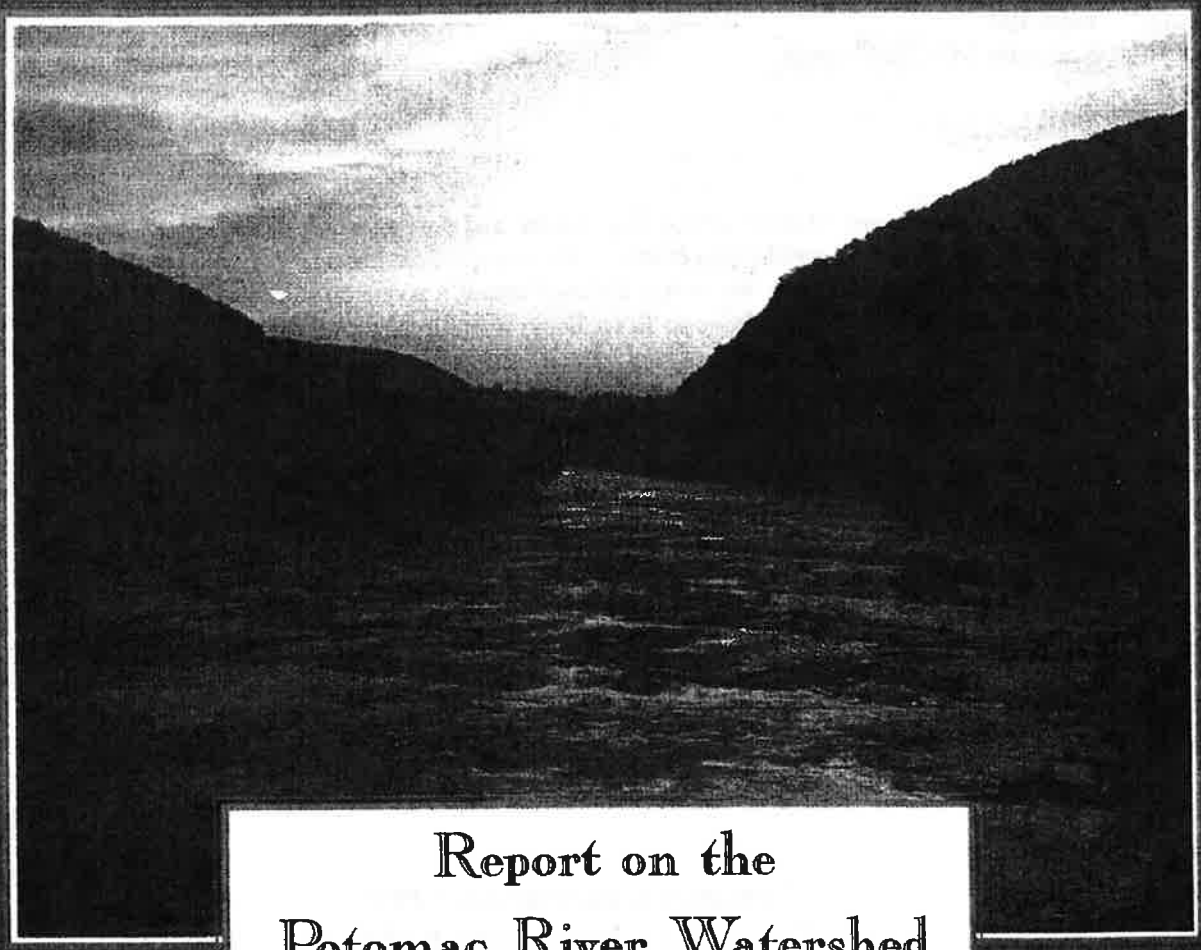
POTOMAC VISIONS



Report on the Potomac River Watershed Visions Project

Many local governments and citizens' groups in the basin can't afford the technical expertise that would allow them to take advantage of opportunities to improve their environment. The Visions Project is meant to help communities explore their own visions and ultimately help them identify what tools and mechanisms they can use to get things done.
Herbert M. Sachs, Executive Director, Interstate Commission on the Potomac River Basin

Interstate Commission on the Potomac River Basin

1994

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** **The Interstate Commission on the Potomac River Basin:** Under the direction of Executive Director Herbert M. Sachs, James Cummins, Associate Director for Living Resources, served as the project manager, Project Review Team Coordinator, a primary author and the primary editor. A. Elizabeth Watson was the state and local government liaison and a primary author. Curtis Dalpra contributed significant help writing and editing. Scott Gibbons provided important computer assistance and helped research and compile information.

*** The U.S. Environmental Protection Agency's Chesapeake Bay Program Office provided financial and technical assistance to this project. J. Glenn Eugster, Watershed Program Manager participated on the Project Review Team and served as the EPA Project Officer.

**** The National Park Service, Rivers, Trails and Conservation Assistance Program: Provided assistance in preparing the basin maps and fact sheets. Sherry Peck authored much of the *River of National Significance* section.

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- Central Shenandoah Planning District Commission
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Focus Group Meetings: The following individuals generously volunteered both their time and ideas to this project during a series of focus group meetings. These evening "brainstorming" sessions were held at the ten basin locations cited below.

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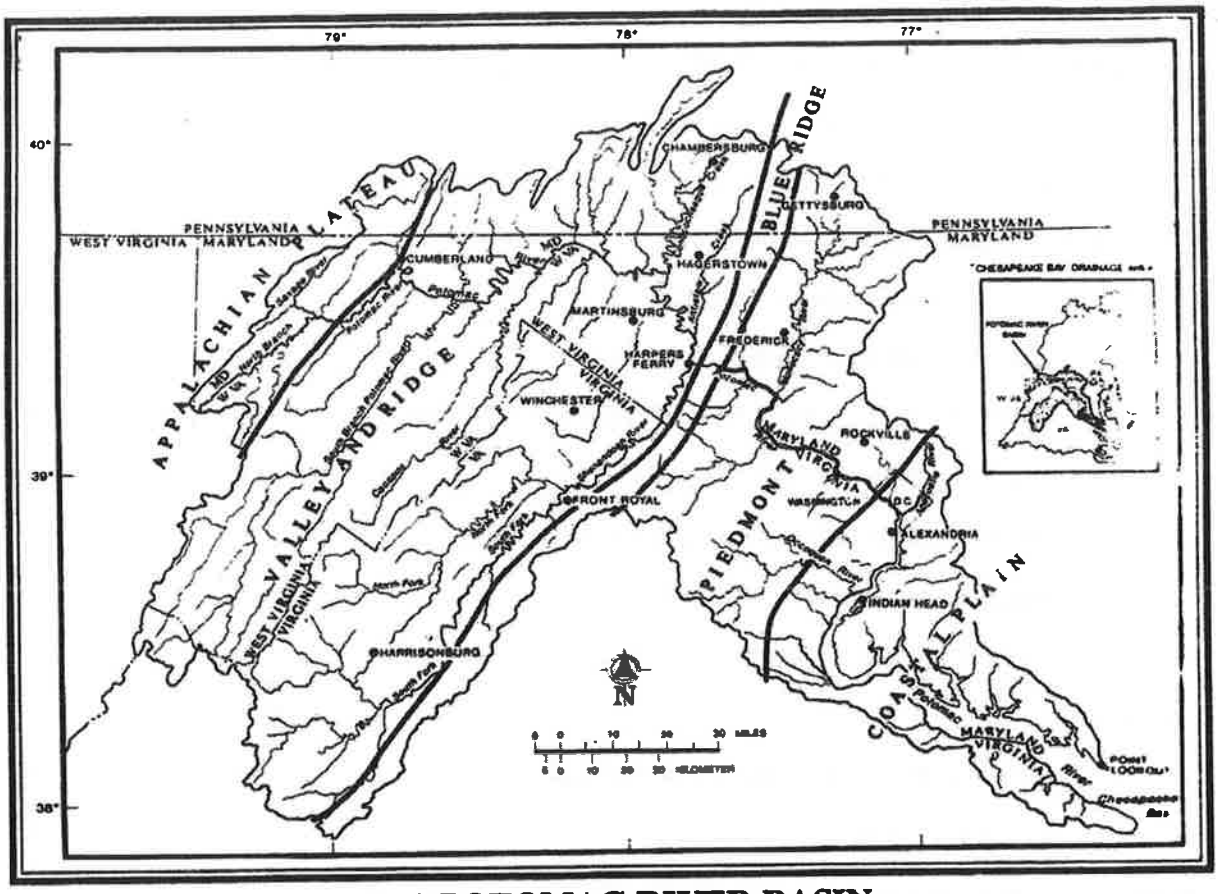


THE POTOMAC RIVER BASIN USGS

Major water quality improvements of the Potomac River have made it a national showcase for programs to restore highly polluted waters. However, intractable problems, such as polluted runoff from urban and agricultural areas, remain and must be addressed. In addition, the significant public investments already made to restore the Potomac River's water quality, as well as other natural and cultural resources, are threatened in the near future by projected increases in the use of land, energy and water. The treasured assets of this historic river can be properly managed and its potential economic opportunities fully realized, however, if there is a concerted and renewed focus to solve problems associated with those uses.

The Potomac River Watershed Visions Project was created to help achieve this focus, entering the arena with these fundamental perceptions:

- *The quality of our lives is vitally linked to the quality of our water; from our personal health to the sustainability of our economies to the vibrancy of our communities;*

- *Striving for clean water alone is not enough. In addition to its water quality, the Potomac's ecological integrity, both biological and human, must be addressed--which necessarily involves land-based habitat as well as the habitat provided by the river and its tributaries;*

- *Decisions about land use and land stewardship are often best made at the local level. Therefore, local community involvement and empowerment are key to continued environmental improvement in the Potomac basin. Local stewardship recognizes the value of local contributions to regionally--and nationally-- significant resources;*

- *Water-quality programs enlisting stakeholders at the local level should incorporate other qualities, in addition to clean streams, that citizens enjoy in their environment. These include economically healthy communities, outdoor recreation, nature study, attractive scenery, and cultural and historic sites.*

In November of 1992, the United States Congress directed the U.S. Environmental Protection Agency (EPA) to "develop and implement a long-range strategy to protect and enhance the water quality and living resources of the Potomac River." The EPA, working through the Chesapeake Bay Program, turned to a multi-disciplinary team representing various Potomac basin organizations -- private and public, local and state -- that had urged Congress to sanction an examination of the river's future. This "Project Review Team" grew and enlisted additional cooperators through a Memorandum of Agreement. The Interstate Commission on the Potomac River Basin (ICPRB) was selected as the team's project director. The Team created and carried out the first phase of the project, culminating in the production of this report. It was designed in part to complement the Chesapeake Bay Program's nutrient reduction strategy efforts underway in the Potomac River basin and throughout the bay watershed.

Information for the project was gathered through the following tasks: 1) a series of one-on-one and small-group **meetings** with state, regional, and local agencies and organizations; 2) a **survey** of basin residents' perceptions of the state of their home watershed; and 3) evening brainstorming or **focus group meetings** of active stakeholders and stewards at ten locations around the basin.

Synthesis of this information and writing of this report was performed through a team process. Three members of the Project Review Team served as primary authors, preparing a series of straw draft reports which were reviewed and further refined by the full team, project cooperators and focus group participants.

Products from this first phase of the project are: 1) this **report**; 2) a **directory** of local projects and technical and financial assistance programs available in the Potomac River watershed; 3) draft text for **four fact sheets** covering natural resources, recreation, communities and people, and conservation techniques in the Potomac River basin; 4) draft text for a **brochure** on "Potomac River Greenways"; and 5) **a video production**: "Appreciating the Potomac River's Heritage."

This report explains the project's tasks, presents project findings, and offers a set of recommendations and options for addressing local conservation needs. Highlighting the findings was the surprising extent of natural and cultural conservation activities already underway in the Potomac basin. Also, the need is less for new programs than for full implementation of existing ones and "getting the word out." Recommendations and options include:

* *Develop a unified public awareness program that highlights the Potomac's cultural and environmental heritage. Encourage more links among environmental educators in the Potomac basin, and with citizens' groups. Hold more hands-on activities, festivals, flotillas, inspirational river-related events which highlight the environmental heritage of the Potomac watershed. Enlist local organizations in publicizing these events and Potomac River issues.*

* *Encourage more citizen involvement through projects such as stream cleanups and "adopt a stream" efforts by civic groups. Create a basin-wide "SWAT" team for especially challenging cleanup tasks. Find more ways to recycle and reduce landfill costs for stream cleanups.*

* *"Put geography on the map" by creating and publicizing a network of scenic byways and interpretive sites throughout the Potomac River basin. Produce a guide to field trip resources in the Potomac River basin.*

* *Develop and provide training, uniform standards, and certification for citizen stream monitoring. Enable them to help conduct reliable stream health assessments. Pay special attention to headwaters, many of which are "backyard" streams.*

* *Watershed plans should be developed for all of the major tributary systems in the Potomac basin, and should be negotiated by state, regional and local agencies, with full citizen participation and the aid of the federal government, in a collaborative process.*

* *Create a Potomac River Interagency Land Managers' Task Force for public lands.*

* *Recognize those who make important contributions to the Potomac River. Recognition could be through awards programs, media events, or cooperative business agreements.*

* *Convene a Congress on the Potomac River to reflect on the findings of this report and lay out the next steps.*

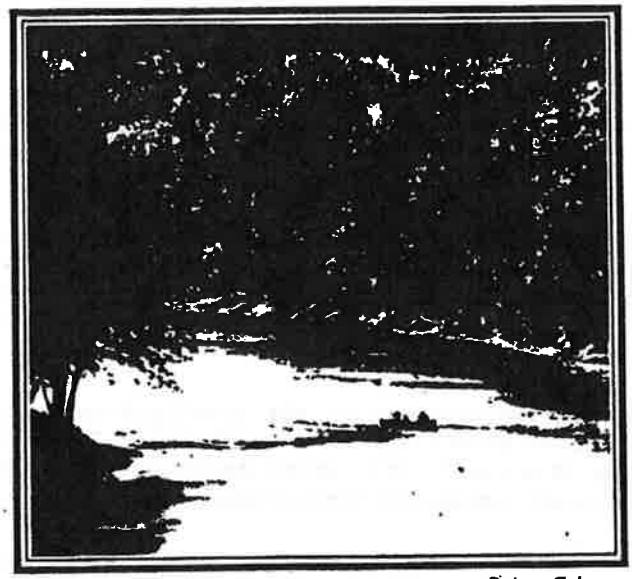
THE POTOMAC RIVER WATERSHED VISIONS PROJECT

INTRODUCTION

More than two hundred years ago, at the birth of this nation, the Potomac River reflected America's great abundance and beauty. By the middle of this century that same river, taken for granted by too many, over exploited, and serving as a common sewer for raw human and industrial wastes, had fallen from grace. The Potomac River had become a national symbol of water pollution. In 1966, President Lyndon Johnson declared the river a "national disgrace."

Today, the Potomac is arising from this past. National fishing tournaments are taking place in waters once vile with sewage and dead fish. In the North Branch, a stretch of the river once biologically dead from acidic mine runoff, trout are back and thriving. The clean-up of the Potomac River is a national showcase for successful programs to restore highly polluted waters.

The future health and vitality of the Potomac basin, however, is again jeopardized by environmental problems that human population and its growth can place upon the land, such as polluted runoff, loss of habitat and open space, degradation of scenic and historic resources, and air pollution. These problems are diffuse, incremental, and spread widely across traditional political boundaries, but they can be countered if all concerned work together. The treasured assets and potential economic opportunities of this historic river can be managed and fully realized with a concerted and renewed focus.



Canoeing the Potomac. Robert Cole.

Times have changed. The Potomac has grown cleaner. Governmental programs that address the river's water quality have matured. However, difficult environmental problems remain and new concerns are emerging:

- Today, many environmental problems are embedded in the fabric of society, in the way we live, work, and even play -- call it "lifestyle pollution."
- The boundaries of human activities in the basin draw ever nearer to the headwaters, typically the healthiest but most fragile elements of any watershed[1].

[1]A "watershed" is all the land area drained by a particular river or stream, and can be used to describe the drainage area of even the smallest trickle. The word "basin" is a geographic term used to describe a self-contained watershed running from its headwaters to the sea (or the Chesapeake Bay in the case of the Potomac). "Basin" and "watershed" are used in this report more or less interchangeably, but the word "basin" is reserved for reference to the Potomac watershed and is not applied to tributaries' watersheds. "Headwaters" are parts of a watershed where streams first form, i.e., the origins of a waterbody.

- Despite real progress in restoring the Potomac, the full biologic, economic, and recreational potentials of the basin have not been attained. For example, historic fisheries in the tidal portion of the river -- especially shad, sturgeon, and oysters -- have yet to respond Ecological assessments, both biologic and human, of stream conditions are critically needed

- Reducing excess nutrients and other pollutants flowing into the bay from the freshwater portion of the watershed must include "nonpoint sources": polluted runoff[2] from agricultural and urbanized areas.

- Federal and state government can not do everything. Many local governments, regional councils, citizens' groups, businesses and others are seeking a greater role in environmental efforts, yet few effective and basin-wide ways exist to capitalize on their ability to contribute.

- Historic and cultural aspects of the watershed are critical resources of community interest, yet traditional environmental and conservation programs rarely take advantage of them or incorporate them into existing projects. Recognizing such linked components helps us attain environmental goals more quickly and efficiently.

None of these issues and opportunities are easy to address. Environmental regulation and restoration grows more and more expensive while funding becomes more austere. Without adequate public education, public access, and demonstrations of progress being made, taxpayers become

---

[2] Polluted runoff, often technically referred to as "non-point pollution", has these components;

1) **Nutrients**: Principally nitrogen and phosphorus, nutrients act as fertilizers in rivers and estuaries, encouraging the growth of microscopic plants, or algae, consumed at the first level of the food web. Nutrients come from many sources. Two of the biggest sources are wastewater treatment (from small single home septic systems to huge facilities such as the Blue Plains Wastewater Treatment Plant which serves much of the Washington, D C . metropolitan region) and runoff from agricultural lands (fertilizers and manure) or urban (or suburban) areas (lawn fertilizers, automobile exhaust and pet waste). While beneficial in normal amounts, excessive nutrients cause algal blooms, which then cloud the water and consume oxygen when they die and decompose. Thus, nutrients at polluting levels rob rivers and estuaries of light and oxygen that support fish and aquatic plants. The problem of nutrients is especially insidious because they may not appear as problems at the location where they enter a stream. Rather, they become a problem only when nutrients from many small sources have accumulated.

2) **Flow**: Excessive runoff from both agricultural and urban areas creates erosion, siltation and highly variable water temperatures. Erosion destroys property and habitat. Silt blocks sunlight and covers the beds of streams, alters stream flows resulting in more erosion, and smothers fish eggs and the small creatures that live in the gravel beds of healthy streams. Highly variable stream temperatures create tough, and often lethal, conditions for aquatic life.

3) **Pathogens**: Animal waste, such as livestock manure or pet feces, washed into streams can carry bacteria and viruses that cause illness or death in humans and other animals.

4) **Toxics**: Runoff can contain pesticides, heavy metals, acids, industrial contaminants, and motor vehicle byproducts such as leaked automotive fluids, the dust from the wear of brake linings and tires, and acid rain from exhaust. Research is showing that even very low levels of toxics can have the power to alter critical aspects of the habitat required by aquatic life. Unfortunately, little is known about levels, distribution, and sources. What is known is that it is often difficult and expensive to clean up contamination or to achieve reductions from current permitted levels in manufacturing processes and wastewater discharges. As an interesting example of the complexity of polluted runoff, fresh water is toxic if you are a marine organism, and excessive flows can create a "toxic" problem.

increasingly reluctant to provide support for environmental programs. In some cases, necessary research is incomplete and new models or ways of working must be invented. In others, "business as usual" simply will not work. Given projected population growth, the Potomac will continue to grow cleaner and healthier only by enlisting a broad array of programs, encompassing strong local visions and strategies bound together by an ambitious public education and involvement program.

The Potomac River Watershed Visions Project was initiated through the leadership of U.S. Senator Paul S. Sarbanes of Maryland. In 1992, Congress directed the EPA to "develop and implement a long-range strategy to protect and enhance the water quality and living resources of the Potomac River."

The EPA, working through the Chesapeake Bay Program, turned to a multi-disciplinary Project Review Team representing various Potomac basin organizations -- private and public, local and state -- that had urged Congress to sanction an examination of the river's future. This Project Review Team grew over time through a Memorandum of Agreement (Appendix I) developed to enlist additional partners in the project. This team entered this process with two long-range goals:

- *To recognize, promote, conserve, restore and revitalize the Potomac River basin as a region of unparalleled natural, cultural, historic, recreational, habitat and living resource significance.*

- *To cooperate with and empower public and private agencies and organizations to increase their ability to prepare and implement sub-watershed management plans for the protection of water quality, living resources and other related values and functions.*

Overall, the Visions Project's mission is to identify and help to bridge gaps among programs, agencies, governmental levels, jurisdictions, and the public and private sectors. The emphasis in this analysis is to find ways of empowering local communities and grassroots conservation efforts--the "next frontier" of the nation's environmental programming, which has heretofore emphasized state and national programs. The project should help existing programs achieve greater partnerships. Thus, the program aims to achieve greater conservation of the lands and waters of the Potomac, with more efficient and effective use of tax and private dollars. General measures of success over the long term include:

- *Increased participation of all residents in conservation work throughout the basin;*

- *Enhanced ability of governments, communities, businesses, and nonprofit groups to support this work;*

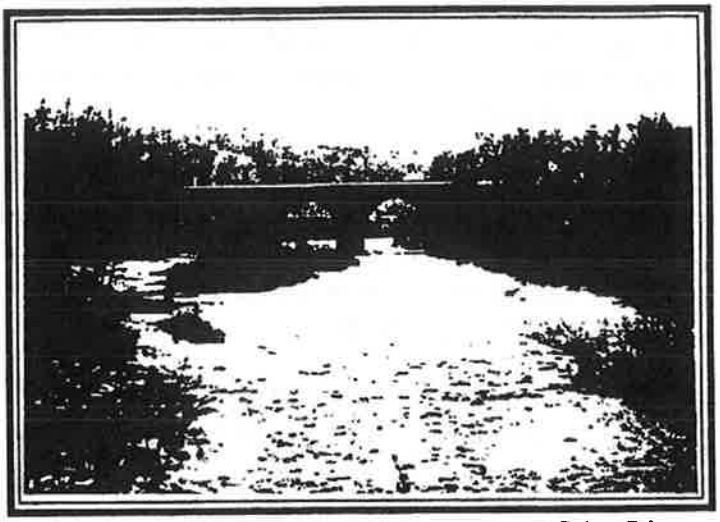
- *Greater public backing for investment in addressing the river's environmental needs; and*

- *A healthier river system contributing to a recovering Chesapeake Bay.*

What do we mean by "Visions"?

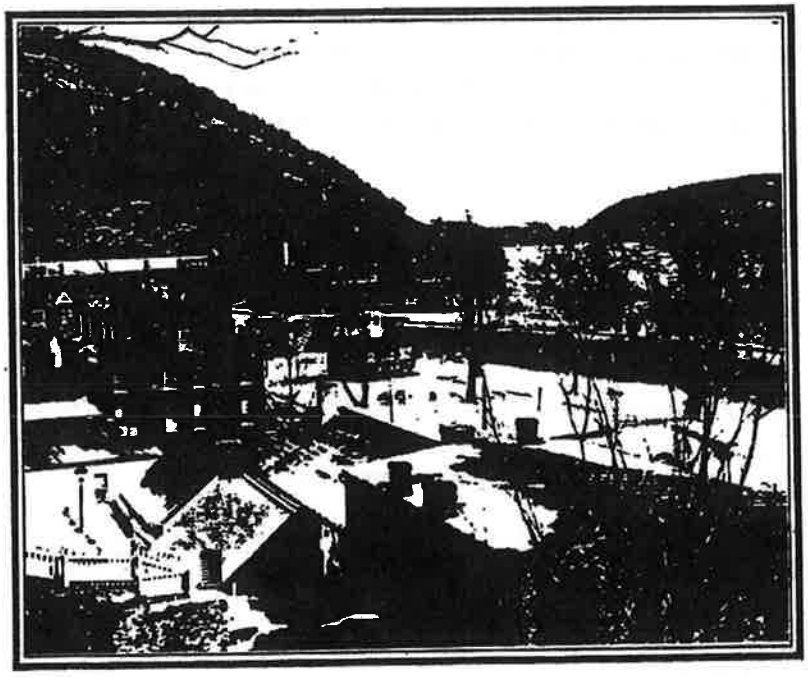
A vision focuses on ends (e.g., health), rather than means (e.g., keeping active), and encourages concentration on potential rather than on limits. It describes positive outcomes rather than negative conditions. It helps people move from reacting to problems (crisis management) to goal-setting for future accomplishments (planning).

In planning terms, a vision is a shared view of how people would like to live and see their community grow in the years ahead. A vision is different from a plan, but it is where a plan begins. The first task in community planning is to envision the direction to go. A vision sets direction and articulates community values. It serves as a touchstone for subsequent plans, policies and expenditures -- the steps or strategies that will make a community's vision become reality.



Latrobe Bridge, Bloomington, MD Robert Cole

The plural "Visions" in the project title is used very purposefully. It signals the intent of this project to not impose its own vision, but to stimulate and empower all communities in the basin to develop and implement their own watershed visions -- be it a neighborhood along a small brook, a town beside a mill creek, an agricultural region bisected by a stream, or a series of cities and counties sharing a thousand square miles of drainage.



