and streams. Underwater grasses provide shelter to many species, add oxygen to the water and reduce shoreline erosion. Forested buffers absorb nutrients, capture sediment in runoff, and stabilize riverbanks.

Underwater Grasses



The growth and expansion of aquatic grasses requires clean, clear water. Recovery of underwater grasses goes hand-in-hand with the success of other water-quality improvements. According to a University of Maryland assessment for the Potomac River, aquatic grasses in 2012 were at 32% of threshold goal.

AQUATIC GRASSES, POTOMAC RIVER, 2000-2012



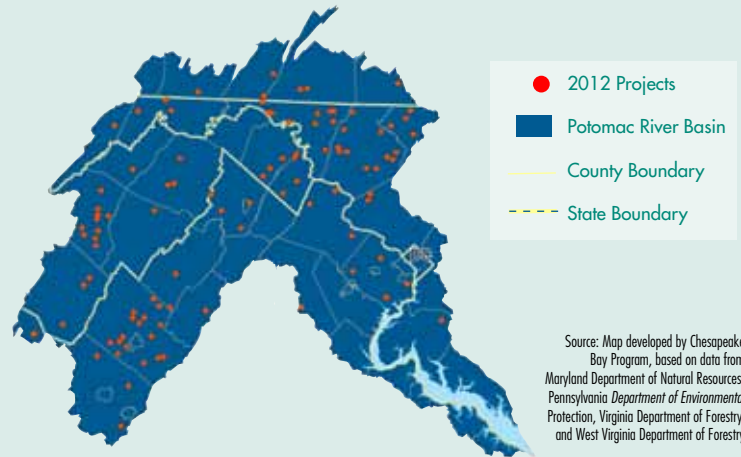
Source: University of Maryland Center for Environmental Science (UMCES), EcoCheck

Forested Buffers



Shoreline trees (forested buffers) offer crucial protection from harmful effects of pollution, sediment, and water temperature fluctuations in nearby waters. According to U.S. Department of Agriculture Conservation Reserve Program tracking, around 15,170 acres of agricultural forest buffers have been implemented in the Potomac Basin as of 2012 -- roughly 40% of the acres needed to reach the Potomac River's 2025 Watershed Improvement Plan (WIP) goals.

RIPARIAN FOREST BUFFER RESTORATION, 2012



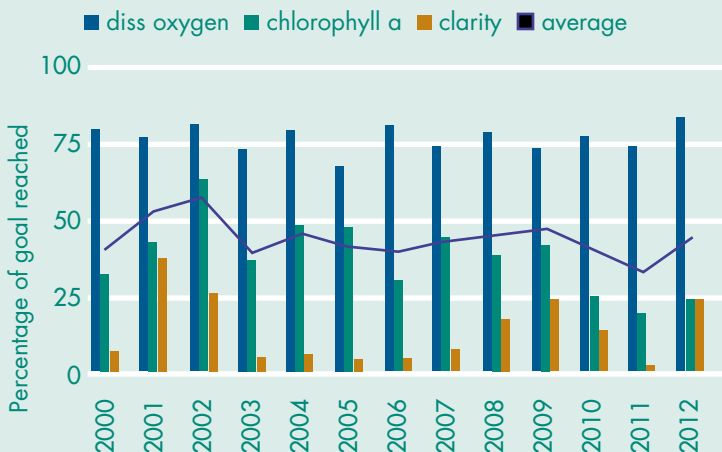
Source: Map developed by Chesapeake Bay Program, based on data from Maryland Department of Natural Resources, Pennsylvania Department of Environmental Protection, Virginia Department of Forestry, and West Virginia Department of Forestry

Tidal Water Quality



Data on dissolved oxygen, water clarity, and chlorophyll a (a measure of algae) offer a snapshot of tidal water quality in the Potomac River. While dissolved oxygen levels have been relatively high in recent years, the river continues to suffer from impaired water clarity and low algal scores.