Harpers Ferry in winter. Lisa Gutierrez

Imperative to the project's intent, however, is an understanding that each local vision should be linked to others, just as no watershed -- no brook, creek, stream, river, or bay -- is separate unto itself. Therefore the Visions Project identified common themes across the watershed and ultimately offered a common agenda to be shared and empowered by all communities. The Project Review Team developed its own set of visions for the project and the basin as a whole in order to sort out the

project findings. The following visions are presented as guides to future phases of the project and to those who seek to carry out recommendations made in this report:

*1: **More local strategies** will exist to promote conservation efforts in every stream valley leading to the Potomac River. Communities' visions and plans will recognize their unique "environmental address," seeking to protect and enhance the many values associated with their streams and the Potomac River as a whole. Citizens' groups will flourish, and aim for accomplishments that complement community visions.*

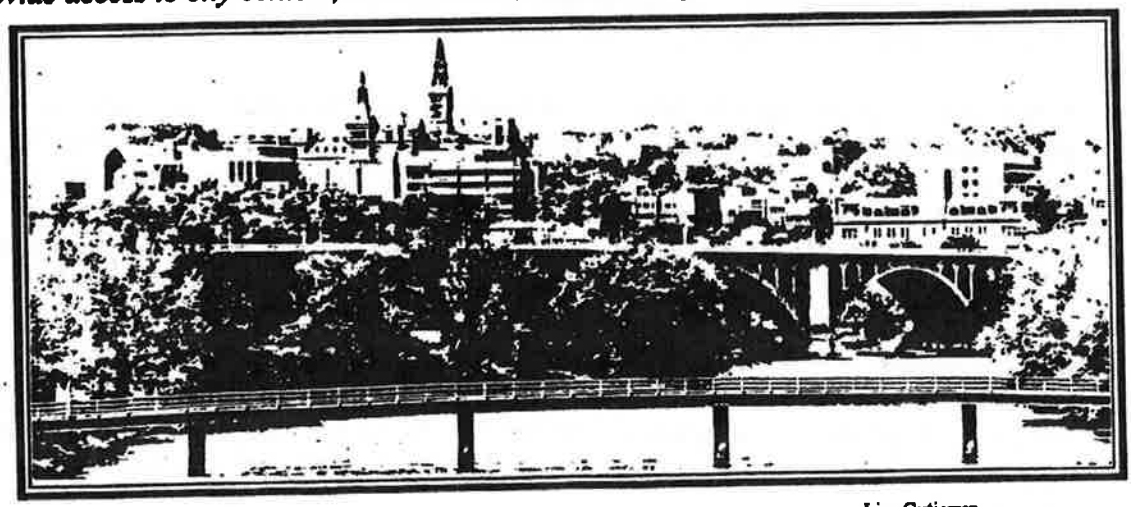
*2. **Strengthened partnerships** and capacities among citizens, government and business will enable them to recognize, promote, and support locally led conservation. Dedication to community visions will lead to greater efforts to coordinate programs, bridge gaps, and achieve flexibility and efficiency in making needed local improvements possible.*

*3. **Citizens will have greater access** to decision making processes, technical assistance, and information. Their expanded participation in government and community life will help to bring about community renewal as well as conservation of the lands and waters of the Potomac River basin. There will be a centralized source of information for issues in the Potomac watershed and a coordinated network of local, state, and regional partners.*

*4. **Increased public awareness** of the Potomac as a special place. The public will understand and treasure the Potomac River's unique resources. Enthusiastic support will develop for locally led conservation initiatives and greater investments in needed government and private programs.*

*5. **Greater regional capacities** to address river-related issues that transcend localities. Local and regional measures will assure continuing improvements in the Potomac River's overall health and the ability of the basin's residents to use and enjoy it.*

*6. **Community renewal** will be based both on a sound appreciation for the river's values and on new economic development strategies that take advantage of environmental and heritage assets. Our grandchildren will have plentiful, safe drinking water. They will fish, swim and boat in clean, productive waters. They will hike, bike, jog, or ride horses along a network of trails designed to provide access to city centers, natural areas, and a host of cultural and historical sites.*

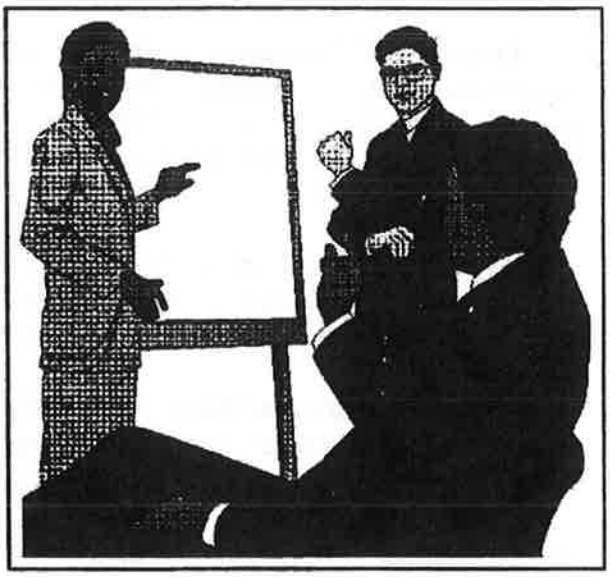


Georgetown & Key Bridge on the Potomac — Lisa Gutierrez

TASKS AND PRODUCTS

The Project Review Team's project design objectives were to 1) learn the extent of community-driven conservation work around the Potomac River basin, both public and private; (2) find the roadblocks and paths to success their leaders have experienced; and (3) see how they are linked to programs and missions beyond strictly local boundaries, and what gaps must be bridged. As one way of gauging the climate for local conservation work, a further objective was to gain an impression of how residents in the basin perceive the geography of the Potomac and its environmental status. The team developed the following information-gathering tasks:

- **INTERVIEWS:** The initial phase began with a series of one-on-one and small-group meetings with many key individuals in agencies and organizations at state, regional and county levels. These were conducted between February and August of 1993. Participants in these meetings discussed programs, provided information on projects and people involved, and explored questions regarding local needs and ideas. A total of 26 on-site meetings were conducted.



- **PUBLIC SURVEY**: A questionnaire was developed to seek basin residents' perceptions of the state of their home watershed, their degree of involvement in recreation and conservation activities in the watershed, and what they value about the watershed. The questionnaire was distributed to more than 14,000 readers of the August, 1993, issue of ICPRB's Potomac Basin *Reporter*. Two other cooperators in the basin also volunteered to distribute questionnaires through their newsletters: the Potomac Headwaters Resource Conservation and Development Region, Inc., based in Martinsburg, W.Va.; and the Blue Heron Environmental Network of Hedgesville, W.Va. A total of 225 responses were returned, entered into a database and evaluated (Appendix II).

- **MEETINGS:** Under the coordination of the Alliance for the Chesapeake Bay, ten regional focus-group meetings were conducted in September and October of 1993 (Appendix III). These evening brainstorming meetings were held at locations throughout the basin, corresponding roughly to major sub-watershed areas. People invited to participate included those whose names had surfaced as active stakeholders and stewards within a watershed area. Each group was assembled to represent a diversity of expertise and interests. Sessions began with an overview of clean-up progress in the Potomac basin. Participants then listed successes and problems they have encountered with stream conservation efforts in their region and discussed ways to improve conditions for success. A total of 124 individuals participated. A further benefit to this process was networking: these meetings often provided the first opportunities for many participants to meet others in their Potomac sub-basin (beyond their individual communities) who shared their interests.

After the information was gathered, a team process was used to develop this report and other products of this project.

- **SYNTHESIS:** For this report, three primary authors, identified in the acknowledgment section, analyzed the information and prepared a series of "straw drafts" for the review and comment of the full Project Review Team. The Review Team's draft was then circulated to project cooperators and other requesting organizations for further review and comment. Presented in a final draft form (i.e., not yet "in stone"), this report will be used to elicit comments and reactions from many more people than were contacted in this first phase of the project. With help from a broad array of agencies, organizations and individuals, this report will become the reference point for many, more coordinated, basin-wide initiatives.

The following are additional products of this first phase of the project:

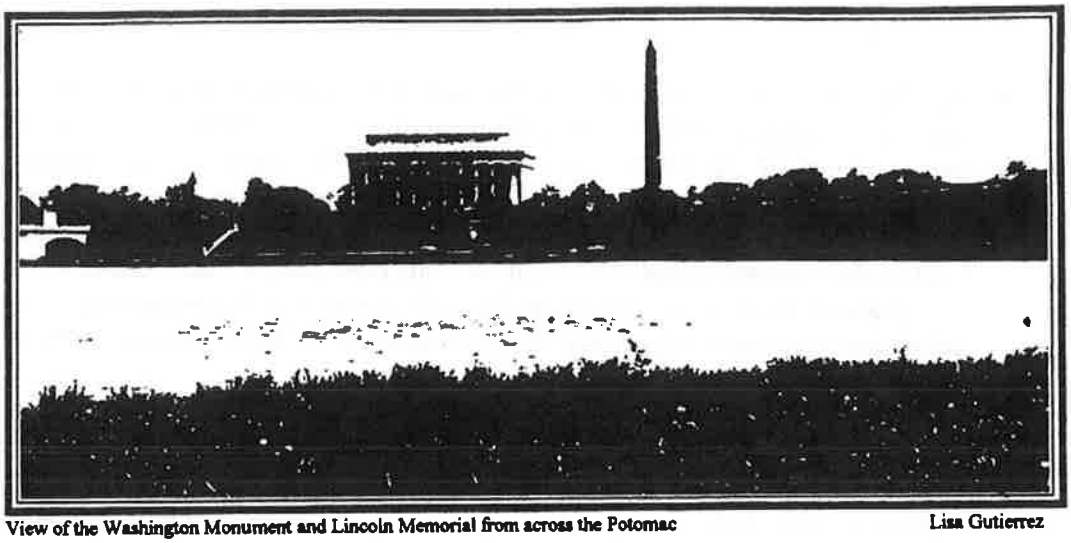
- **A DIRECTORY:** An inventory and description of local projects we encountered and many technical and financial assistance programs available in the Potomac River watershed Projects listed were limited to those that are watershed-oriented and address enhancement of water quality or living resources. The list reveals a very broad array of conservation projects taking place within the watershed.

- **FACT SHEETS:** Four fact sheets (Appendix IV) were developed describing: (1) natural resources, (2) recreation, (3) communities and people, and (4) conservation techniques in the Potomac River basin. The National Park Service contributed staff time to search out information on resources in the basin and to help assemble this information on maps

- **A BROCHURE:** A brochure on "Potomac River Greenways," sponsored by the Maryland Greenways Commission in conjunction with its grant for state and local outreach.

- **A VIDEOTAPE PRODUCTION:** "Appreciating the Potomac River's Heritage," also sponsored by the Maryland Greenways Commission in cooperation with the Maryland Historical Trust and the Accokeek Foundation. Twenty minutes in length, copies are available through project sponsors.

A RIVER OF NATIONAL SIGNIFICANCE[3]



View of the Washington Monument and Lincoln Memorial from across the Potomac — Lisa Gutierrez

With good reason, people sometimes claim that the Potomac has been studied more often and more thoroughly than any other American river. Its intimacy with the national capital at Washington and with great figures and events of our history has made the river a subject of national interest. Historic preservation is an essential part of conservation, and particularly so in the Potomac River Basin, where so much history of national significance has been made.

The Potomac River begins as a small spring at the Fairfax Stone in West Virginia, marking the northern corner of a British land grant awarded to Lord Fairfax in the 17th century. From this inauspicious trickle, through the rugged mountains of West Virginia, through the rich agricultural valleys of the Appalachian piedmont, past old manufacturing towns and battlefields, beside the nation's capital city, the Potomac River widens to a great historic waterway, its tributaries draining Pennsylvania, Maryland and Virginia. It flows more than 380 miles to the Chesapeake Bay to form the bay's second largest tributary, with a mouth more than 11 miles wide.

> "The questioning of growth as progress, that great shibboleth of the 19th century, is the most recent milestone in contemporary thinking, and with greater opportunities in the Potomac for a constructive outcome than in most other places where the same flags have been hung out and the same environmental battle cries heard."
>
> - Frederick A. Gutheim,
> Author of "The Potomac", 1949

Often referred to as "the nation's river," the Potomac flows through an area of distinctive history and natural beauty. In many ways a cross-section of America, its 14,670 square miles cradle farmland, forests, parks, and cities. It has nurtured cultures, trade, migration and living resources for more than 10,000 years. While most of the basin today is rural, 80 percent of its 4.6 million people live in the Washington, D.C., metropolitan area.

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[3] See Appendix V for maps of national parks, forests, natural and historic landmarks, recreational trails and other nationally prominent features.

The lands in the Potomac basin are thickly sprinkled with traces of three and a half centuries of people and events. Traces evidenced by names appearing on maps; names of Native American tribes -- Seneca, Piscataway, Dogue, Tuscarora, Anacostia, Shenandoah -- and Indian objects and activities by the hundreds; names tied to people and events that carved the history of America -- old Saint Mary's where Calvert's Catholics came, Stratford of the Lees, Wakefield and Mount Vernon of the Washingtons, Braddock Heights, Gunston Hall on Mason Neck where George Mason ("the Pen of the Revolution") lived, Stratford Hall of the Lees, the Shenandoah, Harpers Ferry where John Brown lit a fuse, Manassas and Antietam and Gettysburg, and a multitude of others.

The settlements along the Potomac in the Northern Neck of Virginia produced a galaxy of Revolutionary figures -- lawgivers, heroes, philosophers, presidents -- unequaled in any time and place in our country: the Washingtons, Carters, Lees, Fitzhughs, Monroes, and scores of less renowned clans. In the mid-18th century, oyster wars were fought between the colonies of Maryland and Virginia over the river's abundant bivalve crop -- a dispute that ultimately led to the convening of the first constitutional convention. The nation's capital was carved out of a Potomac swamp in 1800, burned by the British in 1812 and resurrected.

Gunston Hall. Va. Dept. of Conservation and Development

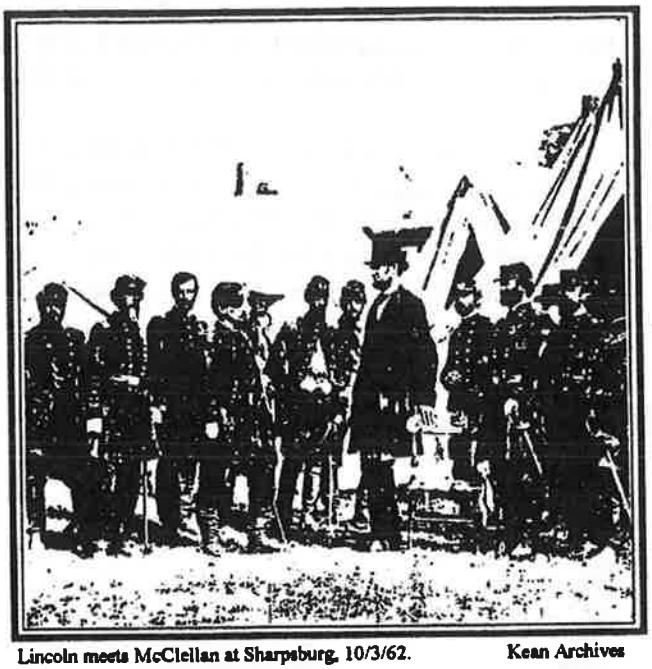
The nationally important stories, people, cultures, and events of the Potomac watershed are commemorated in part through the preservation of sites, buildings and monuments by federal, state, or local agencies and numerous private organizations Among those protected because of their national significance are a number of National Parks (some of which also protect important natural and recreational resources), and other units of the Park Service as well as National Historic Landmarks (NHLS). As of this writing, there are 66 NHLs in Washington, DC, including the U.S. Capitol, the White House, and the Supreme Court. In the part of Maryland that lies within the Potomac watershed there are 16 NHLs including Monocacy National Battlefield; Clara Barton House, home of the founder of the American Red Cross; and Rachel Carson House, home of author of Silent Spring, widely acknowledged for launching the modern environmental movement. Virginia's Potomac basin region has 27 NHLs, including Gunston Hall and Mount Vernon; three NHLs in Pennsylvania's section of the Potomac basin include the Dwight D. Eisenhower Farmstead; and in West Virginia's eastern panhandle, one NHL, a significant site in the American Revolution.

George Washington Birthplace National Monument is the Potomac River plantation where the first President was born and spent the first few years of his life. Piscataway Park, owned by the

National Park Service, protects the wooded, panoramic views from Mt. Vernon, George Washington's home (of later years) across the river. The Thomas Stone National Historic Site in Maryland is the country home of a signer of the Declaration of Independence.

Harpers Ferry National Historical Park is one of the few intact mid-nineteenth century towns to be found in West Virginia. In 1859 the town was the scene of the John Brown raid, an event of major importance in bringing the nation to Civil War. An NPS study identified a number of nationally significant natural and cultural resources adjacent to the park, including the western portion of the 1862 Harpers Ferry Battlefield, 1864 fortifications, and prominent viewsheds which provide the rural setting of the historic area.

The Baltimore and Ohio Railroad Historic District, in Martinsburg, West Virginia, is a mid-nineteenth century railroad complex including the roundhouses built for the Baltimore and Ohio Railroad which are prime examples of early steam railroad-related resources. The district is also significant as the site of the first general industry-wide strike (1877) in the U.S.



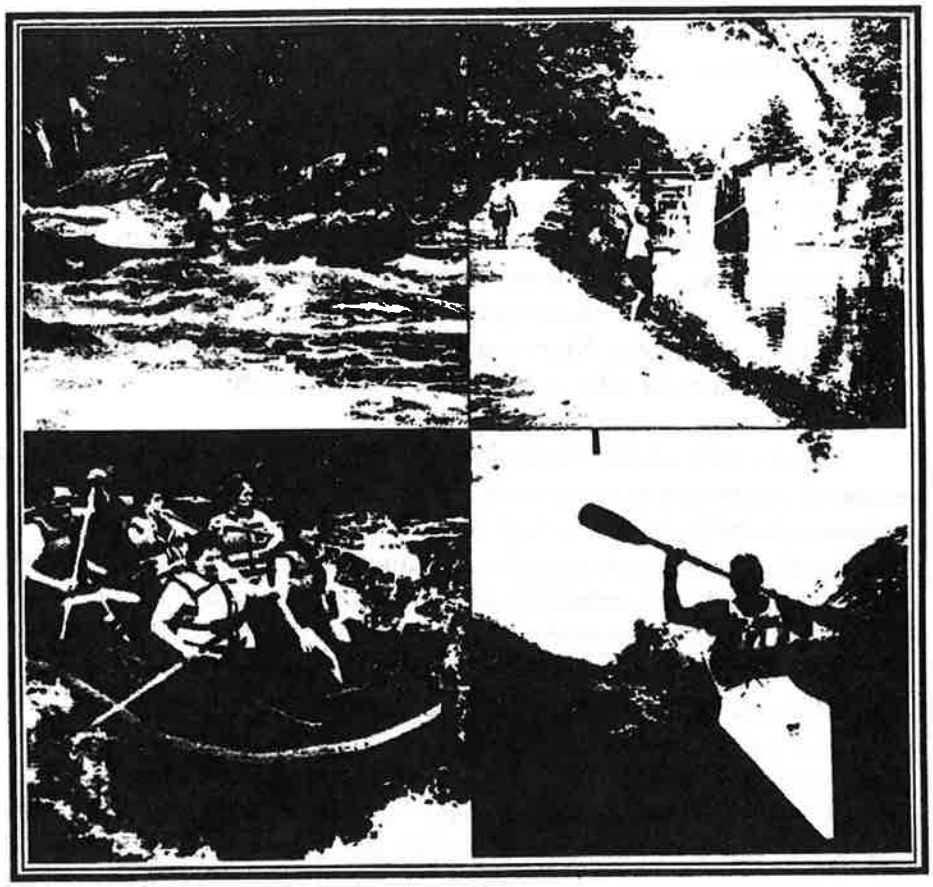
Lincoln meets McClellan at Sharpsburg, 10/3/62. Kean Archives

The rivers of the Eastern Panhandle of West Virginia are renowned for their natural character and high quality fishing and boating resources. This region offers a variety of large and small wild and rural streams worthy of note. The 1990 West Virginia Statewide Assessment notes that the river system, including such important tributaries as the South Branch, Opequon and Back Creeks, possesses outstandingly significant recreational and natural resources. The Potomac and its tributaries offer high quality trout fisheries and whitewater boating opportunities in a highly scenic natural setting. The Shenandoah River possesses important warmwater fisheries, and receives extensive use for recreational canoeing, rafting and swimming.

The Cacapon, one of the longest free-flowing, largely undeveloped rivers in the state, is a scenic warmwater stream that provides high quality fishing and boating opportunities in an outstanding scenic setting. Ninety miles of the Cacapon are listed on the Nationwide Rivers Inventory as potentially eligible for inclusion in the national wild and scenic rivers system.

The Savage River in western Maryland was the site of the first world whitewater championships held in the U.S. in 1989 and hosted Olympic trials in 1972. Great Falls Park in Virginia also offers notable whitewater: once considered unnavigable, it is now designated as Class VI whitewater (life-threatening), the only such area in the state. It is run only by experienced boaters with special equipment and a state permit.

The Spruce Knob/Seneca Rocks National Recreation Area in West Virginia offers outstanding values and opportunities for outdoor recreation including high quality streams, whitewater boating, rock climbing, scenic overlooks, and significant geologic formations. Seneca Rocks, one of the best-known landmarks of West Virginia, is one of the most highly regarded rock-climbing areas in the East. Eagle Rock, North Fork Mountain, Spruce Knob, and Panther Knob -these and other mountains in the region provide spectacular opportunities for hiking and climbing. Spruce Knob, at



Clockwise: Canoeing in 1951 (ICPRB). A sublime moment by the C & O Canal (John DeWitt). A champion competes on the Savage River (Curtis Dalpra). Whitewater rafting on the lower Shenandoah (River & Trail Outfitters).

4,862 feet, is the highest point in the state. Because of these outstanding features and its overall pristine natural setting, the area has significantly greater potential as an outdoor recreation area than has been realized. This complex of unique resources lies within 250 miles of an estimated one-third of the population of the U.S. It is managed with the primary objective of providing increased opportunities for outdoor recreation while protecting the area's natural resources.

The Appalachian National Scenic Trail, one of the nation's premier long-distance trails, traverses the Blue Ridge through the Potomac Basin, offering rugged hiking and spectacular views. The Washington and Old Dominion Railroad National Recreation Trail follows the abandoned railroad from Alexandria to Purcellville in Virginia; this multi-purpose trail runs through interesting urban areas, countryside, and several parks, including lovely natural areas. The Blue Ridge Parkway is a scenic drive winding along the crest of the Blue Ridge. The Potomac Heritage National Scenic Trail is an existing element of a proposed national trail system following the course of the Potomac

River, linking a series of outstanding features along the way. The 75-mile Laurel Highlands Trail in Pennsylvania is also a part of the Potomac trail. In western Maryland, members of the Potomac Heritage Trail Association have recommended a 55-mile hiking path from Cumberland north to Pennsylvania's Mount Davis and on to the Laurel Highlands.

Laurel Ridge Conservation Education Center near Vienna, Virginia, is the site of the national headquarters of the National Wildlife Federation. Its Mountain Laurel Trail through wood and meadow habitats is handicapped accessible and interpretation is available on cassette tape and Braille transcriptions. This trail has been designated a National Recreation Trail by the National Park Service for its significance as a national model for other self-guiding, fully-accessible nature trails.

The Potomac River basin has cultural variety. Native Americans still reside here, with remnant populations driven to marginal areas in Zekiah Swamp and Southern Maryland. Significant African American heritage is found throughout the watershed. The District of Columbia is notable for having cosmopolitan/international neighborhoods (Caribbean, African, Asian, European and Hispanic), a character which is accentuated by the influence of its embassies, international banking and businesses. In the Washington metropolitan region there are large Asian and Hispanic communities. Southern Maryland has a unique Catholic heritage, and many Great Valley communities reflect the influence of Amish and Quakers.

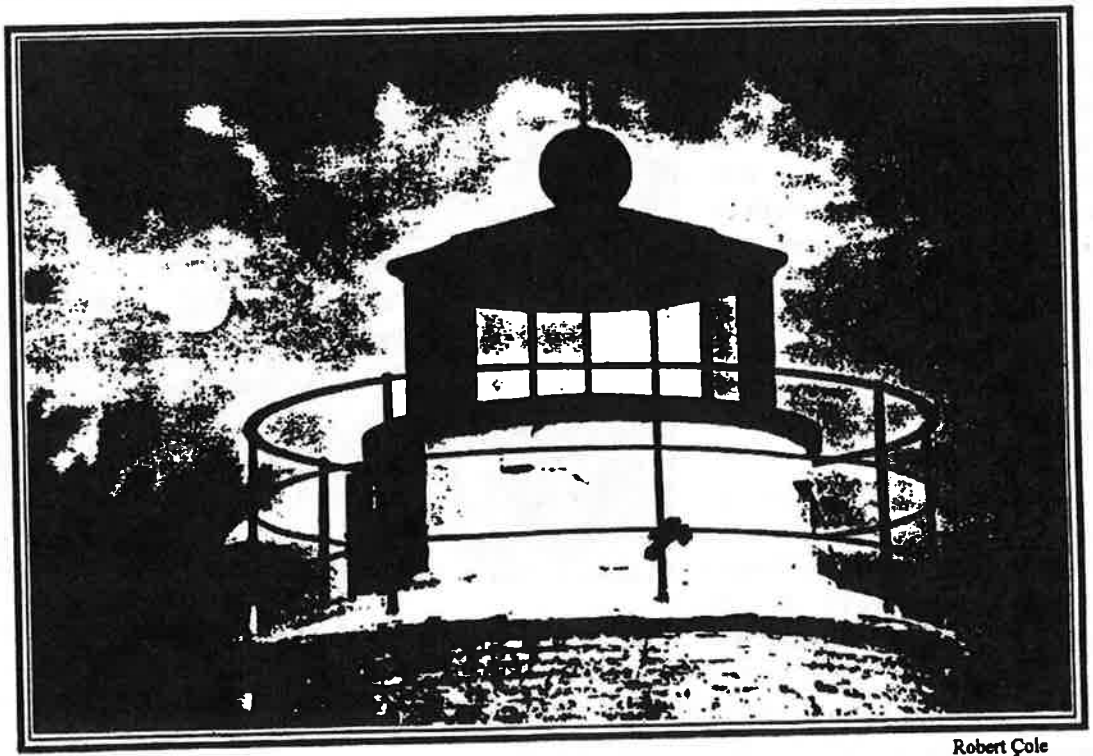
Taken as a whole, the combination of natural and cultural resources in the Potomac River watershed comprise one of the most significant and diverse landscapes in America. The watershed represents many important themes in United States history. The landscape provides outstanding opportunities to conserve natural and cultural features, to link them to provide educational and recreational benefits, to enhance biodiversity, and to improve air and water quality. Moreover, the Potomac is a veritable case study in the history of this nation's conservation movement--starting with the preservation of Mount Vernon in 1852, the nation's first historic preservation project. The hallowed ground of the Battle of Gettysburg's national cemetery, dedicated in 1864, still reverberates with the words of Lincoln's dramatic address, and is one of the nation's most important and powerful commemorations to its military history. Later, many other important Civil War sites in the basin were preserved as a part of the nation's new National Park System. In 1890, Rock Creek Park was established. This wilderness gem in the city was described by John Quincy Adams as "this romantic glen..." and by Theodore Roosevelt as "...as wild as a stream in the White Mountains."

Washington, D.C., with its federal buildings, parks and statues, in many ways is a monument to the Cities Beautiful movement inaugurated at the turn of the 20th century. Its key luminaries, including architect Daniel Burnham, Frederick Law Olmstead and their colleagues, proteges and descendants came to Washington and formed the nucleus of the McMillan Commission and its staff in 1901. The 1930-31 effort to reconstruct George Washington's birthplace at Wakefield, Va., recalls the nation's stirring of colonial pride, to come to full flower a few years later in the rebirth of Williamsburg. The creation of Shenandoah National Park -- one of the "crown jewels" of the National Park System -- and the Appalachian Trail, both begun in the 1930s, recall the early days of a nation newly aware of the end of its frontier and the need to preserve wild places. In the same decade, the construction of the George Washington Parkway and the Blue Ridge Parkway heralded the dominance of the automobile in the landscape, and the early optimism that parkways would beautify the landscape.

In the early 1950's, attempts to preserve the Maryland shoreline across from Mount Vernon, Va., and the view that George Washington so loved, led to the birth of the concept of "viewshed protection." The Moyoane Reserve was an early experiment in conservation, where lots were subdivided into a minimum of five acres with protective covenants preventing construction of homes visible from Mount Vernon. This led to the purchase or donation of meadowlands and scenic easements along the Maryland shore and resulted in the creation of Piscataway Park. That effort was closely followed by the seminal 1961 IRS ruling that allowed conservation easements to be tax-deductible and led to the birth of the modern land trust movement.

Greenbelt, Md., was one of the first planned "open space" communities in the country. Ian McHarg, author of the revolutionary book *Design with Nature*, studied the landscape of the Potomac and made proposals for its enhancement and protection. The preservation of the C&O Canal as a national park in the late 1960's produced the "granddaddy" of the modern greenways movement, combining protection of natural areas, historic resources, and recreational trails.

And, with a recent proposal to create a "Potomac River Heritage Project," the basin is at the forefront of a national movement to create heritage areas. Such efforts link and further protect all of the resources the conservation movement has labored over the decades to save. The project has the potential to weave together these and many other Potomac stories, and teach its residents about the basin's history, natural resources, communities, and geography in new and powerful ways.



Piney Point Lighthouse. Robert Cole

HISTORY OF THE POTOMAC RIVER BASIN

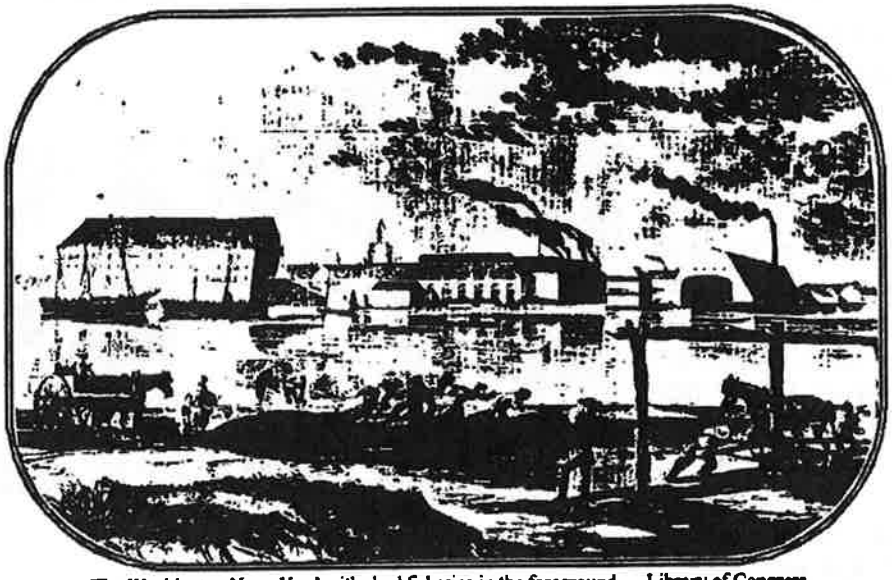
A careful study of the early history of human settlement in the basin reveals the river system as a unifying element; settlements spread along the waterways as people relied on rivers for water, food, and transportation. And yet, the basin is so large, with such striking geographic and cultural contrasts, that until recently few attempts have been made to view the watershed as a cohesive entity.

". . . in an older region like the Potomac . . . you need to know almost a different set of ingredients for each of the eight or ten or twelve or more big neighborhoods into which mountains and streams and soils and politics and immigration patterns and human quirks have divided the whole. ***There is less human difference between West Texas and Montana than there is between the Northern Neck of Virginia and the Maryland mining valley along Georges Creek."***

"A River and a Piece of Country", A Potomac Essay by John Graves,
From the Potomac Interim Report to the President,
Federal Interdepartmental Task Force on the Potomac,
Potomac River Basin Advisory Committee, January 1966.

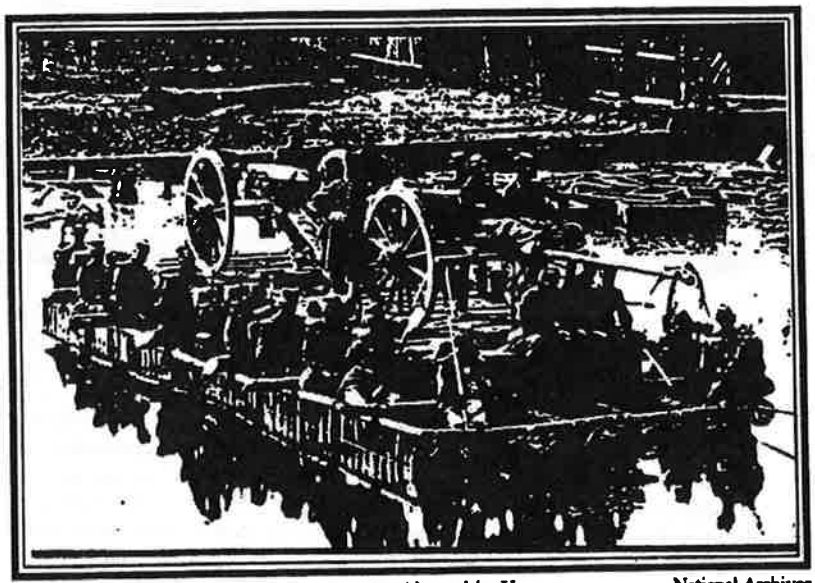
The river's name comes from its early settlers, the Pawtowmecks, members of the Algonquin Nation; roughly translated, Pawtowmeck means "the trading place." Important north-south travel routes crossed the Potomac near what is now Washington, D.C., and the area hosted regional trading among villages. Like the colonial settlements that followed, Native American villages were built along the river, which served both as a major food source and transportation route. Adjacent bottom lands were excellent sites to grow crops.

In 1608, the Potomac was visited by Captain John Smith, whose exploration began European settlement of the basin. The river served as a border between the Maryland and Virginia colonies, and disputes over land and fishing rights that began in the 17th century persisted well into the 1900s. George Washington was born along the tidal Potomac's shores, and owned huge tracts of land near what is now Charlestown, W.Va. His was one of many Potomac families with links to both the tidewater region and "the West" as the new nation knew it. He chose the head of the Potomac estuary as a site for the capital of the new nation, and the creation of the U.S. Constitution came about in part through his efforts to solve trade problems related to ownership of the Potomac.



The Washington Navy Yard with shad fisheries in the foreground. Library of Congress

George Washington also sited the capital by the Potomac because it was a strategic military location, a natural border area for its first inhabitants, European colonists, and a young nation. Perhaps no other river basin in the United States has been the site of so many battles: some "small," like the Battle of Bladensburg before the burning of the Capitol during the War of 1812, or John Brown's raid at Harpers Ferry which helped to set the stage for the Civil War and much larger conflicts. During the incredible carnage of Antietam, Gettysburg, the first and second battles of Bull Run at Manassas, in skirmishes in the Shenandoah Valley and along the Potomac piedmont and tidewater, tens of thousands drained their blood and lives on to the soils of the Potomac.



Union troops and cannon cross the Potomac at Alexandria, Va. National Archives

The Potomac basin's population and industry grew with the country. While the estuary remained engaged in fishing and agriculture, the lands

of the upper basin were mined for coal, iron and limestone, and harvested for magnificent hardwood timber, all of which was transported downstream. Washington's dream of linking the Eastern Seaboard to the expanding frontier of the Ohio River Valley was attempted first by his very early Potomac Canal (remains of which are visible at Great Falls), then through the construction of the Chesapeake & Ohio Canal, and ultimately accomplished through railroads. Begun in 1828, the C&O Canal made its way as far as Cumberland, Md. by 1850, carrying coal and agricultural products to the growing tidewater populations. Then came the Age of the Railroad and the C&O Canal could not compete. Today, it is the region's premier greenway, a ribbon park that runs along the Potomac for more than 184 miles. Eventually, highways and airports greatly improved transportation in the region and by the early 20th century, the river had begun its decline as a major shipping route. Few of the many ferries that once crossed the river remain.

Waiting for the ferry.

Caviar, Anyone?

The Potomac was once home to North America's "king of fishes," the Atlantic sturgeon. This huge fish, which can weigh several hundred pounds, is harvested for its roe, or eggs, which are made into caviar. An anadromous fish (spawning in fresh water but living much of its life in saltwater) like the shad, herring, white perch and striped bass, the Atlantic sturgeon was last documented in the Potomac in 1976. Sighted recently in the Delaware River and still harvested on the Altamaha in South Carolina, restoration of a population in the Potomac is not out of the question. Interestingly, one human death has been attributed to a sturgeon in the Potomac River. During the American Revolutionary War, in the Port of Georgetown, a sturgeon leaped into a rowboat, landing on an unfortunate Officer and crushing his legs. The man was taken to a doctor to be treated but later died due to complications of his injuries. Considering the state of medicine at the time, it may have been a case of "if not the sturgeon, perhaps the surgeon."

Atlantic sturgeon draws a crowd, date uncertain. Library of Congress

As the Industrial Revolution gathered steam, the region grew quickly--more quickly than technological advances in abating increasing water pollution problems. The first wastewater treatment facility for the region was built for Washington, D. C., at the turn of the century. Even then there were clear signs of fishing losses. The last commercial sturgeon fishery closed in the 1920s.

With America's coming of age as a world power in the years following World War II, the population of the nation's capital expanded by leaps and bounds, beginning the characteristic suburban sprawl now found throughout the metropolitan region. Military facilities were built or expanded in the watershed, especially in the tidal region south of Washington, D.C., adding to population growth in rural areas. Manufacturing in the region, on the other hand, shared in the nationwide decline that was manifest by the 1960s. Such cities as Cumberland, Md. were especially hard hit.

Agriculture has been pushed well beyond the rich lands that once surrounded Washington, D.C., and the tobacco industry that once fueled the tidewater economy is all but gone. An ongoing battle between agriculture and urbanization is most visible in Loudoun, Prince William and Stafford counties in Virginia, and in Frederick, Washington and Charles counties in Maryland. But farming continues its historic dominance in the Shenandoah and Cumberland valleys and West Virginia's Eastern Panhandle, which form a major portion of the watershed; and it is still vital in Southern Maryland and Virginia's Northern Neck. Forestry is also an important factor in the watershed, especially in the Northern Neck and the mountains, such as the Potomac's North Branch region west of Cumberland.

The types of plants and animals in the basin have changed considerably over the last four hundred years. Among those gone are the elk, woodland bison, panther, passenger pigeon, timber wolf, and mature chestnut trees that once were major components of the flora and fauna. American shad, sturgeon, oysters, the Shenandoah salamander, Bewicks wren, the loggerhead shrike and even the mighty oak forest are in significant trouble. But river otters, striped bass, osprey, and bald eagles are on the comeback. Beaver and deer -- whose pelts were among the first reasons for European exploration of the region -- are plentiful everywhere, in some areas to the point of being pests Introduced species now include the largemouth and smallmouth basses, carp, channel catfish, rainbow, brown, lake and cutthroat trouts, starlings, house finches, English sparrows, gypsy moths, nightcrawlers, Asian clam, hydrilla, Eurasian millfoil, multiflora rose, ground ivy and Japanese honeysuckle.

But the landscape of the Potomac River basin, for all its population growth and many changes, still reveals its 18th and 19th century roots to the discerning viewer. Historic sites and vistas still abound, and the rhythms of the farmer, the logger, and the miner still dominate a surprising amount of the landscape. Small towns display their origins as crossroads villages and market towns, county seats and manufacturing centers. Roads well away from modern high-speed highways reflect the wagon wheel, the horseshoe, and even the moccasin in their winding, tree-lined ways following the easiest lie of the land. Many of the beautiful names of the Potomac's tributaries, such as the Shenandoah, Conococheague, Monocacy, Wicomoco, and the Anacostia, recall the voices of the basin's earliest settlers, the People now nearly vanished from the basin.

ENVIRONMENTAL CONDITIONS IN THE POTOMAC RIVER BASIN

Pollution of the Potomac has occurred as long as humans have occupied the basin. Archeological evidence shows that Native American villages along the shore typically were moved from time to time as they depleted the soils through agriculture or to avoid problems associated with human wastes. Fire manipulations of forest cover to improve hunting surely increased soil erosion in many parts of the basin.

The 18th century farming practices, such as slash-and-burn, caused terrible erosion and siltation. Port Tobacco, Md., in Charles County, commissioned as one of Maryland's first ports to collect tobacco taxes, is now more than two miles from navigable waters. By the first quarter of the 19th century, the major port of Bladensburg, Md., on the Anacostia River--a British objective during the War of 1812 -- was closing down from siltation.

Conditions worsened as the river tirelessly served the 19th century population's needs for energy, transportation, sanitation, and drinking water. Hundreds of miles of streams were stripped of life by clearcutting and acid mine drainage, the legacy of coal mining in the North Branch that supplied fuel for home heating, electricity and manufacturing of the Industrial Revolution. The area around Cumberland became a center for heavy industry. The manufacture of paint, glass, tires, paper, and other products took their toll on the upper main stem of the Potomac. Agricultural areas of the basin spilled loads of topsoil, fertilizers, manure, and pesticides into the river; deforested areas contributed still more silt. The growing population continued to use waterways to remove their sanitary wastes. Raw sewage and garbage were commonly piped or dumped into the Potomac until the 20th century. President Lincoln was said to leave his residence on summer nights to avoid the stench of the river.

> *"This is the story of one of the most dramatic environmental reversals of this century, made even more significant by the additional responsibility of the region to sustain impeccable water quality standards and sufficient quantities of potable water to serve a burgeoning population."*
>
> *Richard L. Stanton*
> *Superintendent (1981-1989)*
> *C & O Canal National Historical Park*
> *National Park Service (Ret. 1989)*

In the 20th century, conditions slowly began to change. Industry along the upper river began to decline in the 1960's, easing industrial impacts on the river but increasing economic hardships in the region. The lost economic value has been partially replaced through tourism, which has been aided by the improving environment. The remaining industries have worked to reduce pollution. Since the 1960's, much work has been done in abating mining impacts to the North Branch, including regulation of modern mining, use of new technologies to address acid drainage problems from older sites, and construction of the Jennings Randolph Reservoir. The reservoir, built in large measure to assure adequate water supplies for the metropolitan area during drought, has had the side benefit of substantially buffering the water downstream from the dam.

Thanks to massive public investments, primarily in wastewater treatment, the Potomac is far cleaner than it was only a generation ago. The tidal freshwater river is a dramatic example. Once the Potomac's most severe and visible environmental problem, this stretch is now an extremely popular recreational fishing and boating area. Such a possibility could barely be envisioned in the 1960's as President Johnson called the Potomac "a national disgrace" and announced an initiative to clean it up.

The Potomac's largest tributary, the Shenandoah River, has also experienced a significant recovery between the confluence of the North and South Forks at Front Royal, Va. to its mouth at Harpers Ferry, West Virginia. Nearly biologically dead in the 1940's due to chemical plant discharges, this stretch is again host to very popular smallmouth bass fishing.

Other problems remain, however. Acid mine drainage from abandoned coal mines still are a problem on the North Branch, especially in the headwaters above the reservoir. Water quality managers for both the state and the paper mill at Luke, Md., successful in reducing many of the environmental impacts of the plant's discharges, continue to seek efficient ways to reduce or eliminate those remaining. In an ironic twist, however, the lands along the North Branch are among the most rural on the main stem -- and likely to be most threatened by development once the discharges are cleaned up.

Runoff from farms carrying nutrients, sediments, and pesticides, creates more problems in some Potomac sub-watersheds than others. The Conococheague in Pennsylvania, the Shenandoah in Virginia, the Monocacy in Maryland, and the lower Potomac see the most problems from agricultural runoff. The Monocacy has several demonstration programs addressing forest and farm uses and their impacts on water quality. Intensive poultry farming and processing occur in Rockingham County in the

POTOMAC WATERSHED FACTS

THE BASIN: Drainage area includes 14,670 square miles in four states: Maryland (3,818 sq. mi.), Virginia (5,723 sq. mi.), West Virginia (3,490 sq. mi.), Pennsylvania (1,570 sq. mi.), and the District of Columbia (69 sq. mi.).

LANDFORMS: The basin lies in five geological provinces: Appalachian Plateau, Ridge and Valley, Blue Ridge, Piedmont Plateau, and Coastal Plain.

LENGTH: 383 miles from Fairfax Stone (W.Va.) to Point Lookout, (Md.).

MAJOR TRIBUTARIES: Shenandoah, South Branch, Monocacy, Savage, Cacapon, Anacostia, and Occoquan Rivers; Antietam and Conococheague Creeks.

MAJOR CITIES: Gettysburg and Chambersburg, Pa.; Rockville, Cumberland, Hagerstown, and Frederick, Md.; Alexandria, Staunton, Front Royal, Winchester and Harrisonburg, Va.; Harpers Ferry and Martinsburg, W.Va.; Washington, D.C.

POPULATION: Approximately 4.6 million; 3.7 million in the Washington metropolitan area.

MAJOR INDUSTRIES: Agriculture and forestry throughout the basin; coal mining, pulp and paper in the North Branch; chemicals and manufacturing in the Shenandoah Valley; high-tech, service, and light industry, military and government installations in the Washington metropolitan area; fishing in the Potomac Estuary.

FLOW: Largest flow at Washington, D.C., in March 1936, was 275 billion gallons per day. Average is about 7 billion gallons per day. Lowest flow in September 1966 was 388 million gallons per day before water supply withdrawals.

WATER SUPPLY: An average of 425 million gallons of water withdrawn daily in the Washington area for water supply. Approximately 100 million gallons per day of ground water used in rural areas.

Shenandoah Valley and on the South Branch in the West Virginia Panhandle, where excessive nutrient loads are of concern.

Does Urban Land Use Policy in Washington, D.C., Affect the Potomac?

The answer to that question is a resounding, Yes! Even though the District of Columbia is almost completely developed, and thus faces few of the "open space" issues that tend to drive state land use policies, its land use and development policies still are critically important for the region's growth management. A decaying, unlivable "center city" is the engine of sprawl development, as investment and people flee to places beyond the city's boundaries.

The potential environmental payoff from using existing urban infrastructure (e.g., streets, wastewater treatment) and redeveloping existing commercial and residential districts is enormous. Land disturbance and use of new construction materials are reduced, and more people can be accommodated on less land. Reducing sprawl makes it easier to treat the polluting effects of urban runoff and, to the extent that it reduces the miles and individual trips travelled by residents, reduces traffic and air pollution impacts.

In the next decades, both older suburbs and urban areas will require retrofits to meet modern environmental standards--it makes more sense to place this investment where the most number of people can be accommodated. This opportunity is recognized in the District, which among many other initiatives has developed innovative regulations to accommodate stormwater runoff on redeveloped sites.

Increasing residential development is occurring throughout the basin. The accumulated impacts of suburbanization are affecting a growing number of streams. Maryland's Critical Areas Program addresses the worst of these impacts in the tidal portion of the river along its shoreline and Virginia's Chesapeake Bay Preservation Act makes similar provisions for the entire tidal drainage, but more effort is needed to address impacts beyond the tidal portion of the river.

The Anacostia River, which drains much of the District of Columbia and two highly populated counties in Maryland, has been the victim of problems from environmentally unsound urbanization; nutrient overloads, erosion, sediment and trash-clogged waterways, and toxics from paved areas. Extensive public investment and coordinated local, state and federal programs are addressing these problems through the Anacostia Watershed Restoration Project.

Water quantity is an ever-present concern. A severe drought in 1966 created tremendous consternation and debate about adequate water supplies for the Washington metropolitan area. Fortunately, the construction of the Jennings Randolph Reservoir and a process for collaboration on withdrawals during times of drought have ensured these supplies for the near future (2020?), but what lies beyond? New strategies, such as water conservation and taking advantage of natural groundwater replenishment, must be developed and deployed.

A growing problem of water quantity in the Shenandoah Valley echoes the concerns of the 1960s. The Shenandoah River watershed has been the recent subject of proposals for designation of "Surface Water Management Areas" under a Virginia program to coordinate water withdrawals during low flows. Summertime flows in some areas of the Shenandoah have reached alarmingly low levels in recent years.

Communities in West Virginia also have begun to recognize the possibility of future water supply problems and the need for regional collaboration to address pollution and low flows. A federal-state cooperative program, the Potomac Headwaters Water Quality Project, has begun to address water-quality concerns. It is coordinated by the state's soil conservation agency, stimulated

in part by the growth of the poultry industry. Management of water supplies may be addressed in a proposed state initiative led by West Virginia's water division to examine all river management concerns in the state's river basins. This initiative is under conceptual development at this time.

> *"Just as 'all politics are local,' virtually all successful river restoration efforts are local. It is the people who live near the rivers who care most deeply and personally about their waterways. All they need are the tools."*
>
> *Rep. Eleanor Holmes Norton*
> *District of Columbia*

Local planning can greatly affect the river's water quality and all of its associated values: scenic, recreational, historic, natural, cultural, and economic. In addition to the sprawl radiating from the Eastern Seaboard's "fall line cities" (including Baltimore and Washington, D.C., the two most greatly influencing the Potomac region), there are specific changes afoot in the Potomac basin.

To take one prominent example, military base realignment will affect the lower Potomac -- Virginia's Dahlgren Naval Proving Ground, the Patuxent Naval Air Station in St. Mary's County, Md., and Andrews Air Force Base in Prince George's County, Md., are all to be reinforced with new units from bases being closed elsewhere. Environmental impacts promise to stem from construction of additional housing and roads. Planned and future base closures are also of concern. These large governmental areas offer some of the few major open spaces remaining in the extended urban area. Development plans for 10 million square feet of office, retail, and hotel space, 4,000 houses and a light rail system were recently proposed for the Army Corps of Engineers' Fort Belvoir Proving Grounds in Fairfax County, Va. Other bases will continue as they are, providing a stable source of employment and residents in their areas (Cameron Station U.S. Army Depot, Quantico U.S. Marine Corps Reservation in Prince William and Stafford counties.)

Moreover, areas on the urban fringe with fewer growth pressures--and consequently lower land prices and less sophisticated growth management programs--are susceptible to what are sometimes called Locally Undesirable Land Uses, or LULUs. These are development projects that are perceived (at least by some residents of communities in which they are proposed) as inappropriate to the site and community due to their large scale, type of proposed land use, and associated environmental and community impacts. They are typically attracted to rural areas because land is cheaper and land use regulations are less stringent, if they exist at all.