WATER QUALITY, 2000-2012



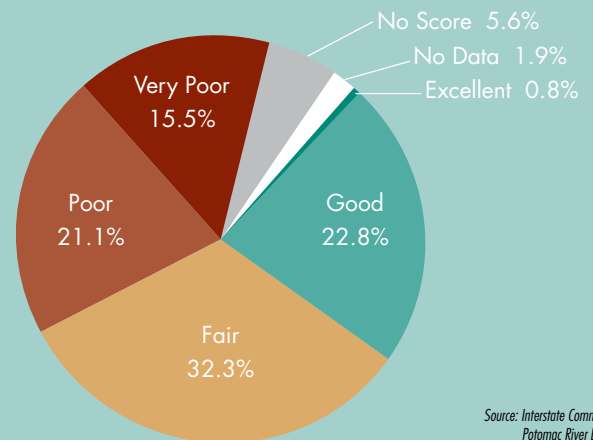
Source: University of Maryland Center for Environmental Science (UMCES), EcoCheck

Stream (non-tidal) Water Quality



Impaired water quality is a common challenge for our nation's rivers and streams, and the Potomac River is no different. To assess the health of non-tidal streams and wadeable rivers, the Chesapeake Bay Benthic Monitoring Program developed a special health index in 2012 that combines data from a variety of monitoring programs. Based on this index, the average, area-weighted score for Potomac River stream health is 35.91, or "Fair" (bordering on "Poor").

STREAMS & WADEABLE RIVERS IN THE POTOMAC RIVER BASIN



Source: Interstate Commission on the Potomac River Basin (ICPRB)

Pollution

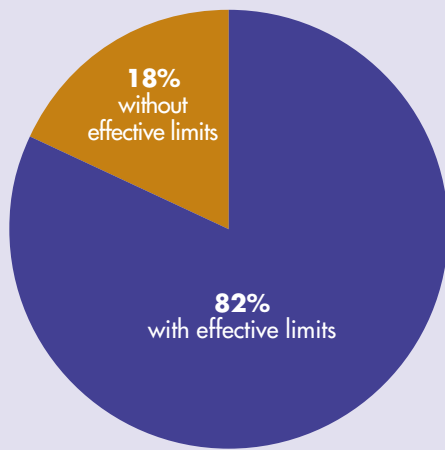
Pollution levels in the Potomac are measured by levels of nitrogen, phosphorus, and sediments present in the water. All three of these indicators are improving, with especially large reductions in sediment and nitrogen in recent years.

Wastewater

A-

Wastewater treatment plan discharges are a primary source of pollutants in the River. According to EPA data from October 2013, about 82% of total significant facilities in the Potomac River Basin (84 facilities of 102) have limits in effect that meet water quality standards. Note that this data does not track permit compliance - just permit limits in effect.

WASTEWATER FACILITY DISCHARGE LIMITS

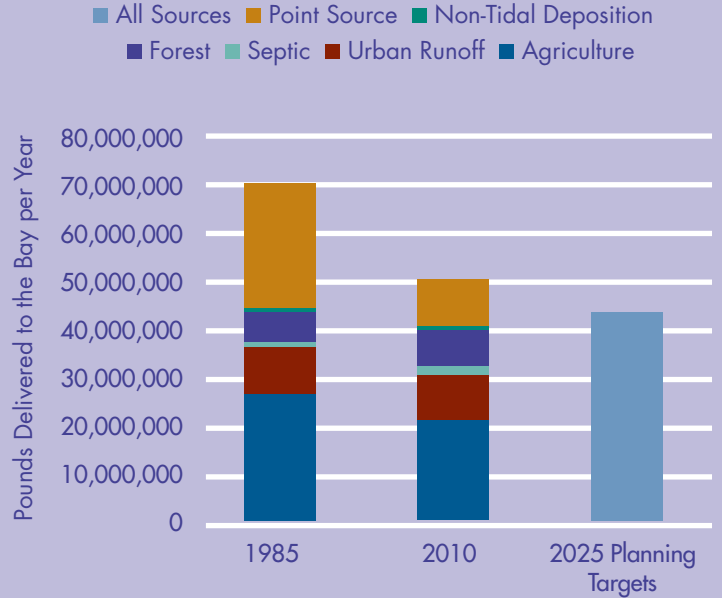


Source: Environmental Protection Agency (EPA)