Townships in Adams County, Pa., for example, are on the front line in the rush of LULUs from the Philadelphia area, especially landfills and trash transfer facilities. Recent proposals there also have included a large retirement community and a temporary "festival market" planned for 100,000 people. Counties in Maryland and Virginia are experiencing the same pressures. A current and noteworthy example is the Disney Corporation's "Disney America" proposal to develop a theme park in Prince William County, Va., in the Occoquan watershed.

The same population pressures that lead to sprawl and LULUs also can contribute to recreational boating pressures, which are building in the basin. The national trend in increased recreational boating is evident in many places on the Potomac. The Shenandoah enjoys considerable canoe use on the South Fork. Power boating and boating access and safety are issues on the Potomac's middle main stem and the entire tidal portion. The lower Potomac is experiencing similar boating pressures to other, smaller Chesapeake estuarine rivers such as the Patuxent.

THE POTOMAC RIVER

MILES
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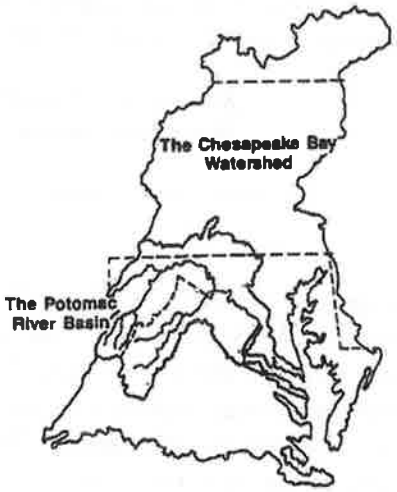


The Potomac is the second largest contributor (after the Susquehana) to the Chesapeake Bay.

The four percent of Pennsylvania that is within the basin is largely agricultural land, primarily orchards, dairies and cornfields. Efforts to reduce agricultural water pollution are ongoing

WEST VIRGINIA
MARYLAND

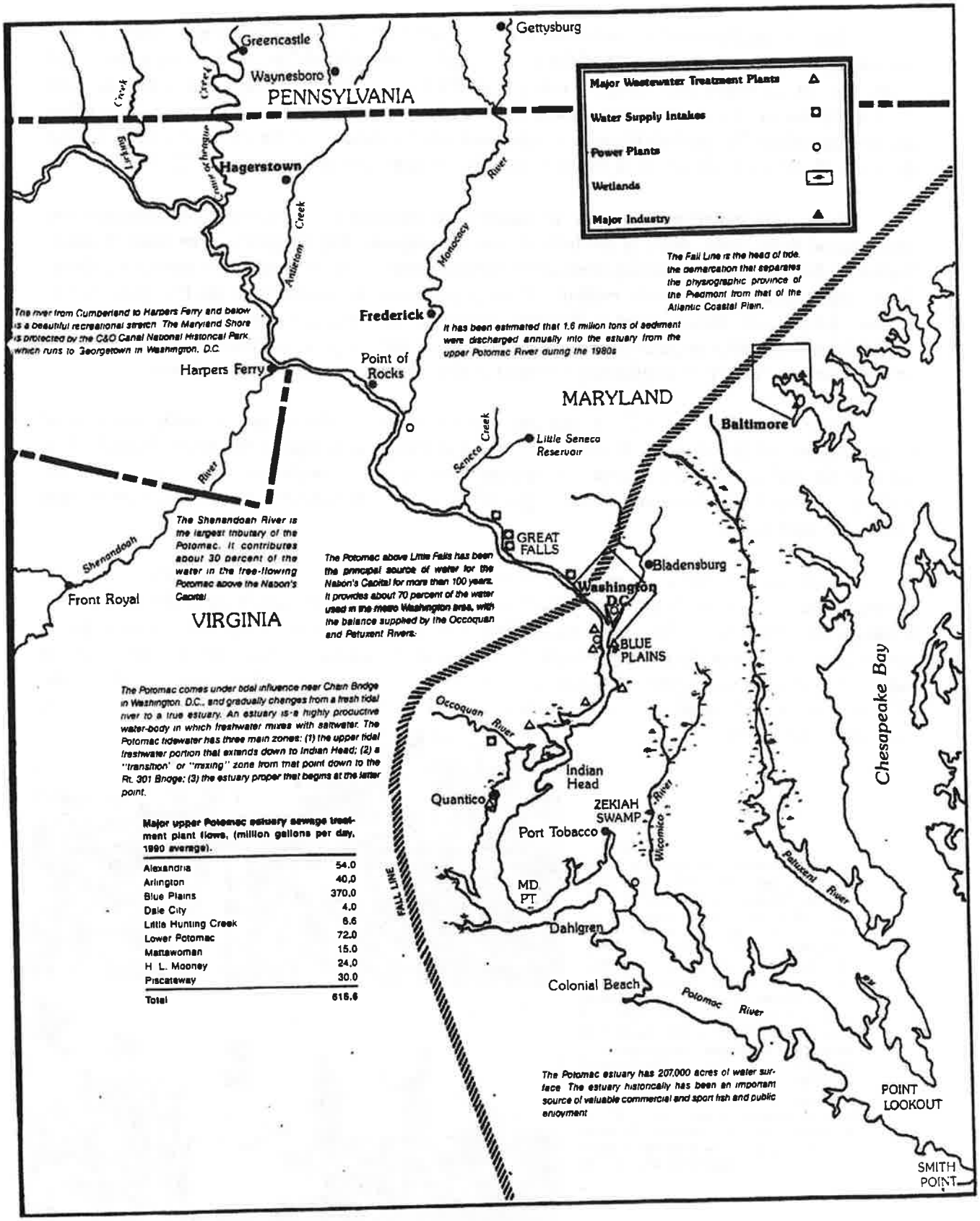
Cumberland
Savage River Reservoir
Savage River
North Branch Potomac
Keyser
Jennings Randolph Reservoir
North Branch Potomac
Romney
FAIRFAX STONE
South Branch Potomac
WEST VIRGINIA
Moorefield
Petersburg
North Fork
South Fork

The Potomac begins it 383-mile journey to the Bay as a small spring near Fairfax Stone in West Virginia. The stone is a few miles west of Maryland's western boundary with West Virginia. Acid mine drainage begins a few miles from Fairfax Stone. Although it continues to inhibit aquatic life in the North Branch Potomac and its tributaries, some progress is being made

The better water quality of the South Branch, long a popular recreational river, helps dilute the acidic water that flows down the North Branch

In the 1938 aerial view at the left, the Potomac River flows past the Nation's Capital. The Chesapeake Bay is in the background. *By Major Albert W. Stevens, U.S. Army Air Corps. Courtesy of the National Geographic Society.*

Centerfold Beverly Bandler and Curtis Dalpra



Major upper Potomac estuary sewage treatment plant flows, (million gallons per day, 1990 average).

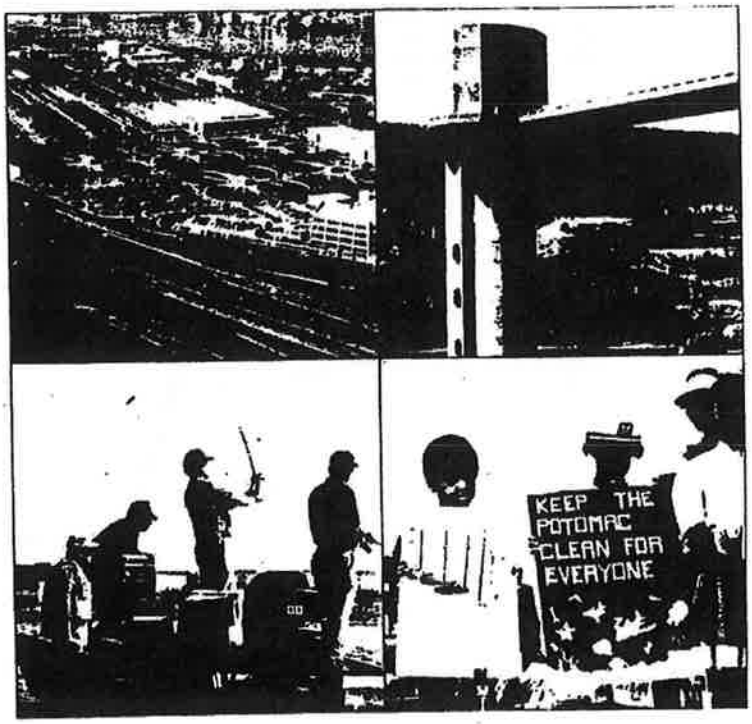
Alexandria	54.0
Arlington	40.0
Blue Plains	370.0
Dale City	4.0
Little Hunting Creek	6.6
Lower Potomac	72.0
Mattawoman	15.0
H. L. Mooney	24.0
Piscataway	30.0
Total	616.6

Fishery declines in the lower Potomac have long been a source of concern. The Potomac historically has been a superb source of the commercial catches of rockfish, shad, oysters, perch and other species for which the Chesapeake Bay is world-famous, and which now are in decline. The 1993 oyster season for the Potomac was an all-time low. Fish consumption advisories are in effect for stretches of the Shenandoah River in Virginia and West Virginia and the Potomac and Anacostia Rivers in the District of Columbia due to toxics such as mercury, chlordane and PCB's.

A bay-wide initiative is underway to restore these fisheries to both commercial fishermen and recreational enthusiasts, through the federal-state Chesapeake Bay Program. The effort includes improving fish passage to spawning areas in freshwater streams and abating water-quality problems. Some improvements are already evident: Trout populations are returning to the Potomac's North Branch. Largemouth bass returned to the upper estuary in 1976, and now, national bass tournaments are held there. Rockfish populations have rebounded. Aquatic vegetation has returned to the much of the river and estuary, strengthening a chain reaction of water quality improvements.

Improvements in wildlife populations also are evident. Eagles can be easily observed at Mason Neck Wildlife Refuge, Piscataway Park, and along the Gorge of the South Branch. The Caledon Natural Area in King George, VA, is home to more than 60 eagles over the summer months, and they are found elsewhere in the basin. Waterfowl are on the increase. The endangered Eastern bluebird is seen more often.

Although the river is in many ways healthier now than at any time in this century, the same threats to the river remain, requiring vigilance to protect the gains that have been made and build on those gains for the future. The basin is surprisingly rural, considering that it boasts the nation's capital and is found in the heavily populated Eastern Seaboard. However, the population of the basin are expected to swell in coming decades, accompanied by disturbing patterns of increasing consumption of land, energy, and water. The importance of protecting the Potomac basin's resources is greater now than ever before.



Clockwise:
Symbols of the Potomac clean-up: the District of Columbia's wastewater treatment plant at Blue Plains. This regional facility treats about 70 percent of the sanitary wastes generated by the metropolitan Washington area, and is one of the world's largest plants (Harr, Hedrich-Blessing, D.C. Dept. of Public Works). The mammoth Bloomingrton Dam tower overlooks Jennings Randolph Reservoir. An engineering achievement of the Army Corps of Engineers, its construction signaled that the water supply of the metropolitan Washington area was secure well into the 21st century (ICPRB). The District of Columbia celebrated a cleaner Potomac at its Riverfests (William Clark, Natyional Park Service). The river has been valued by all U.S. Presidients. Here, Presidient George Bush tries his luck at Potomac bass fishing (Susan Biddle/The White House).

INNOVATIVE ENVIRONMENTAL PROGRAMS IN THE POTOMAC RIVER BASIN

State, regional and local environmental and conservation programming throughout the Potomac River basin is extensive. All four states, the District of Columbia, plus many counties, municipalities, and townships have environmental programs. These include not only the most expected of water-related programs--wastewater treatment, drinking water, flood control, and stormwater management--but other, innovative programs as well, including:

- The Northern Virginia Planning District Commission recently unveiled their Future Land Use Map which was prepared using a GIS program;
- Rockingham County, Va., in the Shenandoah River valley has developed a local ordinance regulating nutrients from poultry farming and processing;
- The Headwaters Soil & Water Conservation District in Augusta County, Va., held a Streambank Protection Seminar that drew 251 people from across the state to learn techniques for re-establishing vegetation;
- A local ordinance to protect groundwater in Clarke County, Va., has been recognized as a national model;
- Many volunteer groups, such as the Friends of the North River, the Friends of the North Fork of the Shenandoah River and the Friends of the Shenandoah River, have created and carry out extensive water quality monitoring programs;
- The Falling Spring, a nationally known trout stream and a rural branch of Conococheague Creek in Pennsylvania near Chambersburg, is home to one of the oldest citizen stewardship programs in the basin, now more than 20 years old. Spearheaded by Trout Unlimited, the project has grown into The Falling Spring Greenways, Inc., a non-profit organization. The project has a history of effective partnerships developed with local farmers and other area businesses to protect this valuable resource;

The States' Involvement in Land Use Planning

Stepping back from concerns directly related to water, other environmental pressures exist that could have a significant impact on the river and the quality of life in the basin. These pressures stem largely from the increasingly sprawling pattern of growth and development. State support for local land-use planning to address the environmental impacts of sprawl in each of the basin's states is uneven:

- Virginia's Chesapeake Bay Local Assistance Division is an excellent model (self-described as a state-local partnership) but it extends only to tidal counties and planning district commissions (PDC's) for implementation of Virginia's Chesapeake Bay Preservation Act. Other than limited cash assistance to the PDC's, little additional state support or requirements exist for land use planning.
- In West Virginia, state support or requirements for land use planning have historically been limited. In 1990, the Eastern Panhandle, the area with the most intense development pressures, was identified as the state's highest priority for future resource planning and conservation efforts.
- In Pennsylvania, the Department of Community Affairs provides some technical assistance and grants, but requirements are minimal -- and two Potomac counties were the last in the state to institute zoning.
- Maryland's program is strongest, with extensive requirements for local planning (including a requirement for a "greenways element" in county comprehensive plans); a Critical Areas law, and a state-level office of planning exercising oversight, but lacks full implementation.

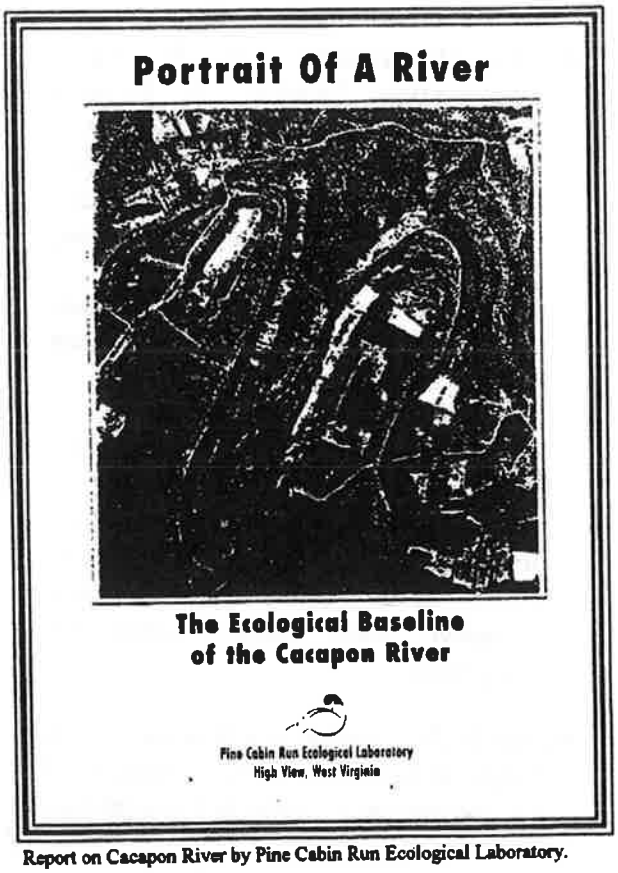
- Mercersburg, Pa., has taken steps to create an upgraded wastewater treatment plant which would employ no-nutrient discharge technologies to avoid impacting Conococheague Creek;

- The Fulton County, Pa., Soil and Water Conservation District worked with a farmer whose property had a stream that was steadily eroding a pasture; using cost-share grants, they straightened the stream and created a wetland out of the orphaned oxbow (loop). Result: no more silt clouding the stream, no more farm acreage lost to erosion, cleaner, cooler waters for trout downstream, and more wildlife visiting the farm;

- Charles County in southern Maryland enacted a stream and wetland protection ordinance to guard against detrimental environmental impacts of development planned for its northernmost Potomac tributary, Mattawoman Creek, and banned wastewater discharges to streams flowing into Zekiah Swamp, the basin's largest freshwater wetland;

- In a bi-state initiative, the Bedford Soil and Water Conservation District in Pennsylvania and city officials from Cumberland, Md., created a special task force to identify nonpoint sources of pollution in the Evitts Creek headwaters. As a *quid pro quo* held out to watershed residents, the city hopes to allow boating and fishing on its two beautiful reservoirs if water quality improves.

- The Pine Cabin Run Ecological Laboratory in West Virginia, a nonprofit organization dedicated to helping concerned citizens protect and restore Appalachian river ecosystems, conducted a "baseline" scientific study of the Cacapon River's water quality, land uses, and species. Much like a human patient's medical chart, the study provides a detailed picture of the stream's current health, and will enable researchers and citizen monitors to judge progress.



Report on Cacapon River by Pine Cabin Run Ecological Laboratory.

State and local conservation initiatives in general include a wide variety of land conservation efforts both new and old. Among the earlier conservation initiatives are Maryland's scenic river designations of the Wicomico, the Monocacy, and a stretch of the Potomac itself including the gorge in Montgomery County, together with efforts to designate Goose Creek in Loudoun County under Virginia's state scenic rivers program. The latest in a variety of initiatives to protect and clean up the Monocacy River in Frederick County, Md., includes plans to create a Greenway Plan and Implementation Strategy, supervised by the county's Bureau of Parks and Recreation in collaboration with the Frederick County Trails Committee, a volunteer group.

In an approach that goes beyond scenic river designation, the Lord Fairfax Planning District Commission, in cooperation with Page County, is developing a plan that integrates all water-related concerns, including water quality, water supply, access and recreation, and voluntary land conservation, along the South Fork of the Shenandoah.

Finally, two concepts that encompass multiple environmental and conservation programs, greenways and heritage areas (both are described below), are gaining champions in the basin.

Potomac River Greenways

Greenways -- a concept that gained nationwide attention in the 1980's with the publication of a report by the President's Commission on Americans Outdoors -- are being pursued in various places throughout the Potomac River basin. These provide for the strategic protection of networks of linear open space along rivers, trails, utility rights-of-way, sensitive environments, and other resources. The nonprofit Potomac River Greenways Coalition advises and links local groups seeking to establish greenways, in cooperation with state and national programs. Such protected lands can allow for:

- Recreation and public access development, including boating and fishing access and trails;
- Protection of wildlife migration corridors and habitat;
- Conservation of such special properties as historic bridges, archeological sites, and sites of special biological or geological interest; and
- The buffering of streams from runoff that alters the temperature and chemical composition of the water, preserving or restoring habitat for fish and such aquatic life as freshwater mussels.

The Potomac River Heritage Project

The concept of heritage areas or heritage corridors is the most recent of all developments in the evolution of ideas for conserving whole landscapes. The Accokeek Foundation, based in Maryland, has initiated the Potomac River Heritage Project. This is an idea encompassing not only all other kinds of conservation initiatives described elsewhere in this report--such as greenways, trails, scenic river designations, watershed protection--but also:

- Identification and protection of historic landscapes and communities;
- Development of tourism and education programs for the benefit of residents and visitors;
- Designation of scenic byways and long-distance trails linking regional resources of all kinds;
- Economic development with a strong "quality of life" point of view; and
- Collaboration among a host of agencies and institutions to seek common ground, for the benefit of all agendas.

FINDINGS, RECOMMENDATIONS, OPTIONS

The six-point "dream" of the Potomac River Watershed Visions Project is shown here again, this time as reference points for the project's findings, together with recommendations and options for addressing the issues raised in these findings. Each finding typically answers the question, "What are the conditions that currently exist as either opportunities or obstacles to enhance or hinder achievement of the vision?"

***Vision #1: More Local Visions** will exist to promote conservation efforts in every stream valley leading to the Potomac River. Communities' visions and plans will recognize their unique "environmental address," seeking to protect and enhance the many values associated with their streams and the Potomac River as a whole. Citizens' groups will flourish, and aim for accomplishments that complement community visions.*

Finding: Most local and regional governments have undertaken water-quality initiatives, many of which are sophisticated and innovative, and many are undertaking specific land-based conservation projects. However, few integrate land and water initiatives into an overall framework. Most could improve complementary citizen action or the voluntary actions of business. Moreover, even though there are many grassroots caretakers for Potomac tributaries, many streams are still "unclaimed." This is especially true for small streams--the front lines in the battle against runoff pollution.

Recommendation: Invest in conservation education for both public and nonprofit managers and advocates for local land and water resources. A long-term plan for such an initiative is preferable to *ad hoc* offerings.

Options include encouraging community colleges and universities to offer continuing education courses; offering one-day seminars

Local Visions

Around the basin, the Potomac River Watershed Visions Project heard local visions expressed by a wide number of individuals. While by no means complete, or official, the ideas discussed at some of the project's "focus group" meetings illustrate topics that can be addressed more completely in real local visions:

From Cumberland, Md.: There should be more boating on the river, both for aquatic environmental education and tour groups; model projects should demonstrate how environment and economy are linked and use these demonstrations as the centerpiece for further efforts.

From Petersburg, W.Va.: Development patterns should preserve forest areas and green spaces; development should be sensitive to site-specific resources and land characteristics; development should take place where there is infrastructure to support it (e.g., existing utilities, roads).

From Chambersburg, Pa.: Successful techniques used in Falling Spring should be widely applied to protect and restore streams.

From Washington, D.C.: There should be increased accessibility on the Virginia side of the river; a "swimmable Potomac" should be the goal; there should be a history tour of the Potomac, a "sojourn" with historic craft (like the James River's "Bateaux" gathering), and other events to increase appreciation for historic resources and attract tourists.

From Middleburg, Va.: A preserved Route 50 should lead preservation of the region; effective, watershed-related environmental education should be underway throughout the school system with knowledgeable teachers drawing on resources throughout the basin.

on specialized topics; or creating a week-long "Potomac conservation leaders" course. In general, courses should address techniques of scientific management, land use management (including voluntary conservation techniques), understanding environmental impacts and management options, public-private cooperation, and where to obtain further information and help. Recreation and tourism development and water quality issues (including the relationship of land uses and runoff to stream quality) are specialized issues that could be addressed in these courses. A mix of political officials, parks and recreation employees, planners, conservation volunteers and others should be targeted in these courses to promote greater understanding of each others' roles, values, and goals.

Recommendation: Encourage local governments to cooperate with and assist community groups.

Options include assembling a task force to study specific policy initiatives (including "outreach" experts from the Chesapeake Bay Foundation, the Alliance for the Chesapeake Bay, and the Center for Rural Pennsylvania, among others); encouraging the new Chesapeake Bay Stewardship Exchange[4] to select a community in the Potomac basin, plus studying results of all Exchange visits for policy recommendations; a specialized survey of all local governments and community organizations in the basin to obtain their ideas.

Recommendation: Encourage more information-sharing and recognition of accomplishments among local water-quality managers, many of whom are the only such employees in their offices.

Options include creating a specialized newsletter; developing a "Potomac River bulletin board" on electronic networks already maintained for water quality managers.

Recommendation: Develop a "Potomac River Visions Handbook" that outlines the visioning process, suggests ways of funding and conducting a "visioning workshop" for an individual community or organization, and describes options, both public and private, for developing local strategies to make a community's visions become reality.

Recommendation: Create a system for tracking community visions and their potential or actual impact on Potomac River resources, and publicize local achievements.

Options include developing a basin-wide annual report; publishing a newsletter on

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[4]The Chesapeake Bay Stewardship Exchange is part of the International Countryside Stewardship Exchange of the Countryside Institute, a national organization. It is run by a consortium of Chesapeake Bay-based partners; the Alliance for the Chesapeake Bay is coordinating. Many of the partners are also participating in the Visions Project's review team. The program involves a week-long visit hosted by selected "case study sites" (a community, watershed, or region) by a team of eight international and domestic experts. The experts, chosen in response to issues identified locally, then provide a report. Local organizers are encouraged to assemble teams representing both government and private organizations and are expected to continue work on issues identified before and during the visit. Three study sites in the Chesapeake Bay participated in 1994. It is hoped this is the first of an annual or biennial program.

community conservation efforts; creating an awards program including recognition, cash, or both.

Finding: Interest is growing throughout the basin for geographic information systems (GIS) that enable the tracking of multiple kinds of data on computerized maps. A key tool for creating effective local resource protection policies, as well as other governmental policies, GIS is not in wide use in the basin. Even though costs have come down considerably in recent years, equipment for such programs is still comparatively expensive for local governments. Few as yet have the resources to purchase the software and hardware, refine the data entry to be entirely useful, and train personnel to use and maintain the system. Coordination and compatibility issues need to be addressed.

Recommendation: Support development of GIS systems at the local level and methodologies for shared resources and information at the regional level.

Options include supporting a recent proposal by the National Center for Resource Innovations of Arlington, Va., to develop a community based GIS program in the Potomac; create a basin-wide GIS working group; disseminating information about existing GIS experience at the local level in the basin and elsewhere, through a newsletter, an electronic bulletin board, or reports, or convening a regular Potomac-wide GIS forum; developing basin-wide data protocols to enable information-sharing among systems; developing basin-wide or state-by-state financing schemes for local governments to obtain necessary startup and maintenance funds; supporting accessible statewide programs, such as a proposal by Virginia's Commission on Population Growth and Development and Council on Information Management, and the incorporation of local heritage data in city or county based GIS systems utilizing matching historic preservation grants through the Maryland Historical Trust..

Groups work together to clean the Potomac. Ron Ceasar

Finding: Stream cleanup projects by civic groups are being undertaken throughout the basin, including an annual "Potomac River cleanup" coordinated basin-wide by the Alice Ferguson Foundation's Hard Bargain Farm Environmental Center. These simple projects are an especially effective way for watershed residents to become

acquainted with their "environmental address." Stream clean-ups, monitoring and related activities yield additional benefits: a bonding experience tying participants to the land and water, and they are an excellent gateways to stewardship, heightening interest and involvement. It helps them to begin the process of "claiming streams" for such further projects as trails, water quality monitoring, streambank restoration, or habitat protection. "Adopt a stream" programs that encourage and support these projects, however, are not readily available basin-wide.

Recommendation: Increase resources devoted to encouraging stream cleanups and "adopt a stream" programs throughout the basin.

Options include encouraging the Alliance for the Chesapeake Bay to expand its Potomac Watershed Program, with a focus on "adopt a stream" programs; supporting a coalition of all organizations and government agencies in the basin that are working on "adopt a stream," greenway, and streambank protection programs; creating a basin-wide "SWAT" team for especially challenging cleanup tasks (for example, entire automobiles, or rubble from old landfills in eroding streambanks).

Recommendation: Find ways to reduce landfill costs for stream cleanups -- a major obstacle in some communities to more volunteer projects.

Options include linking stream cleanup projects to landfills (both public and private) volunteering to excuse tipping fees for Potomac River refuse; creating tax incentives or grants to support reduced tipping fees, perhaps supported by fees imposed on items most commonly found in streams (e.g.; tennis balls and styrofoam products, especially food or drink containers); recruit public and private landfills to provide assistance to stream cleanups as a community service.

***Vision #2: Strengthened partnerships** and capacities among citizens, government and business will enable them to recognize, promote, and support locally led conservation. Dedication to community visions will lead to greater efforts to coordinate programs, bridge gaps, and achieve flexibility and efficiency in making needed local improvements possible.*

Finding: In terms of governmental services for local watersheds, the need is less for new programs than for full implementation of existing programs, including adequate enforcement of existing regulations and "getting the word out" to increase awareness about how programs and grants can be used. In many programs, clear and specific connections to grassroots efforts and local organizations are lacking. For instance, it is difficult for some state water quality agencies to accept citizen monitoring data. Moreover, businesses are often overlooked as resources. They need more opportunities to stand as equal partners in the environmental community.

Recommendation: Support citizen and local government environmental and conservation efforts with small grants. Involve more businesses in sponsoring restoration activities and provide them with tax incentives and recognitions which encourage them in those efforts.

Options include supporting Senator Paul S. Sarbanes' (MD) legislative efforts for the Chesapeake Bay Program to provide small grants and technical assistance to community-based organizations and local governments; initiating state programs based on a model in Pennsylvania under its 1993 bond fund--although the grants are to be administered by the state's scenic rivers program, rivers need not be eligible for designation for local groups to receive funds; creating endowed funds based on Maryland's Chesapeake Bay Trust (CBT) and Virginia's Environmental Endowment (VEE), both of which are examples of programs providing grants--large and small--to a wide variety of grassroots programs; developing more private funding from non-profit organizations and businesses, such as the Coors Brewing Company's **Pure Water 2000** program (See *Potomac River Watershed Visions Project Directory*).

Recommendation: Provide more money for small community stormwater management, sewerage and septic systems, not only for installation but the inspection, enforcement, and education needed to maintain quality facilities and thus protect local water quality. Adequate sanitation has been and continues to be a dominant local concern.

Options include increasing funds to existing Clean Water Act programs; establishing a technical committee to examine the issue, investigate models (such as the local ordinance governing septic systems in Carroll County, Md.), and suggest specific changes to state policies and laws; providing technical and educational assistance to homeowner associations responsible for maintenance of subdivision stormwater management facilities.

Finding: Political subdivision of the Potomac River basin has allowed for a diversity of programs, and each jurisdiction has developed some "great ideas" (see Appendix VI). But subdivision of the Potomac River basin into four states and the District has also impeded the development of a basin-wide perspective among federal and state agencies, despite the efforts of

the Interstate Commission on the Potomac River Basin. Communities must deal with various state and federal agencies; relating the actions of these agencies is made doubly difficult when the agencies' deliveries of local services are organized in different ways even within the same state. Moreover, conflicting priorities between agency programs can complicate processes and increase costs. Vigorous and continuing efforts are needed to bridge differences and promote a unified view of the Potomac, especially among the following "cross-cutting issues" investigated by the Potomac Visions Project: water quality, living resources, GIS implementation, environmental education, heritage interpretation, community empowerment and state agency services, land-related conservation initiatives, tourism and economic development.

The Interstate Commission on the Potomac River Basin was established under interstate compact and by an Act of Congress in 1940. Members of the Commission are the signatories to the compact (Maryland, Virginia, West Virginia, Pennsylvania, and the District of Columbia) and the federal government.

ICPRB's mission includes all water and related land resources in the basin, as well as water quality. The Commission assumes the following roles and functions:

- Interstate and basin-wide coordination;
- Stimulation of federal and state action;
- Basin-wide water quality monitoring evaluation, and conduct of other water-related studies;
- Meaningful liaison with citizen and government groups;
- Dissemination of information about the Potomac; and
- Provision of unique services and technical support to the compact members.

Recommendation: Those federal and state agencies, and statewide and regional organizations, involved in cross-cutting issues should appoint an official Potomac liaison, to be available for participation in a central committee and various specialized task forces, and to support development of a central "riverkeeper" advisory service and other recommendations as noted throughout this report.

Recommendation: Create a Potomac River Interagency Land-Managers' Task Force, comprising administrators of forests, parks, military lands, and other public lands to identify opportunities to support the nutrient management strategy, to support local greenways (if possible), and to participate in other basin activities as needed.

Recommendation: Develop one-day "fairs" or seminars in which officials from outside agencies (state, national; public, private) visit specific communities, watersheds or regions to hear about local issues and share information about improving programs and resources devoted to those issues.

Recommendation: Create model demonstration projects that integrate agency and nonprofit programs on a sub-watershed basis, with mechanisms to assure that what is learned is transferred to on-going programs.

Finding: It is difficult for some governmental water quality agencies to accept citizen monitoring data. In the view of these agencies, water quality monitoring data provided by citizens or even local governments presents a real challenge in terms of reliability, quality assurance and consistency. For instance, state agencies are understandably wary of adopting others' data when their official actions might be based on that information. Yet, the extent of governmental water

quality data gathered in the basin has declined in many areas in recent years. Volunteer efforts represent one resource that should not be overlooked in addressing continuing data-gathering needs in the basin.

Recommendation: Develop uniform standards and a screening process to certify citizen water quality monitors.

Options include supporting or helping to create organizations like the Maryland Volunteer Water Quality Monitoring Association; The Izaak Walton Leaque of America's Save Our Streams (SOS) programs; encouraging scouts and school groups to get involved; building targeted partnerships of citizens' groups, colleges, and local governments; convening groups of agency data users to determine their needs (both for quality assurance and types of data); providing training in accordance with EPA manuals for citizen monitoring; supporting efforts to improve agency data-handling and utilization; equipping citizen monitors with data analysis programs like the Alliance for the Chesapeake Bay's "Citmonman" and linking them up.

Students learn about aquatic life. August Selckmann

Finding: Conflicting priorities between agency programs can complicate processes and increase costs. For example, it can be difficult to obtain permits for in-stream work -- a common conflict between soil and water conservation agencies wanting to do beneficial work, and environmental agencies seeking to minimize impacts to natural habitat. Sometimes costs go up to satisfy multiple goals; sometimes funds are too restricted to allow a project to maximize all possible benefits.

Recommendation: Watershed plans should be developed for all major tributary systems in the Potomac basin, and should be negotiated by both state and local agencies, with full citizen participation, in a collaborative process. These plans should establish long-range policies for 1) Reconciling local governments' land use plans and community water needs (for withdrawals and discharge assimilation), 2) Address pollution, flooding, and streambank restoration or stabilization, 3) Assess stream health, wetland status, and habitat enhancement requirements, 4) Evaluate existing and potential recreational uses, and 5) Establish ground rules governing

impacts to the watershed from such state and local actions as road-building, dam-building, and wastewater discharge permits.

Options include transferring lessons learned from the model "multi-objective river corridor" (MORC) planning process recently demonstrated by the Lord Fairfax Planning District Commission and Page county in Virginia on the Shenandoah River; adopting the South Branch watershed as a demonstration for West Virginia's river conservation process now under conceptual development.

Learning to seine for fish in the Potomac. Alice Ferguson Foundation

***Vision #3: Citizens will have greater access to decisionmaking** processes, technical assistance, and information. Their expanded participation in government and community life will help to bring about community renewal as well as conservation of the lands and waters of the Potomac River basin. There will be a centralized source of information for issues in the Potomac watershed and a coordinated network of local, state, and regional partners.*

Finding: Trends toward more local government water-quality activities and more citizen-led conservation efforts suggest an increasing need for information-sharing, particularly on a technical level. However, relevant information about conservation, water quality, soil conservation, habitat preservation, and other such river-related activities is lodged among multiple agencies and levels--in effect a giant, uncentralized and cumbersome database, from which it is difficult to extract information and figure out how to obtain access to the decisionmaking process.

Recommendation: Create an on-going means of communicating with and among Potomac river advocates within local government and community groups, focussing on grassroots accomplishments and interests.

Options include creating a general-interest "Potomac River Visions" newsletter; maintaining an electronic bulletin board. *(Note that other recommendations concerning communications and training are listed under Vision #1.)*

Finding: Citizen participation in the Potomac River basin needs specific management and outlets. Barriers to citizen participation include a lack of information, a lack of training, and a lack of processes or activities to capture citizen energy. As an example of the latter, there is rarely an ongoing and formal mechanism to seek citizen input in programs that implement plans -- even though formulation of these plans frequently includes extensive citizen participation. Holding open meetings is the normal public participation mechanism during an implementation phase. A scenic river plan, for example, once developed, typically provides the formal basis for a body advising local governments on actions that affect the rivers, and such a body would deliberate publicly. The plan does not, however, typically provide for procedures to evaluate changing conditions or the overall accomplishments of advisory bodies.

Recommendation: Create a centralized Potomac River information clearinghouse, "ombudsman," or "riverkeeper" program, with a single telephone number **(1-800-9-POTOMAC)** advertised widely and continuously as the place to call to obtain help on Potomac River issues or information on upcoming projects, programs, or hearings. This recommendation is a follow-up activity for another product developed under the Potomac Visions Project, a directory of programs and projects in or available to local governments and citizens' organizations in the basin.

Options include creating a staff able to answer callers' questions directly over the phone or with printed materials, or provide the single best telephone number to call to obtain further assistance; creating a staff able in addition to provide problem resolution and technical assistance or referrals, provided the program has adequate support and participation by affected state (and federal) agencies.

Vision #4: Greater public awareness *of the Potomac as a special place. The public will understand and treasure the Potomac River's unique resources. Enthusiastic support will develop for locally led conservation initiatives and greater investments in needed government and private programs.*

Finding: Many officials and citizens groups could use a better understanding of what a "watershed (or basin)" is--and that we all live "downstream." Even the most active river advocates tend to focus on their particular tributary or their segment of the river and do not view their work as addressing the Potomac as a whole. In part, this may be because of a related issue:

Finding: The Potomac River mainstem and many of its tributaries are often seen as "edges" where they serve as jurisdictional boundaries. Tributaries receive more attention from state, regional, and local governments than does the main stem of the river. Only the Interstate Commission and the Metropolitan Washington Council of Governments have the main stem and its watershed as their explicit agenda. Moreover, Potomac issues should be related to such "global" problems as the restoration of the Chesapeake Bay (and vice versa).

Finding: The public needs more feedback on environmental progress as well as problems. While regulations and enforcement are essential for some, most people want to make informed choices, especially on "solutions to pollution" related to the consequence of their lifestyles.

Recommendation: Improved educational efforts -- both school- and community-based -- are critical to preserving and restoring environmental resources. In some locations, there is a large measure of frustration in trying to work with school systems to increase environmental education opportunities. Also, while complete environmental curriculums are a good goal, teachers and citizen groups could use more short term "package events," such as one-day field trips conducted by outside instructors, as an interim measure.

Environmental Education Programs in the Potomac River Basin include:

Hard Bargain Farm Environmental Center, Prince George's County
Chesapeake Bay Foundation
Nanjemoy Environmental Center in Charles County, Md.
The Freshwater Institute, Sheperdstown, WV.
Pine Cabin Run Ecological Laboratory, WV.
Friends of the Shenandoah
Friends of the North Fork of the Shenandoah River
Friends of the North River
Parks in the basin also offer environmental-education programs, in particular:
Mason Neck National Wildlife Refuge, Prince William County, Va.
Pohick Bay Regional Park, Prince William County, Va.
Caledon State Park, King George County, Va.
Shenandoah National Park

Recommendation: The public at large is unfamiliar with the region's cultural and historic resources. Interpretive programs about the river's heritage are provided in bits and pieces at various sites along the river, most of which tend to provide a more local focus than a river-wide one. Some museums do incorporate the Potomac River into their program (see directory), but the

St. Clement's Island/Potomac River Museum is the only[5] museum devoted to the river's natural and cultural heritage in general. The museum includes the recently opened Piney Point Lighthouse and is located in southern Maryland at Colton's Point, St. Mary's County.

Recommendation: With such a clean slate, let's try geography-based learning. While both basin-wide interpretation of historic and cultural resources and environmental education largely do not take advantage of the Potomac River, the lack of entrenched programs is "good news" in that it allows adoption of new methods of geography-based learning that combine both heritage and environmental education.

> ***Options include:*** supporting the Accokeek Foundation's Potomac River Heritage Project, which has this recommendation as one of its driving purposes; developing a basin-wide interpretive master plan through the cooperation of all interpretive sites, allowing for enrichment of local programs with overall themes for river interpretation and identifying several more sites where the Potomac River as a whole receives an interpretive focus; widely distributing the new video produced for the Visions Project and the Accokeek Foundation, "Appreciating the Heritage of the Potomac River."
>
> ***Options include:*** Encouraging more links among environmental educators in the Potomac basin, and links with educators and citizens' groups seeking to establish environmental education programs; supporting the new Potomac River Network, an alliance of environmental educators based at George Mason University; asking statewide organizations of environmental educators to appoint official liaisons to the Network, to organize "Potomac committees" within their organizations, and/or collectively to sponsor an interstate "Potomac committee"; supporting the teacher training program at Hard Bargain Farm, to enable the curriculum developed for the Potomac watershed to be employed on a wider basis.
>
> ***Options include:*** A major opportunity for highlighting the Potomac River's culture and geography is the "Potomac River Revival" initiative sponsored by all humanities councils in the basin. Planning is underway for a conference, lectures, exhibits, and other activities throughout the watershed which use the river for education and learning.

Recommendation: **Create more river-related events** highlighting the natural and cultural heritage of the Potomac River from its headwaters to its mouth.

> ***Options include:*** designing a series of hiking, biking, canoeing, boating, horseback riding and driving trips, with stops at key communities for "teach-ins" along the way, modelled after the successful "river sojourns" sponsored by the Alliance for the Chesapeake Bay and the C&O Canal Association's commemorative walk recalling Justice William O. Douglas's campaign to save the canal; designing visits to various communities by replicas or preserved versions of the many kinds of boats historically known on the Potomac (Indian

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[5]A second museum will soon open, dealing in part with this subject. Chancellor's Point Environmental Center, at Historic St. Mary's City, Md., will soon open under the dierction of the St. Mary's Board of Education. This unique state/local partnership focuses on educating children about the relationships between humans and the living landscape.

dugouts, canal boats, Rumsey's steamboat, a replica of the ship John Smith sailed, a typical ferry used on the lower Potomac by George Washington, etc.); a "road rally/scavenger hunt/orienteering event" on Potomac byways.

Recommendation: **Produce a guide to field trip resources in the Potomac River basin**, modelled after the Maryland guide produced by the state's Department of Education.

Options include: publishing a handbook; establishing an on-line bulletin board as "one stop shopping" for environmental educators.

Recommendation: Organize around cross-cutting issues[6] to encourage a basin-wide orientation on the part of more leaders in the Potomac River watershed as a whole.

Options include: establishing issue-oriented committees with broad representation from state and local leaders; holding a series of watershed management charettes, "wiring the watershed" with dedicated on-line bulletin boards on Potomac River issues; creating the clearinghouse discussed elsewhere.

Finding: "Global" (large and distant) environmental problems such as the Chesapeake Bay are not always related well to "backyard" (local and comprehensible) issues and initiatives. At the same time, as the "local" Potomac River is "popularized" as an issue, it is important to relate it to better-known environmental issues -- Chesapeake Bay, clean water, heritage areas.

Recommendation: Enlist local organizations in publicizing Potomac River issues, in a campaign to excite basin residents that "it's happening here."

Options include: creating a speakers bureau; producing materials that groups can easily personalize and use in newsletters, fairs, meetings, etc.

Finding: Surveys of historic and cultural resources in the basin, including cultural landscapes, are incomplete in every state in the basin. Even in states where much is known about individual sites, more recent historic preservation practice calls for review of entire landscapes for their historic and cultural character. Such reviews have been initiated in Southern Maryland; are called for in West Virginia's Panhandle as follow-up to a 1990 statewide assessment of natural, recreational and historical resources; and are underway in the Middlebrook/Brownsburg corridor Rockbridge and Augusta counties in the Shenandoah Valley.

Recommendation: Support regional surveys of historic and cultural resources, including whole landscapes; priorities should include the Northern Neck, Southern Maryland, the Shenandoah Valley, and the West Virginia Panhandle. While such surveys should be professionally directed, direct citizen and local government involvement should be part of these projects, together with publicizing findings as a way of educating all Potomac residents.

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[6] Cross-cutting issues identified through the Visions Project: water quality, living resources, GIS, environmental education, heritage interpretation, community empowerment, state agency services, land-related conservation initiatives (especially greenways and streambank protection), and tourism and economic development.

Vision #5: Greater regional capacities *to address river-related issues that transcend localities. Local and regional measures will assure continuing improvements in the Potomac River's overall health and the ability of the basin's residents to use and enjoy it.*

Finding: Existing regional councils/commissions are excellent resources of leadership. All local governments are organized into regional bodies throughout the basin, as many as 14 depending on how one counts. (See sidebar; a few counties at the edge of the watershed belong to regional organizations that are geographically focussed beyond the watershed.) This offers a significant opportunity to create programs and networks efficiently on a basin-wide scale, while bridging the gap between local and state government and encouraging more regional collaboration.

Recommendation: Encourage the establishment of Resource Conservation and Development Regions (RC&D's) in the Shenandoah and Cumberland Valleys, to provide additional resources to volunteer soil and water conservation leaders there. The Potomac has RC&D's in the West Virginia's Eastern Panhandle, Western Maryland, Southern Maryland, and Tidewater Virginia. With their focus on watersheds and use of volunteers and small grants, RC&D's (sponsored by local Soil Conservation Districts, counties, cities and various groups) are great resources.

Recommendation: Establish a basin-wide committee of representatives from all regional governmental bodies.

Recommendation: Form subcommittees within regions to address subwatersheds.

Regional Councils and Commissions in the Potomac Watershed

Metropolitan Washington Council of Governments -- the basin's largest, serving the District of Columbia and 20 counties in Maryland and Virginia, from Point of Rocks to the Harry Nice (Route 301) Bridge

Northern Neck Planning District Commission, Va. -- serving the four counties of the Northern Neck bordering the Potomac (Northumberland and Westmoreland counties) and the Rappahannock (Lancaster and Richmond counties)

Tidewater Resource Conservation and Development (RC&D) Region -- serving soil and water conservation districts (which are local governments, generally with boundaries paralleling county or multi-county lines) in Virginia's Northern Neck and Middle Peninsula

Radco Planning District Commission -- serving Stafford and King George counties, along with others outside the watershed (Caroline and Spotsylvania counties; the city of Fredericksburg)

Northern Virginia Planning District Commission -- serving Loudoun, Fairfax, Arlington, and Prince William counties, and 9 cities and towns within them

Rappahannock-Rapidan Planning District Commission -- serving Fauquier County, along with four counties and five towns outside the watershed

Lord Fairfax Planning District Commission -- serving five counties in the northern Shenandoah Valley (Clarke, Frederick, Warren, Shenandoah, Page) and five cities and towns

Central Shenandoah Planning District Commission -- serving five counties in the southern Shenandoah Valley (Rockingham, Augusta and Rockbridge, along with Highland, with negligible Potomac watershed area, and Bath, with none) and five cities

Tri-County Council for Southern Maryland -- serving the three Southern Maryland counties bordering the Potomac (Charles and St. Mary's counties) and the Patuxent (Calvert)

Southern Maryland RC&D -- serving the three Southern Maryland soil and water conservation districts

Tri-County Council of Western Maryland -- serving the three westernmost counties of Garrett, Allegany and Washington

Western Maryland RC&D -- serving the three westernmost counties plus Frederick and Carroll counties

Potomac Headwaters RC&D -- serving the eight West Virginia counties of the Panhandle region

Southern Alleghenies RC&D -- serving Somerset, Bedford and Fulton counties in Pennsylvania, along with three others outside the watershed

Finding: Several Potomac watersheds already enjoy regional governmental cooperation. In addition to the Anacostia River (described in the Environmental Conditions section), these are Evitts Creek in Pennsylvania and western Maryland, the Shenandoah in the Lord Fairfax and Central Shenandoah

planning districts, the Monocacy (the Maryland portion), and the Wicomico in southern Maryland. The latter two are state-designated scenic rivers, but the Monocacy has other programs as well.

Finding: The Shenandoah as a whole is thought of as a separate river, and there are signs that river-wide cooperation is beginning in several ways: the Valley Conservation Council has been formed, with paid staff; a MORC plan for Page County's portion of the South Fork is under development (mentioned under Vision #2); and no less than three citizens' "watershed" groups are active: Friends of the North Fork, Friends of the Shenandoah, and Friends of the North River. Work on protection of Civil War battlefields in the valley also is multi-jurisdictional.

Finding: The basin has a number of regional nonprofit advocacy and information-sharing organizations, well beyond the regional government organizations enumerated elsewhere. The goals of these organizations sometimes overlap, and there are many opportunities for sharing agendas and initiating cooperative ventures.

Organizations with a Potomac River Basin focus:

Interstate Commission on the Potomac River Basin; see previous box, page 33.

Potomac Conservancy; based in Annandale, Va.; works with private property owners to protect lands along the river; works in the entire basin, with its first focus being the Potomac Gorge in Virginia's Arlington and Fairfax counties and Montgomery County, Md.

Potomac River Greenways Coalition; based in Arlington, Va., at The Conservation Fund; works in the entire basin to promote and link local greenways projects.

Potomac River Heritage Project; based in Accokeek, Md., at the Accokeek Foundation; works in the entire basin to promote and conserve the historic, cultural, and environmental resources of the river.

Potomac Watershed Network; based in Fairfax County, Va., at George Mason University; works in the entire basin to link educators in all disciplines.

Potomac Watershed Program of the Alliance for the Chesapeake Bay; based in Rockville, Md., at the ICPRB; works to build and maintain the public-private alliance that is essential for establishing policy, programs and the political will to restore the Chesapeake Bay.

Recommendation: More bi-state and regional collaboration should be encouraged on the Potomac's tributaries. This recommendation is related to an earlier recommendation for the development of watershed plans for all major tributaries in the basin.

Options include creating bi-state watershed committees of the ICPRB or independent watershed associations for all watersheds shared by Pennsylvania and Maryland, and for the Opequon Creek, shared by Virginia and West Virginia; investigating the idea of a Shenandoah River Commission.

Recommendation: Investigate the multi-objective river corridor planning on the Shenandoah River in Virginia's Page County (Lord Fairfax Planning District) with an eye toward incorporating that experience and using it to accomplish more regional planning.

Options include "peer meetings" between Shenandoah agencies and state and local river management agencies and organizations; a demonstration program on the Monocacy River designed to tie together all existing demonstration projects there.

Finding: With the Chesapeake Bay Program's new emphasis on tributaries, strong links between Potomac River-based programs and bay programs are even more important.