Nitrogen

B

NITROGEN LOADS FROM THE POTOMAC RIVER BASIN

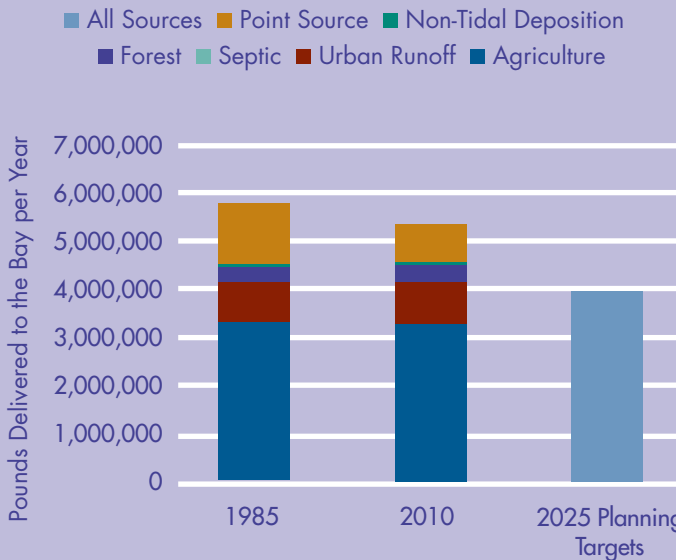


Source: Environmental Protection Agency (EPA)

Phosphorus

D

PHOSPHORUS LOADS FROM THE POTOMAC RIVER BASIN

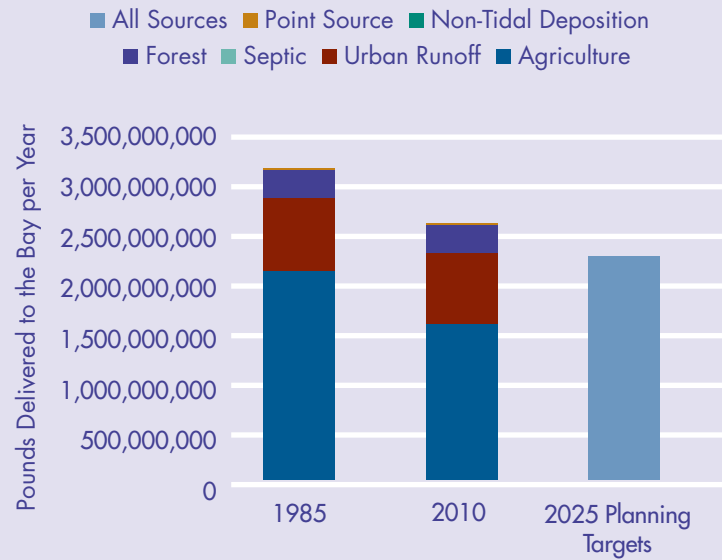


Source: Environmental Protection Agency (EPA)

Sediment

B-

SEDIMENT LOADS FROM THE POTOMAC RIVER BASIN



Source: Environmental Protection Agency (EPA)

Land

Sustainable land is key to the future health of the Potomac River and its inhabitants. While a significant portion of the Basin is considered protected, man-made surfaces (like roads, housing, and parking lots) continue to increase while forest coverage continues to decrease.

Current Land Use



POTOMAC WATERSHED LAND USE

According to the 2010 estimated census, roughly 6.1 million people live in the Potomac River watershed – a density of about 415 persons per square mile. For comparison, there are an average of 87.4 persons per square mile in the U.S, according to 2010 Census data. Attempts to balance economic development, infrastructure maintenance, and natural and cultural resources continue. Cities and states continue to work at creating a sustainable balance between competing priorities. The current land use score is tied to the percentage of land that is forested in the Potomac watershed.



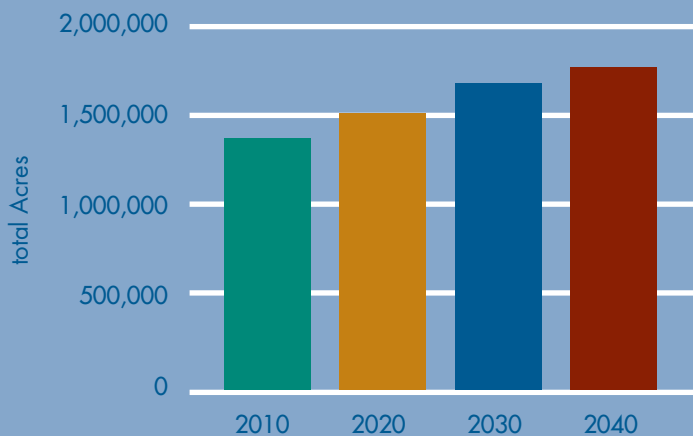
Source: Interstate Commission on the Potomac River Basin (Jan Dcnuigeen)

Future Development



All major indicators of development – housing units, developed acres, impervious surfaces, and population – are projected to steadily increase through the year 2040. Developed and urban land is a primary source of runoff pollutants and waste which have damaging effects on the River. The Potomac Conservancy grade is based on the projected percentage increase in developed acres between 2010 and 2030.