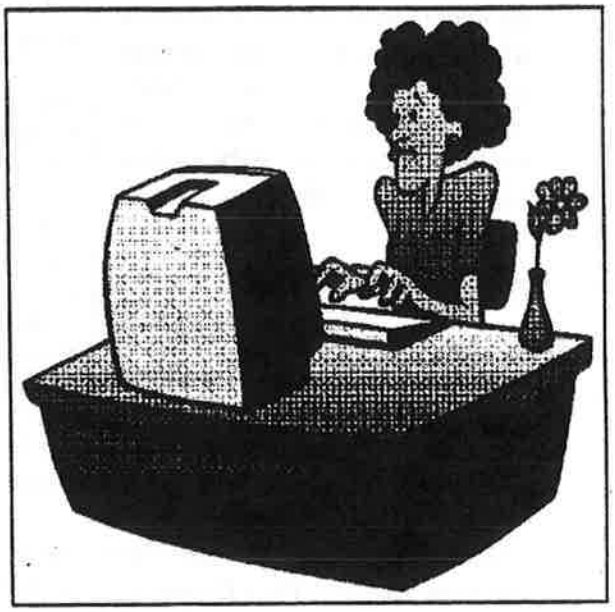
Recommendation: Programs should be developed on the Potomac that take advantage of all federal Chesapeake Bay Program cooperators: USDA, DOC, DOD, DOI, DOT and EPA.[7] The opportunity to involve the National Park Service is especially good, since NPS only recently joined the bay program and since the largest proportion of NPS-managed lands in the Chesapeake watershed lies within the Potomac basin. Use the Chesapeake Bay Program's Federal Advisory Committee and the Public Access Subcommittee to provide an opportunity for dialogue among federal land managers within the basin. The States and ICPRB should continue to carry out the Tributary Strategies and ongoing efforts to promote sub-basin nutrient reduction strategies and information sharing between water quality agencies and organizations.

Recommendation: Link West Virginia more closely with the Chesapeake Bay Program. The program is committed to working on an individual bay tributaries basis, and ten counties in West Virginia have land in the Potomac River basin. West Virginia could avail itself to additional federal funds for its water quality initiatives and the extra attention of all federal cooperators.

Options include West Virginia's joining the Chesapeake Bay Program as a full signatory to the Chesapeake Bay Agreement; using the Bay Program's Local Government Advisory Committee to facilitate cooperative initiatives; creating a link via a programmatic agreement with the Interstate Commission on the Potomac River Basin.

Finding: Transfer of information and experience from demonstration programs in various watersheds has yet to occur, either because projects have yet to be far enough along, or (more likely) because of a lack of funds and programs to accomplish the transfer.

Recommendation: Create an inventory of all current and past demonstration programs in the basin which reports on their accomplishments and the extent to which lessons learned were transferred. This might best be facilitated by the Chesapeake Bay Program or the ICPRB.



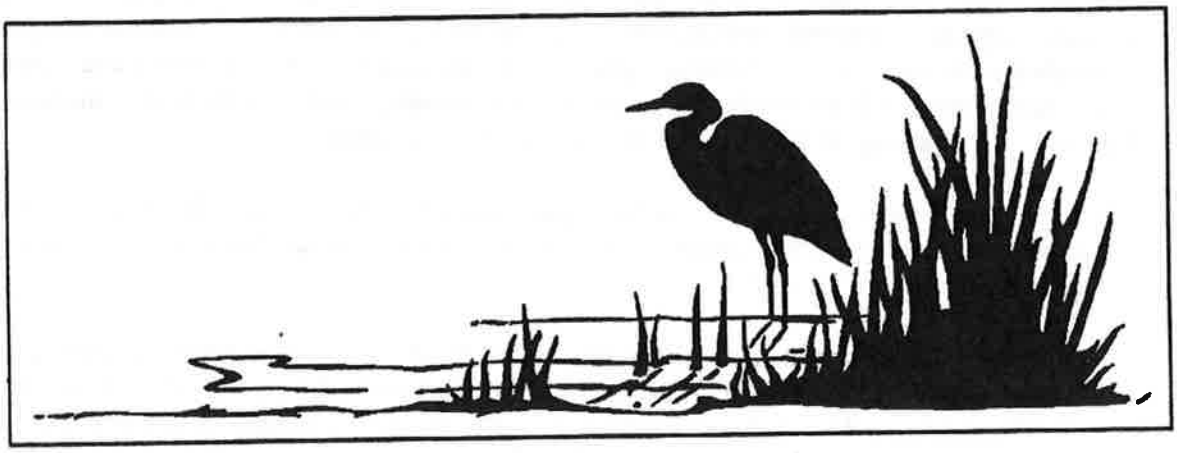
Finding: More water quality data is needed. Without at least the most basic information, planners, water quality engineers, and others are "flying blind." A lack of key information

[7]These are acronyms for the following federal departments: Department of Agriculture, Department of Commerce, Department of Defense, Department of the Interior, Department of Transportation, and the Environmental Protection Agency (independent).

could even affect the economic competitiveness of some communities. This finding correlates with widespread dissatisfaction among citizens' groups and local officials regarding what is really known about water-related resources in specific watersheds. Sometimes lack of data is the problem; sometimes the problem is accessing data in a usable form.

Finding: Stream health assessments are typically limited to chemical characteristics of the water and not structured to incorporate important ecological indicators. There are few comprehensive, up-to-date, state-of-the-art assessments of stream health in the basin, although the U.S. Geological Survey is currently studying the Potomac as part of its National Water Quality Assessment Program (NAWQA). Headwaters in particular lack study. Such information would be useful in setting basin-wide priorities for stream restoration or special protection for streams with excellent basic conditions.

Recommendation: Initiate comprehensive water-quality monitoring, with an emphasis on nutrients to support the tributary management strategy under the Chesapeake Bay Program, and generally on stream health to provide an overall picture of progress and problems. Headwaters deserve as much attention as the main stem. Utilize more citizen volunteer monitoring programs like those noted in Vision #2.



Vision #6: Community renewal *will be based both on a sound appreciation for the river's values and on new economic development strategies that take advantage of environmental and heritage assets. Our grandchildren will have plentiful, safe drinking water. They will fish, swim and boat in clean, productive waters. They will hike, bike, jog, or ride horses along a network of trails designed to provide access to city centers, natural areas, and a host of cultural and historical sites.*

Finding: Rural economic development in the basin outside the purview of the Appalachian Regional Commission lacks focus on the Potomac as a region of specific opportunities, including not only tourism and recreation, but also traditional business and industry. Recognition and promotion of the Potomac as a special place to visit and do business is minimal; this is an opportunity to shape a positive message around the Potomac region's quality of life.

Finding: Heritage tourism is a growing interest in the basin. In addition, as the Potomac becomes cleaner, more and more people want to use it, as is evidenced by the many fishing, rafting and canoeing outfitters now plying their trades in Potomac environments. In the Shenandoah Valley, the National Park Service, among others, is advising groups about tourism planning. Tourism in general is a strong interest in the Northern Neck thanks to a new state program. The Eastern Panhandle of West Virginia has had a first phase analysis that showed it to be the state's top priority for heritage projects, which would support added tourism. Both Cumberland and Hancock in Maryland have launched aggressive economic revitalization programs relying on tourism. The state of Maryland has established a heritage tourism marketing plan for all regions in the state. Despite some cooperation on tourism promotion between Maryland and Virginia centering on proximity to the nation's capital, however, no broad regional focus on tourism exists in the watershed.

Recommendation: Create a Potomac region tourism promotion and development initiative, enlisting tourism promotion programs in all four states, the Appalachian Regional Commission, and the District of Columbia.

Options include packaging special tours and cross-marketing attractions, such as "church supper tours" (southern Maryland), Civil War tours (everywhere), railroaders' tours (Cumberland, Martinsburg, elsewhere), etc.; extending Virginia's tourism accreditation program into other states; extending Maryland's approach to its heritage tourism marketing strategy into other states; creating a "Potomac River calendar" for promotion to basin residents; create a Potomac tourism brochure.

Finding: Balancing economic growth, community health and environmental quality is a growing concern of residents in the Potomac Basin. Both the Visions Project's questionnaire and many of its focus groups expressed strong support for preservation of open space; focus groups further expressed concerns about the impacts of sprawl on community character and environmental quality This suggests that any economic development initiatives devoted to the Potomac basin should explicitly seek and support projects that will enhance the current quality of life and environmental quality of the region as a whole.

Recommendation: Encourage local governments and businesses to recognize that a clean environment is the basis to a sustainable economy. Environmental restoration, both physical and

cultural, can be a major economic development tool. Environmental restoration can serve as a major new "industry" within the river basin, providing training and skilled jobs which are in demand now and will be in the future.

> ***Options include*** having governments and businesses join together to develop training programs in such areas as rural revitalization, urban renewal, county and regional planning, habitat restoration, the prevention and control of polluted runoff, and other environmental careers which will be necessary in the Potomac River basin and elsewhere in the country.

Recommendation: "Put geography on the map" by creating a network of scenic byways, trails, greenways, and interpretive sites throughout the Potomac River basin.

Options include creating basin-wide physical linkages. At least one proposal exists for creating a national recreational trail in the basin, a trail in southern Maryland modelled after the recently established Beach to Bay Indian Trail on the Eastern Shore. Other areas, perhaps those identified in historical and cultural resources surveys and a basin-wide interpretive plan, as mentioned above, could be similarly linked. Linkages through scenic byways, designated hiking, biking, and canoe trails, greenways, a basin-wide network of signs, hospitality elements (bed & breakfasts, hotels, motels, etc.) and other methods could form the basis for encouraging tourism. These would help both residents looking for close-to-home vacations as well as visitors, such as those coming to the Washington metropolitan area, to explore the entire Potomac basin, with economic benefits spread into smaller towns and sites in the region.

Options include creating a signage program; taking advantage of the new scenic byways designation program under the 1990 federal highway bill; getting the Potomac Heritage National Scenic Trail "onto the ground"; supporting the Potomac River Greenways Coalition; publishing a map and brochure--perhaps by enlisting one state to create a basin-wide map; working with state tourism agencies and visitors centers to promote the entire network, including identifying driving routes on state maps, regional publications or brochures describing attractions; supporting more downtown revitalization, Main Street Programs, etc.

Recommendation: Support Heritage Area planning. The Accokeek Foundation's Potomac River Heritage Project is a river-wide approach to heritage issues and coordination of a wide variety of government and private programs that enhance the river's values. The program's dual emphasis on economic betterment and environmental enhancement, together with education and cooperative management initiatives, can be a "flagship" for the marriage of economic and environmental concerns.

TOWARD A SHARED AGENDA FOR THE POTOMAC'S FUTURE

The Project Review Team learned a great deal from this challenging effort and the hard work that has gone into meeting its project goals, and we are eager to continue to move forward. Among the lessons we learned are the following:

- *We learned that the Potomac River need not divide us one from the other, state from state, town from town, north form south. Rather it can and should be the unifying theme that brings us together as a region and provides a common geographic bond for our communities and our future.*

- *We learned that "the experts" - historians and hydrologists, anthropologists, philosophers, artists, engineers, biologists, financiers, river pilots, craftsmen, farmers, fishermen, miners, boaters and birders - on the River are numerous, and they are willing to give freely of their knowledge to benefit their communities.*

- *We learned that people who live in a hundred towns, cities, suburbs, farms, and villages share a stake in this River. They swim, fish and paddle in its currents. They hunt along its banks. They enjoy its parks and recreation areas. They drink its water. And they care what happens to it.*

- *Perhaps the most impressive discovery of this project was the extent of natural and cultural conservation activates already taking place in the Potomac basin. Independently, there is much going on, so much so that pulling together a coherent picture of the wide variety of issues, programs, and participants described in this report was surprisingly difficult. And yet, the Potomac is so special and so near the edge of endangerment--amid a welter of resources that could make all the difference--that it is all the more imperative to begin integrating the efforts of the stakeholders.*

The effort reflected in this report was only a first step. While much was uncovered, this report only provides a snapshot. The Potomac Basin not only has a large geographic area, it also has culturally distinctive regions and many jurisdictions, therefore we could not describe all that we found. In addition, not every bush could be beaten nor every rock overturned by a small group working over a relatively short period of time. Undoubtedly some programs and organizations were inadvertently missed. We send our apologies to those we missed and ask that you please contact any any/or all of us if you would like to work together on this magnificent river.

The picture continually changes. New citizen's groups are forming all the time. Answering the question "What can be done to assist local stream stewardship efforts?" requires continuing dialogue. Yet it is precisely the diversity of existing programs in combination with a basin-wide interest that is the good news and the river's potential strength. It is hoped that this report will serve as a stepping-stone which will generate attention, reaction, discussion and action useful to this process.

The number of recommendations in this report may at first seem overwhelming, yet it became clear through this review that the many organizations working in the Potomac are capable of

undertaking most of them. Certainly no single organization is capable of carrying out all of them. It is time for all parties in the basin who can contribute to the renewal of the Potomac to begin a process of sharing information, agendas, and even resources. "One for all and all for one" may be too much to ask in the beginning, but it should be a goal. In creating conditions for mutual support, it should ultimately be possible to surpass current resources and achievements.

Among the Project Review Team's next steps will be to make sure the contents of this report reach a larger audience, and to continue to serve as a network focussed on supporting locally led conservation efforts. To this end the Team is working to implement the information clearinghouse on stream conservation cited in the report, using the directory produced as a part of the Visions Project as a building block, so that there will be one number to call to find out more about the Potomac River (1-800-9-POTOMAC). Perhaps the single most important action the Team will take is to invite basin leaders and stewards to meet and discuss the findings of this report and to begin laying out the next steps, aiming toward a **Congress for the Potomac** to be held in 1996. Proposed by a number of Project Review Team members, such a Congress would be an appropriate forum to discuss this report, refine roles, and develop tasks and structure. This report has outlined what might be done, yet it has purposefully left the choices of who might do most of them open and on the table. Whatever the chosen courses, an openness to new ideas and new alliances will continue to be the key to success.

Canoeing in Piscataway Creek. **Alice Ferguson Foundation**

Appendix I

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

Suite 300
6110 Executive Boulevard
Rockville, Md. 20852-3903
(301) 984-1908
FAX (301) 984-5841

THE POTOMAC RIVER WATERSHED VISIONS PROJECT

MEMORANDUM OF AGREEMENT

Among:

Federal, state, county, regional, local, public and private sector agencies and organizations interested in watershed management for the Potomac River basin.

Background:

In the Fiscal Year 1993 Federal Appropriations Report the U. S. Environmental Protection Agency (EPA) was directed to develop and implement a long-range strategy to protect and enhance the water quality and living resources of the Potomac River. Initiated through the leadership of Senator Paul Sarbanes of Maryland, the Potomac River Watershed Vision Project is intended to result in a report that will identify a framework and a process for cooperatively addressing natural, historic, cultural, habitat, recreational and living resource problems and priorities.

The project is a cooperative effort between public and private agencies and organizations within the Potomac River watershed in Maryland, Virginia, Pennsylvania, West Virginia and the District of Columbia and is led by the Interstate Commission on the Potomac River Basin (ICPRB). The effort will be complementary to the Chesapeake Bay Program's nutrient reduction strategy efforts that are underway in the Potomac River basin and throughout the Chesapeake Bay watershed.

Funds for this project were provided to EPA's Chesapeake Bay Program Office by Congress for this purpose. Additional financial and technical assistance is being provided to the project by co-sponsors. A draft final report is scheduled to be completed in March 1994.

Goals:

The goals of the Potomac River Watershed Visions Project are:

1. To recognize, promote, conserve, restore and revitalize the Potomac River Watershed as a region of unparalleled natural, cultural, historic, recreational, habitat and living resource significance.

2. To cooperate with and empower public and private agencies and organizations to increase their ability to prepare and implement sub-watershed management plans for the protection of water quality, living resources and other related values and functions.

Anticipated Results:

The project will result in the preparation of a "visions" report that will include:

- Acknowledgement of the current uses of the river such as transportation, commercial and recreational fishing, boating, water withdrawals and pollution discharges.

- Descriptions of the significant resources values and functions of the basin by major sub-watersheds -- natural, cultural, physical, historic living recreational, habitat and other related values which have been recognized as significant by public and private organizations, existing literature, project surveys and meetings;

- Descriptions of significant problems, issues or matters of concern related to water quality, living resources, watershed protection, and other relative features in each major sub-watershed.

- Recommendations and options for the public and private sectors which could assist them in constructing and achieving community driven and community supported "visions" throughout the basin.

The report will incorporate ideas, information and attitudes collected from project meetings, interviews and agency/organization input.

In addition, a directory describing locally-based, watershed oriented water quality and living resources enhancement projects that are underway, and technical and financial assistance programs that are being used or are available to be used in the basin, will be prepared.

The ICPRB, in cooperation with co-sponsors and others, will conduct eight to ten focus-group workshops within the Potomac River watershed. Additional meetings with local officials and locally based groups will be conducted by ICPRB staff and other cooperators. In addition, a media/public information effort, aimed at informing and educating the public about the Potomac River basin's resources and the project, will be conducted by ICPRB and other cooperators.

Process:

The project will be completed cooperatively by the agencies and organizations co-sponsoring the effort. A co-authored document will be produced by staff from the ICPRB with assistance from the other parties to this agreement. The process which has been designed to carry out this project is intended to give existing agencies and organizations an opportunity to participate in all aspects of this effort.

Each of the project cooperators will assign a staff person to represent the agency or organization on a workgroup. The purpose of the workgroup is to provide advise, direction and technical guidance to the ICPRB in the review of the project proposal, method and recommendations. Workgroup members will also serve as a liaison and facilitator within their own organization to seek appropriate advise, reviews and approvals and to provide information related to the project and their organization. Members of the workgroup will be available to participate in and assist with the focus group workshops to be held as part of this effort.

Project cooperators will have the opportunity, and are expected, to provide input, review and respond to the draft final "vision" report on behalf of the agency or organization they represent prior to its public release and completion. Formal endorsement of the final document is not part of this agreement but will be through a separate letter of resolution which will be circulated in 1994.

This agreement is effective upon signature of the parties. Its terms may be amended or renegotiated at any time at the initiative of any of the signatories. The agreement may be terminated or extended by mutual agreement, or by any signatory providing 60 days notice to the other parties.

Herbert M. Sachs, Executive Director
Interstate Commission on the Potomac River Basin

U.S. Environmental Protection Agency, Chesapeake Bay Program Office
Bill Matuszeski, Director

Delmer Schell, Potomac Headwaters Region Resource
Conservation & Development, Inc.

David G. Burke, Director of Greenways & Resource Planning
Department of Natural Resources, Maryland

William H. Strider, Executive Director
Central Shenandoah Planning District Commission

Gary V. Hodge, Executive Director
Tri-County Council for Southern Maryland

Ferial S. Bishop, Administrator, Environmental Regulation Administration
Department of Consumer and Regulatory Affairs, District of Columbia

Wilton C. Corkern, Executive Vice President
The Accokeek Foundation

Betty Hagar Francis, Director of Public Works
District of Columbia

R. Keith Bull, Executive Director
Chesapeake Bay Local Assistance Department, Virginia

Martha T. Mills, Alice Ferguson Foundation

John B. Johnson, Chairman
Fulton County Conservation District, Pennsylvania

Thomas J. Christoffel, Executive Director
Lord Fairfax Planning District Commission, Virginia

Teresa Moore, Maryland Greenways Commission

Appendix II

PUBLIC AWARENESS OF CONSERVATION VALUES AND ISSUES IN THE POTOMAC BASIN - A READERSHIP SURVEY

In August of 1993, the Visions Project mailed a questionnaire to 14,613 subscribers to the ICPRB's *Potomac Basin Reporter* and 400 subscribers of the Potomac Headwaters R C & D Newsletter. 225 readers responded. In general, respondents were asked to state where they live in the basin and to name the streams closest to their homes (their "environmental addresses"); to describe problems and improvements they see in their watersheds; to reflect on the value they place on a wide variety of future goals, from open space protection to commercial development; how frequently they engage in recreational activities, and what kinds; to describe the first place they would take a visitor; and to name environmental projects that should be investigated by the Visions Project (A copy of the questionnaire is attached at the end of this Appendix).

"If I had friends who were lifelong residents of Omaha, where would I take them when they come to visit the Potomac region?"

This open-ended question elicited a broad range both of locales and types of sites (e.g., cultural, historic, scenic). Most frequently mentioned were the District of Columbia, (and in particular the Mall), the C&O Canal and Harpers Ferry. Here were a few other favorite spots:

- o Great Falls
- o My home / backyard (to see River, Creek, Mountain, etc.)
- o Mt. Vernon
- o Civil War Battlefields
- o Seneca
- o Dolly Sods

The audience consisted of people with enough interest in the Potomac to be included on these mailing lists and to return a completed survey. In other words, this was not a random sample opinion poll, but a way to obtain input from an informed and involved constituency. Geographic distribution of the respondents (Figure 1) closely paralleled that of the *Reporter* mailing list, with the interesting exceptions of the District of Columbia and West Virginia. Both had a slightly higher proportion of respondents than in the mailing list.

Although every survey, no matter how carefully designed, necessarily has a point of view, the Visions Project questionnaire sought to gain a wide variety of information without preconceived notions of what that information might be. Several of the questions were deliberately designed to be open-ended or non-restrictive (i.e., "What places, activities, and values make your area special or unique?") to allow flexible responses. This strategy was successful, although it is hard to summarize such highly individual responses in a concise report. Still, the diversity of responses bears out the early determination of the project review team that a focus on empowering locally led conservation programs which can respond flexibly to locally identified needs is more appropriate than an attempt to develop a unified plan for the entire watershed.

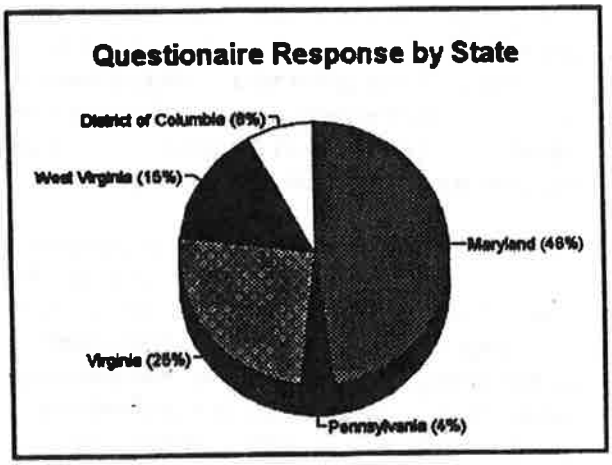


Figure 1

In terms of what people value about the watershed, responses varied widely, yet it is clear that the respondents do place great value on the Potomac's resources. For example:

- "the beautiful natural scenery and the excellent hunting in the area"
- "blend of parklands merging into urban and historic areas"
- "I enjoy pointing out the little known sites and local histories that only local people are aware of"
- "proximity of whitewater rapids and D. C. museums"
- "1. Bass fishing 2. Bass fishing 3. etc."
- "W&OD [Washington & Old Dominion] Bike Trail, tolerance, privacy"
- "...has maintained its quiet, rural, agricultural character and values"
- "Washington and its beauty, monumental structures surrounded by the Potomac"
- "Green! lots of birds"

As might be expected, respondents drawn from an ICPRB audience were fairly observant of environmental trends and issues, both in their "backyards" and across the basin. Observed improvements to individual streams included generally improved water quality (21 responses); improved fishing, fish populations, or habitats (19); and stream cleanups by volunteers and local governments (15). More respondents agreed on certain kinds of bad news: problems with runoff, erosion, or stormwater (36); uncontrolled development or development impacts (29); and debris, trash, or litter (24). Respondents observed very specific examples of the problems ("Dam #4 fluctuates the level far too much in short time frame"; "No SAV the last two years"; "Road building destroyed 6+ acres of wetlands") as well as reporting general conditions or trends ("Reduced numbers of crawfish and minnows, pools of oil; "The brooks with amphibians and other wildlife no longer exist"; "Much more urban runoff due to development, stream not as deep, shallow and wider".)

Basinwide, respondents raised such issues as the need for greater control of agricultural runoff; more grass-roots involvement; more management of development; better planning; and recreational needs and impacts.

On recreation in the watershed, more than 75 percent of respondents engaged in various activities monthly (40 percent) or weekly (37 percent). (Figure 2) When asked to complete the sentence, "I would visit more often if....," nearly 25 percent said that time was their limiting factor. Others commented that they would participate more if there were better access, more trails, easier transportation (less congestion, more public transit) or a greater sense of security. Respondents who mentioned security were both urban and rural, and several people even added crime prevention to the list of future goals and gave it a "most significant" ranking.

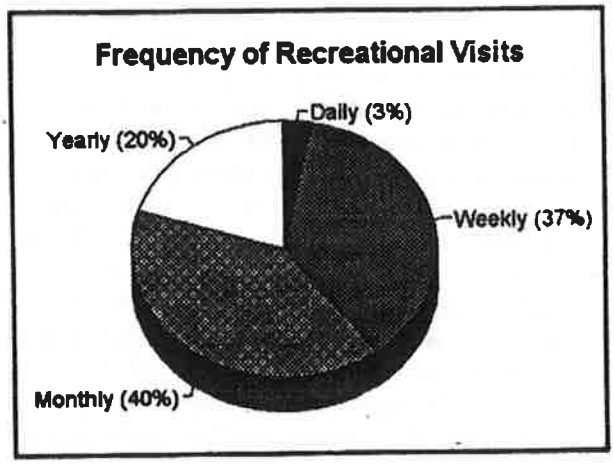


Figure 2

Definite trends appeared among responses to our request to rate a series of goals for the future. Goals that were rated most significant were protecting open spaces, protecting stream buffers, having healthy, productive forests, and preserving rural character. Increased residential development and developing new industry/manufacturing were rated least significant. These trends did not differ appreciably from state to state. While such unanimity might not hold true in a large, random survey, it still documents the degree of support available from this "brigade"

of volunteer advisors for environmental and conservation initiatives in the basin. (Figure 3) Other goals that fell between "most" and "least" included tourism, strong local/regional economy, protecting landowners' rights, increased retail/service businesses, flood prevention, continued agriculture/farming, increased recreational opportunities, enhancement of historical resources, improving access to public resources, enhancement of cultural resources, urban revitalization, improved infrastructure. Interestingly, only 80 respondents rated enhancement of historical resources as most significant, and 39 for cultural resources, yet many of the sites and values mentioned in the open-ended questions were historic or cultural in nature.

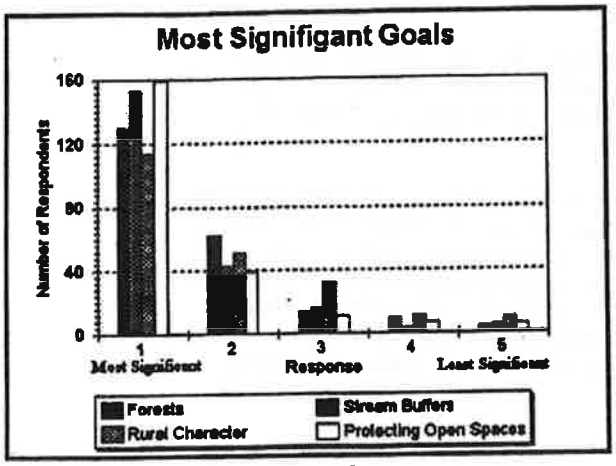


Figure 3

Taking all these responses together, the questionnaire serves two functions for the Visions Project. First, it identified local problems (e.g., observed declines in living resources or increasing damage from erosion), valuable local resources (e.g., returning SAV, watershed groups, interested individuals), and local needs (e.g. links between trail systems, access via mass transit) from many different areas of the watershed. This information provides a valuable starting place for follow-up work on the local level. Follow-up efforts could include workshops, field trips, demonstration projects, and more detailed information-gathering.

Second, the questionnaire provides a snapshot "reality check" for the universe of issues and values which are relevant to locally-driven conservation efforts. In answering a series of open-ended questions, respondents defined these issues and values for themselves. These responses document that (at least among this particular informed constituency) people really do care about such hard-to-quantify concepts as "natural beauty" and "sense of place." This also allowed issues (such as crime and security) to surface in ways which were not predicted. If individuals and organizations are to be engaged in consensus building on Visions for the Potomac, and localities and citizens are to be empowered to achieve effective stewardship, our understanding of the full range of their concerns needs to be continually enriched.

POTOMAC RIVER WATERSHED: WHAT'S YOUR VISION FOR THE FUTURE?

The Potomac River and its surrounding *watershed*—the 14,670 square miles of land and waterways in four states and the District of Columbia that drain into the Potomac—have made a significant comeback since Lyndon Johnson called the river "a national disgrace" in the 1960s. The renewed health of the Potomac is one of this country's greatest success stories.

Ongoing progress will depend on continued interest and support from the more than four-million people who call the Potomac watershed home. Achieving environmental and economic health has never been more critical. **YOU CAN HELP SHAPE THE FUTURE OF THE POTOMAC RIVER WATERSHED.**

Through the **Potomac Watershed Visions Project,** representatives from federal, state, and local public agencies, conservation and other non-profit organizations, private companies, and local communities are working to develop "visions" for the natural and built environments in every stream valley in the Potomac River watershed in the future. **Please use the following survey to help us better understand what's important to you about the Potomac River watershed. Please tear out this page, fold in thirds, and mail the completed survey by SEPTEMBER 15, 1993. The first 200 people to return this survey will receive a handsome two-sided Metropolitan Potomac River Poster as a thank-you gift!**

1. Name the creek, stream, or river nearest to your home.

_____

2. How has the creek, stream, or river mentioned in Question 1, and its surrounding watershed, changed in the last 5-10 years?

For the better (please give an example) _____

_____

For the worse (please give an example) _____

_____

3. How often do you enjoy recreational activities in your watershed?
___once or twice a year ___once or twice a month ___once or twice a week. I'd go more often if

_____

_____

4. Old friends from Omaha are planning to spend a couple of days with you, and want to see the area.
(A) Where would you take them? _____

(B) What places, activities, and values make your area special or unique?

_____

_____

5. Imagine that all of your grandchildren and great-grandchildren will live in the same area where you now live. What kind of place would you like them to inherit? Please indicate the significance (with 1 being most significant and 5 being least significant) of the following in order to achieve your vision. Please circle a response for each item.

Most Significant				Least Significant	
1	2	3	4	5	Protection of Open Spaces
1	2	3	4	5	Tourism
1	2	3	4	5	Strong Local/Regional Economy
1	2	3	4	5	Protecting Landowners' Rights
1	2	3	4	5	Increased Retail/Service Businesses
1	2	3	4	5	Flood Prevention
1	2	3	4	5	New Industry/Manufacturing
1	2	3	4	5	Continued Agriculture/Farming
1	2	3	4	5	Increased Recreational Opportunities
1	2	3	4	5	Increased Residential Development
1	2	3	4	5	Enhancement of Historical Resources
1	2	3	4	5	Protection of Stream Buffers

SEE OTHER SIDE

1 2 3 4 5 Preserving Rural Character
1 2 3 4 5 Improving Access to Public Resources
1 2 3 4 5 Enhancement of Cultural Resources (for example, the arts, community activities)
1 2 3 4 5 Urban Revitalization
1 2 3 4 5 Healthy, Productive Forests
1 2 3 4 5 Improved Infrastructure (for example; schools; transportation)
1 2 3 4 5 Other _____

6. We also are interested in learning about local efforts that could improve the Potomac River and its stream valleys. Please provide the name(s) of any project(s) or group(s) you're familiar with. If you can, please list a contact for the project or group.

A. _____

B. _____

C. _____

7. What is your zip code?_____

8. (Optional) Please tell us a little about yourself.
How long have you lived there? _____ What is your profession? _____
_____ What is your age?_____

9. (Optional) If you are interested in future contact regarding these issues, please fill in your name and address (This is not a required part of this survey).

Name: _____
Address: _____
_____
State: _____ZIP _____

10. Please give us any comments you have on this topic.

Place Stamp Here

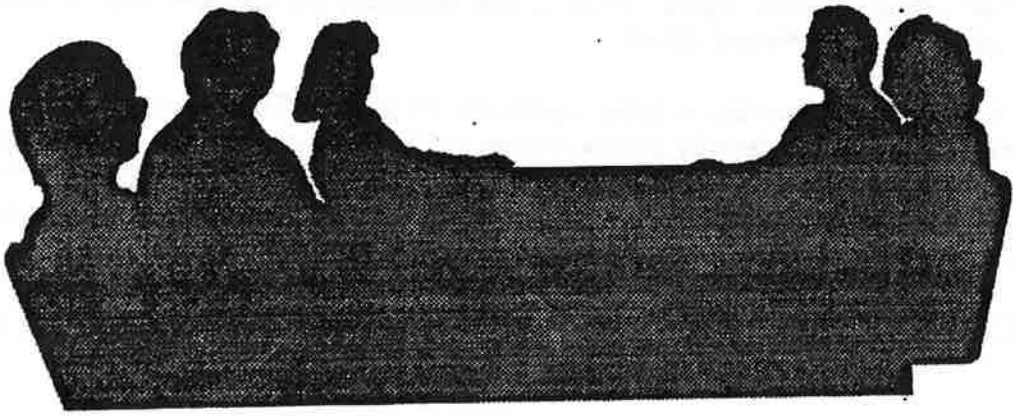
Potomac Visions Project/ICPRB
Suite 300, 6110 Executive BLVD.
Rockville, MD 20852

Appendix III

POTOMAC RIVER WATERSHED VISIONS PROJECT

Input from Focus Meetings Held August-October 1993

Prepared by:
Alliance for the
Chesapeake Bay, Inc.



THE FOCUS GROUP PROCESS

Under the coordination of the Alliance for the Chesapeake Bay, ten regional focus-group meetings were conducted in August, September, and October of 1993. These evening brainstorming meetings were held at locations throughout the basin, corresponding roughly to major sub-watershed areas (see map on page 13 for meeting locations.)

Who Participated - The people invited to participate either represented active stakeholder groups or were community leaders. The goal was to convene broad-based groups which could provide a diversity of viewpoints and local conservation experience, while still keeping each group small enough to allow for discussion among participants. Participants were drawn from volunteer groups, local government, business, nonprofit organizations, and federal facilities. They brought expertise in the following issue areas:

- o Agriculture / rural preservation
- o Forestry
- o Mining
- o Environmental regulation and preservation
- o Recreation
- o Planning / growth management
- o Historic / cultural preservation
- o Urban revitalization
- o Tourism / economic development
- o Education

The invitation process identified a larger network of interested people than could be accommodated within the ten scheduled meetings. These people made us aware of local projects and issues, helped us identify participants, and expressed an interest in ongoing involvement with the project. A total of 124 people participated in the focus groups. A Directory of both participants and interested parties is included in this report.

Meeting Format and Results - Sessions began with an overview of cleanup progress in the Potomac basin. A list of conservation projects active (or recently completed) locally was compiled. Participants then listed successes and problems they had encountered with conservation efforts in their region. Finally, they suggested and discussed ways to facilitate the success of future conservation efforts.

Although the sessions provided a good opportunity to air specific local concerns and issues, it was remarkable how consistently certain themes and issues came up from group to group. A further benefit of the focus group process was networking--the meetings provided an opportunity for people to meet their "counterparts" across state lines and for groups often at odds to explore areas of agreement.

To facilitate review of the large volume of information generated by the focus group meetings,

it was decided to concentrate on those themes and issues which surfaced in at least several of the meetings. First, the input was grouped into four broad topic areas: *environmental education*; *community involvement and empowerment; growth management and government's role*; and *resource-related issues*. Within each topic area, excerpted comments have been grouped to show the themes and issues we heard most often. Explanatory text is in italics, and the comment's meeting source is indicated. Where comments were almost identical, they were "collapsed" into a single paraphrased item, but all other comments are directly transcribed from the meeting flipcharts.

INPUT RE: ENVIRONMENTAL EDUCATION

Below are excerpted comments, arranged to show the major points we heard. All groups stressed that improved educational efforts (both within the schools and the community at large) are critical to preserving / restoring resources. Even participants drawn from organizations with successful, innovative education programs felt much, much, more needs to be done. Almost half the groups suggested more effort targeted to specific constituencies (e.g. farmers, developers) Moreover, all of the Focus groups made suggestions for priority education and outreach topics (or messages).

TOPICS / MESSAGES

Results & Improvements; Monitoring - *Many participants expressed dissatisfaction with what's known about water quality in their area (see Input Re: Resource-Related Issues). Part of that concern has to do with the monitoring itself, part with data handling, and part with communication.* There is no positive feedback; we don't know what improvements have been achieved by efforts to date [*King George*]; Emphasize that improvements have resulted from ongoing efforts [*King George*]; Demonstrate that BMPs are working [*King George*]; Get information on water quality out to the public [*Harrisonburg*]; Distribute periodic easy-to-grasp updates (like the Bay Barometer or Seattle Indicators) on the state of the Potomac [*DC, Harrisonburg*]; Communicate how monitoring information (especially citizens') is used [*King George*].

Nutrients - *Many participants also expressed skepticism regarding the numbers being used in the tributary strategy process (see Input Re: Resource-Related Issues). This suggests a need to for additional communication and outreach to prepare for strategy implementation.* Provide feedback on results of conservation efforts; demonstrate that BMPs are working [*King George*]; Lack of education/understanding of cost-share programs [*Winchester*]; Not all farmers know basics (nutrient management, other BMPs) either [*Winchester*]; Virginians need to know that Maryland is doing its part for the Potomac [*King George*].

Economic Issues - *Some comments suggested the need for outreach to economic interests.* Demonstrate the economic benefit of conservation (especially to farmers and developers) [*Middleburg, Winchester, Cumberland*]; Demonstrate how environment and economy are linked

and use that program as the centerpiece for further efforts [*Cumberland*]; *Some groups noted that conservation projects may fail because of feared negative economic impacts.* Perceived loss of landowner rights in greenway development [*Middleburg*]; Lack of education/understanding of scenic river program (i.e. perceived economic loss) [*Winchester*]; *Other groups spoke to public attitudes that make conservation investments difficult.* The rationale for stormwater control is not well understood by public; but the short-term costs of control are obvious [*Winchester*]; Public needs to understand that tourism benefits are long term; appreciate different facets of linked efforts (e.g. need both environmental and economic benefits, can't promote one at expense of other) [*Cumberland*].

Growth & Development - *Some comments suggested the need for outreach to professional audiences.* The American Planning Association could help get eco-information out to planners [*Middleburg*]; The Amer. Assoc. of State Highway and Transportation Officials (AASHTO) could be way to get at regional practices that cause problems [*Middleburg*]; Small-scale developers may not actually know most basic requirements [*Winchester*]; *A range of public attitudes was also reported.* The public doesn't understand the long-term, cumulative impacts of development [*Winchester*]; Education program *are* having an impact, there is growing awareness and concern for quality of life. Thus there is the beginning of a constituency for growth management. This means a new climate for local officials. This change has become discernable in about the last 10 years; more support for preventing problems through land-use planning / planned development [*Petersburg*].

Stewardship - *Many groups suggested education is needed to promote stewardship.* Help landowners understand their impact on the watershed [*King George*]; Educate the community that with privileges also come responsibilities [*King George*]; There is a lack of community understanding of our shared resource and the off-site impacts of our actions [*Frederick, La Plata*]; Educate people to cleanup the shore [*DC*]; There is little watershed awareness, especially around smaller creeks; most people still don't know their "ecological address" [*Frederick*]; *One suggested tactic was to focus on how the resource impacts people.* People don't know how Bay and River projects *affect them* and that they *can* make a difference. (to remedy this, they need to hear the information in a relevent way. for example, explain to business majors how these issues can affect company viability and profits.)[*Chambersburg*]; Communicate value of conservation projects (including educational value) [*Harrisonburg*]; There should be public understanding that threats to human populations *are* environmental threats (for example, the people who fish for food in areas with fish consumption advisories) [*DC*].

Local Topics -

We need education regarding new requirements like the Carroll County septic rules [*Frederick*]; We need a larger educational push in the Monocacy for common ground between constituencies; develop some win-win alternatives [*Frederick*]; The general public is not aware of the potential benefits of recycling wastewater [*Chambersburg*]; Much of the shared MD-VA history centered on the River has been forgotten, but it should not be lost [*La Plata*]; Use river signs to create identity and interest in the watershed [*DC*].

AUDIENCES / CONSTITUENCIES

Professional - Invest in management education (techniques of scientific management, what are the impacts and options, where to get information) , it pays off in the long run [*Petersburg*]; Establish a professional education program on the benefits of management for conservation and the importance of the resources [*Petersburg*]; We've still got a long way to go in forestry education [*Petersburg*]; The American Planning Association could help get eco-information out to planners [*Middleburg*]; The Amer. Assoc. of State Highway and Transportation Officials (AASHTO) could be way to get at regional practices that cause problems [*Middleburg*]; Farmers are turned off by the state and federal agencies' generic approach to outreach [*Frederick*].

Community - Citizens have to know about programs {like historic preservation} and buy into them or they won't work [*King George*]; Enlist key landowners to be pioneers and peer educators [*Middleburg*]; Rocky Gap and other large festivals are good education opportunities [*Cumberland*]; Develop public support by providing factual information and organizing field trips [*Harrisonburg*]; Identify demonstration projects and set up field trips [*Harrisonburg*]; Create a mandatory riparian buffer with access and educational components [*Frederick*]; Place graphic educational messages and real-world examples in unexpected places (for example, paint a bathroom wall to illustrate wastewater treatment.) [*Chambersburg*].

School - *Many comments stressed the importance of targeting young people with field experiences* Use hands-on activities for real impact; for example, The Backyard classroom program in the State Parks works that way [*King George*]; Involve students; for example, the State, VIMS, and schools (usually targeting Science Department) all tracking different water quality indicators for Pope's Creek to together build a clearer picture of the Creek's health than any entity could alone [*King George*]; Target youth with hands-on programs[*Middleburg, Chambersburg*]; We hope to see boating (both for aquatic environmental education and tour groups) in Cumberland [*Cumberland*]; Student service requirements and other volunteer programs are a good opportunity [*Cumberland, Frederick*]; **Start involvement young**, for example with making presentations to third grade classes [*Frederick*]; Hold an Envirothon for each tributary [*Frederick*]; Use experiential education--get them in the River and they'll love it [*Winchester*].

Other comments focused on the need for (and difficulty of) institutionalizing environmental education We need effective, watershed-related environmental education underway throughout the school system [*Middleburg*]; We need to involve *all* facets of the school system in evironmental education *as a system* [*Middleburg*]; Leadership from above is needed for successful environmental education; in particular someone has to (1) determine what's most important (relevant) to the local area; (2) support implementation of environmental ed programs; and (3) validate in-place programs [*Frederick*]; PA's environmental outcome requirement can push for localized environmental education, but there needs to be support for the local teacher [*Frederick*]; It is difficult to effectively interface with schools [*Harrisonburg*]; Institute a

program where environmental agencies and firms adopt-a-school [*DC*].

Several groups also spoke to Teachers' needs Teachers need help to know what's available in environmental education resources [*Middleburg*]; Contact teachers at the appropriate time (i.e. before the school year starts) if you want to influence their curricula. Teachers have much less flexibility (both of time and resources) once lesson plans are done [*DC*]; Teachers don't have time to utilize all the materials available to them [*DC*]; More resources with the approach of the Bay Team Teachers or CBF's field trip program (prepackaged trips with supporting resources) [*DC*]; A reliable "one-stop shopping" source for educators; perhaps a dedicated BBS [*DC*].

INPUT RE: COMMUNITY INVOLVEMENT AND EMPOWERMENT

Common themes were access to information / decisionmaking, building local capabilities, and grassroots organizing.

ACCESS TO INFORMATION / DECISIONMAKING

More than half of the groups expressed dissatisfaction with citizens' access to the decision-making process. The goal should be early, substantive public involvement in decisionmaking [Chambersburg]; We (citizens and local government) have the feeling that this region is no longer a valued "player" from the statewide or watershedwide perspective [*Cumberland*].

One of the problems cited was the lack of structures for ongoing involvement and accountability. Develop mechanisms of public accountability for environmental agencies; make agencies responsive to citizen support / pressure and accountable for how funds are spent [*DC*]; Create a Citizens Advisory Committee in each watershed of Hollman Creek [*Harrisonburg*]; There is no ongoing mechanism for citizen access to local decisionmaking (i.e. a permanent advisory committee or watershed watch group or clearinghouse). Thus, citizens who have worked hard on projects like scenic river designation can be out of the loop when critical decisions are made later on. [*La Plata*]; We need to develop a mechanism to ensure implementation of the scenic river plan; as it stands it is only a plan with no "teeth". [*La Plata*]; As part of the Page County MORC study, the locality appointed a river issues committee. This process could serve as a model for other areas [*Winchester.*]

Information is fundamental to involvement, yet many groups said it takes an inordinate amount of time to collect basic information and it is difficult to coordinate with other groups. Encourage your locality to make information and notices easily accessable to the public (for example by producing a regular newsletter listing all upcoming hearings, comment deadlines, etc.) [*Chambersburg*]; Assign a Bay Program liaison or ombudsman to the region [*Cumberland*]; We

need a comprehensive weekly environmental news digest that reports on issues, meetings, and projects in the metropolitan area (i.e. not just a static directory or calendar) [*DC*]; There is confusion over jurisdictions; who all the players are, need to create a sustainable Environmental Center for the DC Metro area. The center would provide links to other groups; it would be an ongoing clearinghouse for citizens [*DC*]; People don't know what to do or where to go (to get involved). Provide a clearinghouse function for those who want to get involved; it's the function that's important, not whether there is a local "clearinghouse office" [*King George*]; Establish a longterm watchdog mechanism (perhaps a riverkeeper) that will serve to simplify goal formulation and implementation, and function as a "rumor control" clearinghouse [*La Plata*]; Create a clearinghouse to address "Who do I call, where can I get help?" [[*Harrisonburg, Petersburg*].

GRASSROOTS ORGANIZING AND SUPPORT

The support of grassroots organizing was also a common topic. However, the type of "care and feeding" envisioned varied just as the watershed protection organizations can be said to be at different "life stages" around the watershed.

In some areas, basic needs were discussed. To be successful, you need to look for "seed money" [*Chambersburg*]; Recognize that local resources (both staff and office equipment) are extremely limited, but student service requirements and other volunteer programs can help, [*Cumberland*]; Its hard to find people willing to work instead of just talk [*Frederick*]; Develop a mechanism to give "write-offs" or other benefits to people that make donations [*Cumberland*]; Give recognition for effort [*Cumberland*]; The need to write even simple proposals puts people off [*Cumberland*]; Liability when doing projects or events [*Cumberland*]; Redirect some existing funding to support local efforts [*Cumberland*]; Provide assistance in getting through process and paper work to get project approvals; coordinate among agencies which share jurisdiction [*King George*]; Get successful grass-roots groups to share their experience with local conservationists [*La Plata*].

In many areas, concerns ran more to the sustainability of existing grassroots involvement. Efforts dependant on volunteer time are not sustainable; there is a limited local pool of volunteers and community funders [*Cumberland*]; There is a fragmentation of efforts / possible overuse of available talent and energy (otherwise known as meeting deja vu) [*DC*]; We need longterm efforts to assist and empower grass-roots involvement [*DC*]; Create a sustainable Environmental Center for the DC Metro area; the center would provide links to other groups and a focus for "quality of life" issues; it would be an ongoing clearinghouse for citizens [*DC*]; Create a place (with a small staff) that can serve as a focus for continuity; and help local conservationists be recognized as a force to be reckoned with [*La Plata*]; Establish a longterm watchdog mechanism (perhaps a riverkeeper) that will serve to simplify goal formulation and implementation, and conduct an environmental education / stewardship program. [*La Plata*]; We need a way to make special focus projects (like the Monocacy compliance effort) sustainable [*Frederick*]; We'd like to see the Headwaters assessment continued with long term support

[*Harrisonburg*]; Create a continuing coordination mechanism to facilitate long-term investment in conservation programs [*King George*].

Sometimes, the need for specific training or "tech transfer" was discussed Exchange information; get experts from other areas (e.g. the Brandywine) to share experience with Price's Bridge and Conococheague (Mercersburg) to help them pursue mutual interest in conservation easements [*Chambersburg*]; Get a broad range of experts (including those drawn from outside like the Brandywine) in voluntary conservation and water-quality based zoning to share information and expertise [*Chambersburg*]; Hold local workshops to expand the pool of grassroots participators [*King George*]; Simplify the proposal process or provide support and assistance to localities in applying for funds. [*Cumberland*] Establish a forum to consider cumulative impacts on resources, personal rights, and the common good in a non-confrontational environment [*King George*].

BUILDING LOCAL CAPABILITIES

Most of the groups suggested ways to improve their community's capability to implement successful conservation projects. Many spoke to resources- Support adequate staffing and resources for critical agencies [*Chambersburg*]; There is limited staffing to implement conservation projects [*DC*]; More staff (and funding) is needed for adequate enforcement [*Winchester*]; Organize citizens to be "eyes and ears" for regulators and decision-makers [*Chambersburg, Winchester*]; Organize volunteer time that compliments agency efforts [*Winchester*]; The lack of sustained support from state (each new initiative is introduced with lots of fanfare, then dropped for the next hot priority) can cripple effective programs [*Cumberland*]; Establish a cooperative funding mechanism (a way to pool funds across agencies or jurisdictions) [*Cumberland*]; Funds to establish a household hazardous waste program [*Cumberland*]; High solid waste tipping fees make river cleanups difficult [*Cumberland*]; Real-estate firms could be sources of funding for environmental projects; [*Cumberland*]; Institute a gallonage fee to fund Water Control Board and Game and Inland Fisheries programs [*Harrisonburg*]; Local government may be easily swayed or "outgunned" by applicants for land use approvals [*King George, Winchester*]; Be realistic; everyone is working with limited resources (bankrupting your County is *not* the answer) [*Middleburg*].

Other comments suggested different mechanisms for improving skills and performance Target outreach to local planning commissioners, township supervisors, county commissioners or supervisors through local government association meetings and newsletters; encourage them to host special meetings or fora. [*Chambersburg*]; Create a regional roundtable of public-private interests with liaison to "down-state"; charge group to update concern/issue statement, then assess how existing funding and programs can better meet articulated needs [*Cumberland*]; Create an environmental development (and Ag support) grants officer to assist the region [*Cumberland*]; Assign a Bay Program liaison or ombudsman to the region [*Cumberland*]; Continue Visions process and come back with project support [*Harrisonburg*].

INPUT RE: GROWTH MANAGEMENT AND GOVERNMENT'S ROLE

Below are excerpted comments, arranged to show the major points we heard. Common themes were: concern that local government is not well-equipped for growth management; desire for effective, watershed based regional planning; and hope that government's approach to the environment will be less fragmented.

GROWTH MANAGEMENT

Almost all the groups expressed concern about localities' ability (or willingness) to manage growth. For example, We need to encourage the active involvement local government in land use decisions [*King George*]; We need to find a way for local decision-makers to catch up to the speed of development; or slow development to permit adequate management [*La Plata*]; Development is planned before seeing if resources are there [*La Plata*]; Problems include inadequate enforcement of highway sediment controls, linking development to infrastructure (sewers and water) [*Middleburg*]; Development is just the latest extractive resource-based industry to come to this area. Homeowners and the local community are left holding the bag. [*Petersburg*]; Currently big population growth is outstripping infrastructure capablities and funds for water, sewer, transportation. [*Petersburg*]; Education program *are* having an impact, there is growing awareness and concern for quality of life. Thus there is the beginning of a constituency for growth management. This means a new climate for local officials. This change has beconme discernable in about the last 10 years; more support for preventing problems through land-use planning / planned development. [*Petersburg*]; Programs lack effectiveness beacuse they're not enforceable [*Winchester*]; Inability to discuss rather than argue means "big brother" has to step in; however, state is not equipped to enforce its decisions on the local level [*Winchester*]; Some localities are ill-prepared to meet threats posed by development [*Winchester*].