PROJECTED DEVELOPMENT, POTOMAC BASIN



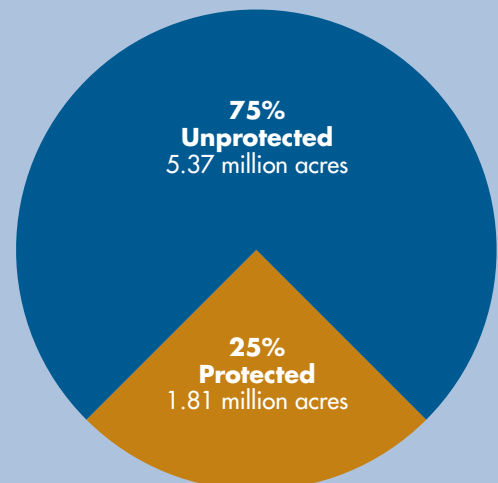
Source: Chesapeake Bay Program and USGS

Protected Lands



As of 2011, 25% of the the Potomac River Watershed was considered "Protected Land" by the U.S. Geological Service Chesapeake Bay Office. The Chesapeake Bay established a goal of 20% protected lands for the entire bay area. Since the Potomac River contains more than 20% protected lands (over 1.8 million acres), we assign a grade of A.

PROTECTED AND UNPROTECTED LANDS



Source: United States Geological Survey (USGS)

People

Hiking trails, fishing spots, and aquatic activities are just a few of the adventures available on the Potomac River. The Potomac Heritage National Science Trail (PHT) alone boasts hundreds of miles of outdoor routes where people can explore nature and history.

Access Points

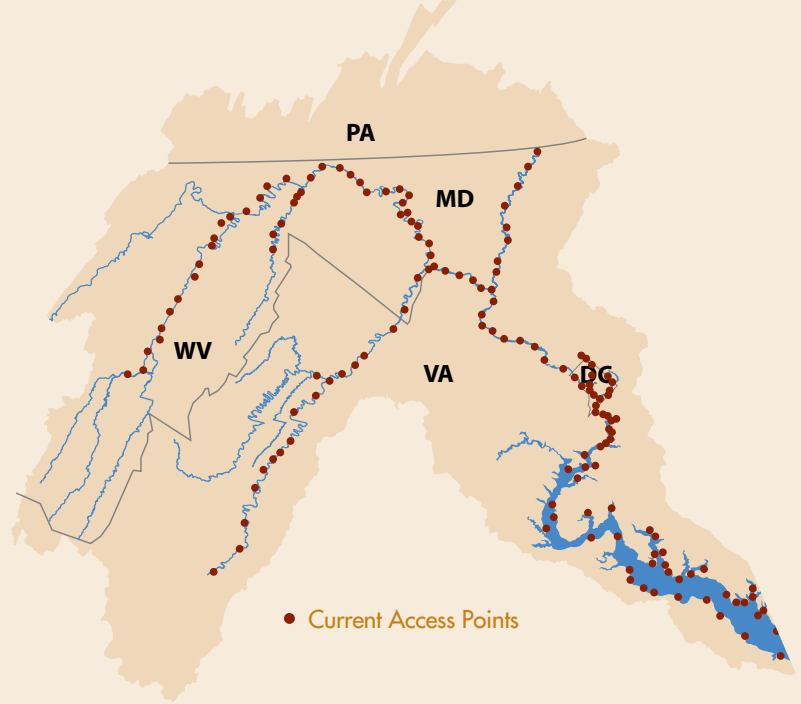
B

Across the watershed, state and local governments are working to develop better access to rivers and bays. Along the Potomac River, there are long stretches where the public has little or no access to the water. Inaccessible stretches make river recreation difficult for both locals and tourists and mean fewer cultural and economic benefits to the area.

The National Park Service and area states have developed a public access plan for the Chesapeake Bay to expand available sites by a total of 300 sites by 2025. By scaling from that Bay-wide goal, Potomac Conservancy has established a benchmark goal of 220 total public access sites to the Potomac River Basin by 2025. The river currently has roughly 150 public access sites, resulting in a grade of B.

Source: LandScape America and National Park Service, Chesapeake Bay Office

PUBLIC ACCESS POINTS, POTOMAC RIVER BASIN



Fishing Licenses

i

Fishing is a popular and lucrative industry in the local area. The Potomac River Fisheries Commission (PRFC) regulates fishing in the main Potomac River Basin. Both recreational and commercial fishing licenses are issued for the river and stay relatively consistent from year to year. In Maryland alone, there are over 250 Sport License Agents where residents and visitors can obtain recreational licenses.

FISHING LICENSES ISSUED FOR THE POTOMAC RIVER IN 2012

6,350

Recreational

(includes individual sport, pleasure boat, charter boat, rental boat, sport crabbing)

713

Commercial

(includes finfish, crab, oyster)

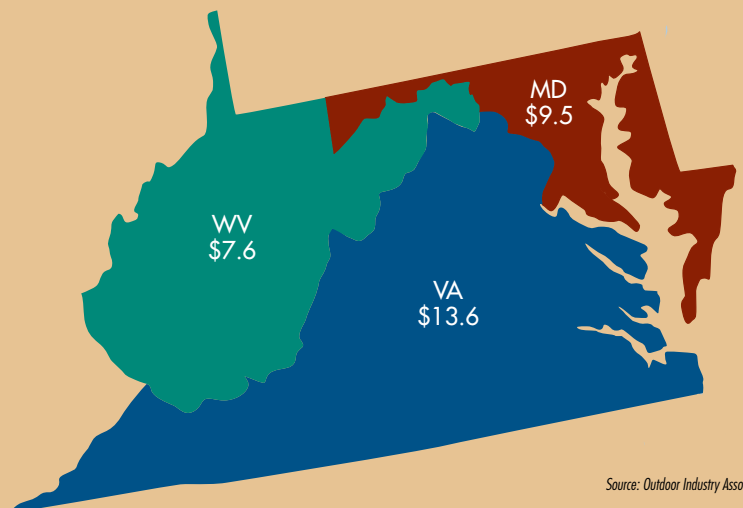
Source: Potomac River Fisheries Commission

Outdoor Recreation

i

Roughly 40% of residents in the Potomac River states participate in outdoor recreation each year, based on local state data from a recent study by the Outdoor Industry Association. In Maryland, Virginia, and West Virginia alone, the study estimates that outdoor recreation generates about \$30.7 billion in consumer spending and about \$2.1 billion in state and local tax revenue. While no research was available for only Potomac River Basin (which also includes DC and parts of Pennsylvania), the topic is ripe for future study.

CONSUMER SPENDING (IN BILLIONS)



Source: Outdoor Industry Association

Ways you can be a friend of the Potomac River

Potomac Conservancy believes a clean Potomac leads to healthier, sustainable and more connected communities. We seek to improve the Potomac River's water quality by building an impassioned base of river advocates to impart change at the local level. We drive the region's clean water movement by providing the tools that empower local landowners, activists, volunteers, partners, donors and all river champions to lead the charge for clean drinking water, healthy lands and safe access to the river.



Here are a few ways you can help Potomac Conservancy fight to improve the region's lands and waters.

Green your Property

Using native vegetation and landscaping to capture and filter polluted runoff is a way to positively affect the health of the river. Several specific strategies to use at home or at work include downspout diversions, rain barrels, rain gardens, and permeable pavements.

Volunteer

Through our community conservation programs, you can be a part of a growing group of volunteers who pick up trash, plant trees, and help restore habitat at public school grounds and parks in your community.

Speak up

Join our efforts to improve the Potomac and its surrounding lands through advocacy. Ask local officials to:

- Strengthen the regulatory frame to reduce polluted runoff
- Increase funding for clean water programs
- Provide incentive and technical assistance to individual property owners

Donate

Become one of our committed friends by making a charitable gift to Potomac Conservancy to support our conservation and advocacy work. To donate visit: www.potomac.org.

Acknowledgements:

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We want to also thank staff from the following organizations for their time and expertise:

Alice Ferguson Foundation, Atlantic States Marine Fisheries Commission; Chesapeake Bay Program; Chesapeake Conservancy; Environmental Protection Agency; Interstate Commission on the Potomac River Basin; Maryland Department of Natural Resources; National Park Service; National Oceanic and Atmospheric Administration; Potomac River Fisheries Commission; Trout Unlimited, University of Maryland Center for Environmental Science; U.S. Department of Agriculture; U.S. Fish and Wildlife Service; U.S. Forest Service; Virginia Department of Conservation and Recreation.

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Safeguarding the lands and waters of the Potomac River and its tributaries and connecting people to this national treasure.

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