Several groups suggested outreach and training was needed for decision-makers Target outreach to local planning commissioners, township supervisors, county commissioners or supervisors through local government association meetings and newsletters; encourage them to host special meetings or fora. [*Chambersburg*]; Education regarding new requirements like the Carroll County septic rules [*Frederick*]; Small-scale developers may not actually know most basic requirements [*Winchester*].

Others suggested new methods of local assistance or incentives be established Create an environmental development (and Ag support) grants officer to assist the region [*Cumberland*]; Establish an awards program for farmers, leaders, developers [*King George*]; Develop incentives to control access and manage resources wisely [*King George*]; Develop innovative easement programs; tax breaks; new ways to protect an area's character [*King George*]; Tax relief is needed as taxes may grow to high to allow farming to continue [*Winchester*].

Some groups focused on the need to build consensus for growth management policies Establish a forum to consider cumulative impacts on resources, personal rights, and the common good in a non-confrontational environment [*King George*]; We need to work with the better developers [*King George*]; Local officials should be approached from the local community; the "top-down" approach won't work [*King George*]; Landowners should be brought into the process [*King George, Petersburg*]; Find a consensus that balances concerns of different sectors (travel and tourism, agriculture, industry) which all depend on a quality of life that could disappear with cheap land prices [*Petersburg*].

One group noted it is hard to get approval for innovative developments The current planning and approval process makes innovation difficult; the process is time-consuming and expensive no matter the project-- individual landowner variance, small stream restoration effort, or large development [*La Plata*]; Local decisionmakers tend to apply a "checklist" rather than exercise real decisionmaking authority; this promotes "cookie cutter" development. [*La Plata*].

Half of the groups described elements they feel are needed in an improved growth management program A vigorous land conservation program based on water use and sustainable development [*Chambersburg*];A vigorous program of farmland/ agriculture / forest preservation should be instituted to prevent the pollution caused by conversion to more urban land uses.[*Petersburg*] All streams in Washington County become greenways [*Chambersburg*]; Controls on stormwater runoff from roads (especially in Eastern Allegany County) and the many steep, unpaid driveways and entrances [*Cumberland*]; A PA landuse law and stream access policy that recognizes "the commons" [*Frederick*]; A mandatory riparian buffer with access and educational components [*Frederick*]; A committee which looks at growth from DC down to Point Lookout rather than jurisdictionally. [*La Plata*]; Development patterns that preserve forest areas and greenspace [*Petersburg*]; Development that is sensitive to site-specific resources and land characteristics; thus it's possible to "have your cake and eat it too". [*Petersburg*]; Development where you have infrastructure; i.e. when transportation is improved, controls are also put in place. [*Petersburg*]; Enable local people to continue to own the land as property values increase [*Petersburg*]; Determine the sustainable carrying capacity of the area. (for example, for tourism based on seeing eagles in the Trough.) Currently there is a lack of motels to support tourism, but how much is enough ? How much is too much? Develop year-round, sustainable tourism. [*Petersburg*]; Positive development that improves incomes [*Petersburg*]; Some kind of transfer of development rights program (especially one tergeted to critical areas) should be created to meet the threat of recreation / second home development in the Southern Counties. [*Petersburg*]; State (PA) needs to pay attention to land use policy [*Frederick*]; A PA landuse law and stream access policy that recognizes "the commons" [*Frederick*]; We need to Institute sliding scale zoning in localities that don't have it [*Winchester*]; Coordinate planning (where development goes) with where infrastructure exists. (Need a mechanism to fund this) [*Middleburg*].

REGIONAL PLANNING

Half of the groups also spoke to a desire for watershed-based regional planning and coordination among programs Need to recognize the potential for tourism development to generate conflicts over where the benefits go versus visible expenditures [*Cumberland*]; Regional planning needs to function on all levels of government [*King George*]; We need regional planning that takes up the threads of the unsuccessful 208 program.[*La Plata*]; We need an entity which looks at the River and its surroundings holistically. This entity knows who all the "players" are and works to develop early consensus on plans and programs; it involves local officials. Its mandate includes the entire mainstem; and within that mandate it addresses different regulatory components (such as reducing different nutrient sources) as needed. This is in contrast to the current system where "each agency takes its own shot at creating mandates". This entity would deal with both MD and VA. [*King George*]; Politically, the River is an edge rather than a seam [*La Plata*]; A committee which looks at growth from DC down to Point Lookout rather than jurisdictionally. [*La Plata*]; A regional (defined by watershed) approach to issues of concern [*La Plata*]; An enforceable Potomac Environmental Protection Policy is enacted with local, state, and federal participation [*La Plata*]; Achieve day-to-day coordination among counties. Existing cooperative mechanisms (like NVPDC) do not coincide with watershed boundaries, so additional effort is required [*Middleburg*]; We need to acheive day-to-day coordination among towns within the watershed [*Middleburg*]; Local actions need to link to a larger watershed focus [*Winchester*].

REDUCING FRAGMENTATION

Developing the theme of coordination further, many of the groups expressed a desire that government environmental programs be less fragmented Establish a cooperative funding mechanism (a way to pool funds across agencies or jurisdictions) [*Cumberland*]; Because there is no comprehensive environmental policy; decisions are made in a piecemeal fashion, and often in response to the latest media priority [*Chambersburg*]; One problem is land and water issues are handled separately [*Chambersburg*]; Differing (i.e. competing) priorities among programs; tendency to cause "cross-media" problems [*Cumberland*]; Different rules in different jurisdictions cause problems and confusion [*Cumberland*]; We need to work regionally instead of only within jurisdictions [*DC*]; There needs to be some way to address the fragmentation of local government in PA [*Frederick*]; We need more cross-state contacts [*Frederick*]; Dealing with multiple agencies is a problem; for example having to work through complex MOAS in order to get a Notice of Violation issued [*King George*]; We need someone to coordinate among agencies which share jurisdiction [*King George*]; Planning should be integrated or holistic rather than piecemeal [*King George*]; Water quality and quantity issues should be considered together [*King George*]; Groundwater issues and resources should become part of the land use debate [*King George*]; We need to recognize how different impacts interface; for example if you preserve a rural road or high quality stream, you also preserve associated scenic values, habitat, community character, etc. [*Middleburg*]; Build cooperation between different agencies, states, and the private sector [*Petersburg*]; Conflicting goals between agency programs make difficulties (e.g. it's hard to get permits for beneficial in-stream work) and increase costs. Sometimes costs

go up to satisfy multiple goals [*Petersburg*]; It's hard to negotiate through the different agencies; sometimes you get the run-around, with no agency accepting responsibility [*Petersburg*]; Restrictions on how funding can be used can also impede local conservation efforts [*Petersburg*].

INPUT RE: RESOURCE-RELATED ISSUES

Common themes were water quality monitoring, planning for growth, and the role of government.

WATER QUALITY MONITORING

Seven out of ten groups had comments regarding water quality monitoring. Many participants expressed dissatisfaction with what's really known about water quality in their area. Specific concerns ranged from lack of adequate baseline data (thus making it hard to predict the impact of proposed new direct or nonpoint dischargers) to the sense that there are lots of data, they're just not accessible in a useful form. Many raised questions about loading estimates used in the tributary strategy process. Clearly, participants want to discuss water quality issues in terms of the waters closest to them.

Establish comprehensive nutrient monitoring; models and theories aren't enough, we need to be looking for nutrient improvement everywhere we're trying to reduce nutrient loadings [King George]; Use water quality data and models that are relevent to tidewater (both the tidal fresh areas and the "peninsula" area) instead of assuming what holds for other areas also applies here[*La Plata*]; Local, comprehensive nutrient assessments [*Harrisonburg*]; Like to continue Headwaters assessment with long term support [*Harrisonburg*]; Need information on septic tank contributions to nonpoint source pollution loads [*Harrisonburg*]; Data from multiple sources that have not been coordinated and managed is of very little use; lots of people have studied the Potomac; the data need to be assembled in accessable form [*King George*]; We need to preserve our options for future modeling and develop a "what-if" ability [*La Plata*]; Initiate GIS demonstration project [*La Plata*]; Monitoring is needed on the fate and effects of Dimilin [*Petersburg*].

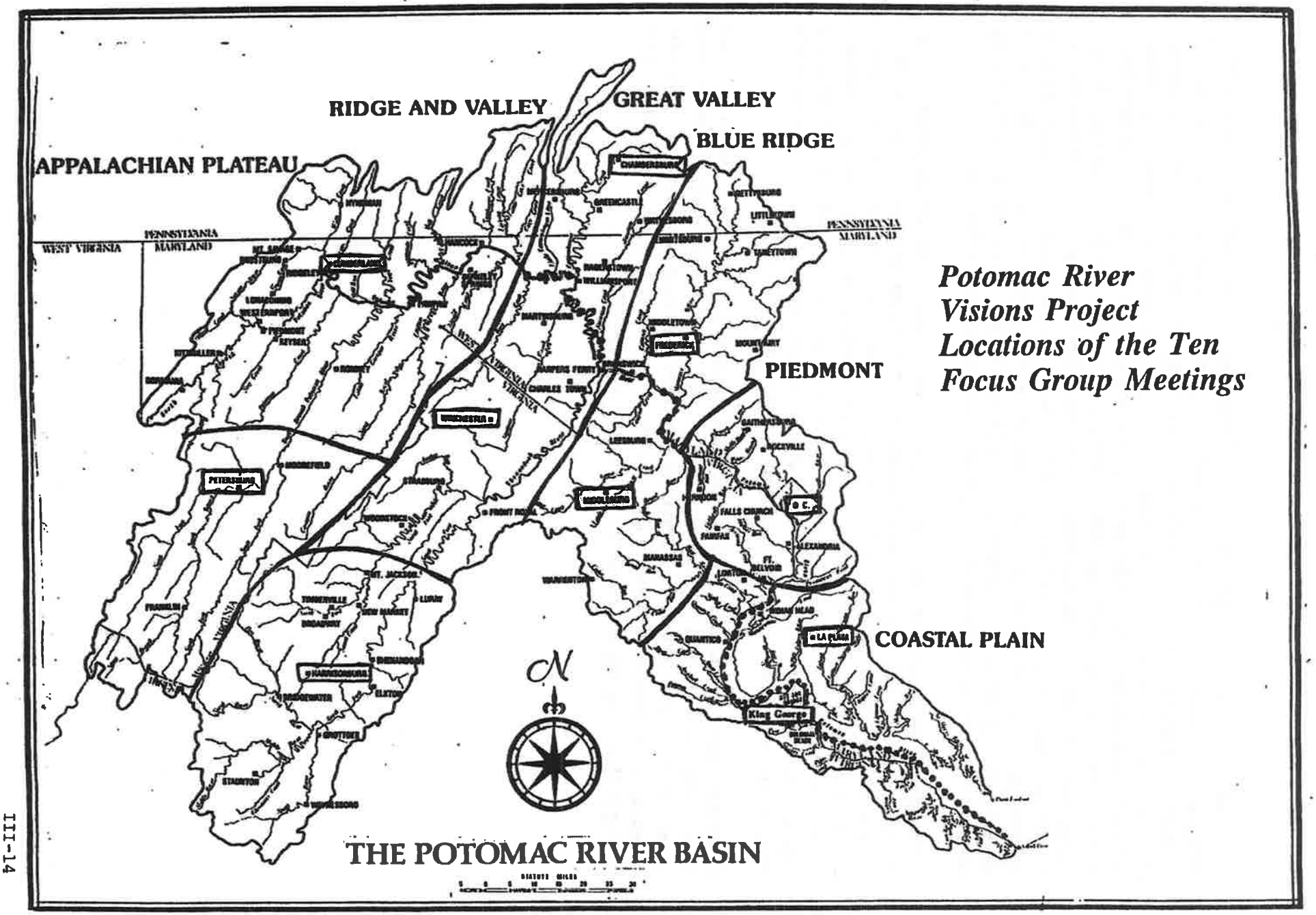
CITIZENS MONITORING

Wherever participants came from organizations involved with citizen monitoring, they indicated difficulty in getting the appropriate agencies to utilize their data (or in one case, a questioning if data was being used). A great deal of frustration was expressed on this topic. At the same time, participants felt good about the amount of information collected by citizens and the potential for volunteers to do more

It's a problem to get some agencies to use volunteer data - they won't accept data without verifying it themselves, but they can't afford to duplicate citizens' efforts; it's a catch-22. [*Frederick*]; Develop uniform standards and a screening process to certify citizen monitors [*Harrisonburg*]; Build the information base by adding data from citizen monitors to the State's collection [*King George*]; Show volunteers their data are used; for example, how are the wildlife sitings on the back of the ACB data sheet used? [*King George*]; For the Shenandoah, there is a good base of information and structures to work with [*Harrisonburg*]; Now that baseline data is available, can use it to (1) address identified problems (2) analyze impact of proposed development projects [*Middleburg*]; Citizens should be able to help monitor wildlife presence and behavior in greenways, restoration projects [*King George*]; Once the central lab is fully established at Shenandoah University, it will be a regional resource [*Winchester*].

Growth issues were raised in both positive and negative lights. The threats posed to river resources and community character were common concerns around the basin. At the same time, many areas are actively working to build tourism, and/or have a serious need for economic development. Surprisingly, most groups expressed a desire for more effective regional planning. In some of the focus group areas, there are no regional planning mechanisms. Even where regional entities do exist, participants noted that the regions were not drawn along watershed lines, or commented that the entity's cooperative focus was too limited.

As growth issues were discussed, government's role naturally came up. Many groups expressed dissatisfaction with their local government's ability and/or willingness to grapple with growth issues. At the same time, previous attempts at "top-down" planning in the Potomac basin were viewed as heavy-handed and unrealistic. Also, many state-level programs were criticized for lacking sufficient staffing and resources for meaningful enforcement.

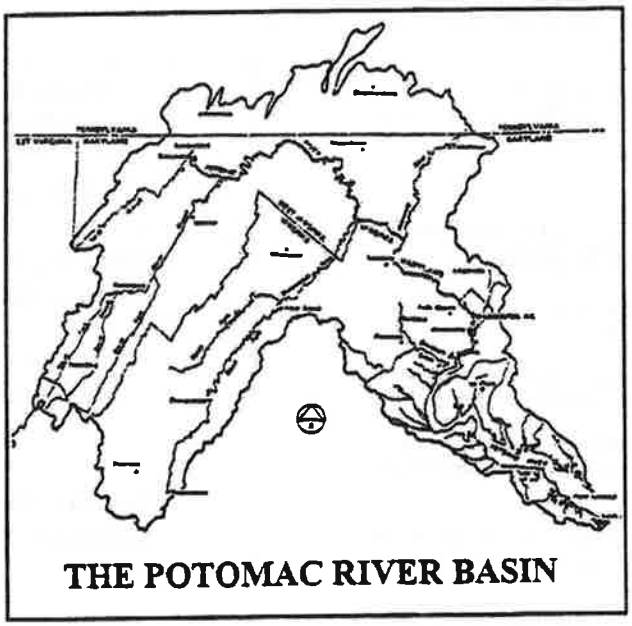


Potomac River Visions Project Locations of the Ten Focus Group Meetings

PEOPLE AND COMMUNITIES OF THE POTOMAC WATERSHED

TRACING THE WATERSHED'S CULTURES THROUGH PLACE-NAMES

Place-names throughout the Potomac watershed reflect the different peoples who have lived here, the development of their settlements, and how they viewed their environment. At first, the Potomac watershed was a Native American cultural crossroads. Susquehannocks, Piscataways, and the Powhaton Confederacy fought, traded, and lived around the Potomac and its tributaries. Seneca raiding parties reached into (and even beyond) Potomac country.



THE POTOMAC RIVER BASIN

Today some names echo particular tribes or groups of tribes. For example, *Anacostia* refers to the Nacostan (also spelled Nacotchtank) people and their settlement. Others derive from descriptions in Iroquois or Algonquin, the two major language groups in the region. Examples include *Shenandoah* (Iroquois for "spruce stream"), *Antietam* (Algonquin for "swift water"), and *Opequon* (Algonquin for "white-pool-stream"). In fact, the very name *Potomac* derives from the Algonquin word meaning "where something is brought" (e.g. "trading place") and also refers to the Potowemek people.

The English Colonial influence is easy to recognize in place names such as *Fairfax* (for Lord Fairfax, whose land grant included all the land between the Potomac and the Rappahannock, up to the Potomac's source). In Virginia's Northern Neck, most of the county names hark back to England: Richmond, Northumberland, Lancaster, and Essex are all familiar names to Anglophiles. *Pennsylvania* ("Penn's Woods") was granted to William Penn in partial payment for debts owed to Penn's father.

In particular, Maryland's map would be vastly different without its multitude of names associated with the Calvert family. A few such names are *Leonardtown* (for Benedict Leonard Calvert, fourth Lord Baltimore); *Frederick* (for Frederick Calvert, sixth Lord Baltimore); and *Riverdale* (after Riversdale, a mansion owned by the Calvert family). Still other names reveal that not all settlers hailed from England's shores. Thus we have *Germantown*, Md.; *Strasburg*, Va.; and *Berlin*, Pa.

Maps can hide history as well as reveal it, however. There is nothing on contemporary maps to show that Susquehannock Fort once stood on Mockley Point at the mouth of Piscataway Creek. Or to recall that in the late 1600's, colonists attacked their Susquehannock allies there.

Of course, not all the hidden history is so grim. It's interesting to know that Shepherdstown, W.Va., has had several name changes. When it was no more than a crossing point on the Potomac, it was called Pack Horse Ford. When the community was founded there, it was originally named Mecklenberg. The name was later changed to recognize Thomas Shepherd, who purchased the legal grant to the land.

Some name changes raise intriguing questions. What gave Front Royal, Va. its original name of *Helltown*? Why was Potomac, Md. first known as *Section 8*? Besides satisfying such idle curiosity, the study of Potomac place names illustrates how the environment here has variously been regarded first as a shared home, then a resource to exploit, and finally a canvas for human construction.

HOW THE WATERSHED WAS LINKED

Across the country, what most people know about the Potomac is that it runs through our nation's capital. Few realize that the relationship between the city and the river is far from accidental. When George Washington argued for placing the capital here, he pointed out that the Potomac did more than provide convenient deep-water harbors for trade. In fact, the Potomac was the center of a unique transportation network including a long navigable river, numerous tributaries, well-established Indian trails, and mountain passes.

For many years, ferries were the only means of crossing the river's depths. Hallowing Point, Va. takes its name from people's "halloo-ing" for the ferry on the opposite bank. Today you can still take a ferry across the Potomac at Whites Ferry, Md.

However, the natural river system, extensive as it was, was deemed insufficient for the region's commercial ambitions, so canals were built. Washington, D.C. had a system of municipal canals designed by Pierre L'Enfant. George Washington himself founded the Potowmack Canal which moved boats around Great Falls from 1802 to 1830. Biggest of them all, the C&O Canal ran from Georgetown to Cumberland (184.1 miles long) rising from near sea level to 605 feet through 74 lift locks. Begun in 1828 and taking two decades to complete, The canal was most used for transporting such heavy, bulky items as coal, flour, and stone.

Washington's dream of linking the Eastern Seaboard to the expanding frontier of the Ohio River was finally accomplished through the railroad. *Garrett County*, Md., and *Germania*, W.Va. are among the many communities named for railroad magnates.

HOW THE WATERSHED WAS DIVIDED

While the Potomac's transportation network unified the region, the river also was a divisive force. The Potomac served as a border between the Maryland and Virginia colonies, and disputes over land and fishing rights that began in the 17th century persisted well into the 1900's. In fact, the Potomac was one of the most hotly contested areas in the Oyster Wars of the Chesapeake Bay.

And war was not merely a tidewater phenomenon. Perhaps no other river basin in the United States has been the site of so many battles: some "small," such as the Battle of Bladensburg before the burning of the Capitol during the War of 1812, or John Brown's raid at Harper's Ferry which helped set the stage for the Civil War.

The incredible carnage of Antietam, Gettysburg, and both battles of Bull Run, created a "river" of blood as terrible as any flood; tens of thousands were wounded or killed. And the Potomac itself played a major role in the conflict. As the late Frederick Gutheim put it, "From John Brown's raid on the federal arsenal at Harpers Ferry to the final flight of Lincoln's assassin, John Wilkes Booth, down into Maryland and across the Potomac, the river was the principal theater of the war. It played the dominant strategic role."

CONSERVING OUR CULTURAL HERITAGE

For those that associate the Potomac with the large metropolitan area of Washington, it is a surprise to realize that most of the basin is still largely rural. In fact, the Potomac is a veritable case study in the history of this nation's conservation movement--starting with the preservation of Mount Vernon, the nation's first historic preservation project, in 1852.

With a recent proposal to create a "Potomac River Heritage Project," the basin is again at the forefront of a national movement to create "heritage areas." Such areas link and further protect resources the conservation movement has long labored to save.

YOUR STEWARDSHIP ROLE: SOME IDEAS AND SOME RESOURCES TO GET YOU STARTED

You don't have to be an expert historian or a planner to get involved, you just have to care about your community and your home river.

- o ***Learn more about your area's rich heritage and investigate your "roots."*** Visit a museum, nature center, historic home, battlefield, or ethnic festival.
- o ***Get involved in planning decisions made at the local level.*** This can be as simple as attending a few meetings in order to become a more informed voter.
- o ***Join (or support) groups that are working to preserve cultural and natural resources.*** Whatever you have to offer, someone, somewhere needs your skills, time, or commitment.
- o ***Exercise your responsibilities as well as your rights.*** Pack your trash out when you visit parks, trails, and waterways. Comply with requests not to remove vegetation or artifacts, and do not trespass. Show respect for other cultures' sacred sites.

A river's watershed is all the land that contributes runoff to that river. The Potomac's watershed extends over 14,000 square miles and encompasses an incredible variety of landscapes. With its wealth of history and natural resources, the Potomac watershed is clearly a national treasure. When you consider the watershed is also home to 4.6 million people, and includes portions of four states plus the District of Columbia, you begin to realize that protecting and restoring its resources is a truly complex challenge.

This fact sheet is one of four dealing with different aspects of the Potomac watershed. (Others cover recreation, natural resources, and conservation techniques.) The fact sheets are part of the Potomac Visions Project, a cooperative effort to assist locally-led conservation programs throughout the watershed.

RESOURCES:
For more information about the Potomac and its resources or the Visions Project -- the Interstate Commission on the Potomac River Basin, 301-984-5841

For more information on the Visions Project or the Chesapeake Bay-- The Alliance for the Chesapeake Bay, 301-881-8678

For more information on the Potomac Heritage Project--The Accokeek Foundation, 301-283-2113

This text was drafted by Carole Ann Barth, Alliance for the Chesapeake Bay, for the Potomac Visions Project. The United States Environmental Protection Agency provided financial and technical assistance to the Visions Project.

TRACING THE WATERSHED'S HISTORY THROUGH ITS FAMOUS PEOPLE

- The Potomac was home to a virtual pantheon of Presidents and statesmen, including: Washington, Monroe, and Mason.
- Significant African-American heritage is found throughout the watershed, as exemplified by:
- Mathias deSousa and John Price (members of the *Ark* and *Dove* expeditions in 1634)
- Frederick Douglass (his Anacostia house is now a museum)
- Benjamin Banneker (he helped survey Washington D.C.'s boundaries)
- Figures associated with the Civil War include: Belle Boyd, Robert E. Lee, and Barbara Fritchie.

NATURAL RESOURCES IN THE POTOMAC WATERSHED

DIVERSITY AND TENACITY

Known as the "Nation's River," the Potomac has grown up with America. Growth and development have meant marked change throughout the Potomac's watershed, from the plants to the animals to the very lay of the land. The Potomac River watershed is, and always has been, home to an impressive variety of natural resources. These include wildlife and specialized habitats, rivers and fisheries, protected natural areas, timber, mining resources, and significant geological features. In fact, it may be the variety and diversity that is most striking about this watershed, even in the face of rapid development, for most of the natural resources that can be found throughout the United States can be found around the Potomac. Rising populations and growth of urban and suburban areas are going to continue throughout the watershed. The challenge: to protect and manage resources in the face of this growth.

WATER RESOURCES

Historically, rivers have been important as sources of power, food and water, shipping and transportation routes, and even as boundaries and borders. Rivers and river-related resources are key elements of the Potomac watershed's natural resource base. Many miles of the Potomac and its tributaries are listed on the Nationwide Rivers Inventory for possessing unique geologic features, endangered species habitat, areas of unusual plant diversity or examples of old growth forests. The NRI lists rivers that have been identified as potential candidates for inclusion in the National Wild and Scenic Rivers system based on their scenic beauty, importance to local communities, and ecological value. Several rivers, or portions of rivers, in the watershed are already categorized as Maryland Wild and Scenic Rivers, including: Goose Creek, Catoctin Creek, the Shenandoah, the Monocacy and the Potomac.

The rivers of the eastern panhandle of West Virginia are renowned for their natural character and high quality fishing and boating opportunities. The 1990 West Virginia Statewide Assessment notes that the river system, including such important tributaries as the South Branch, Opequon Creek and Back Creek, possesses outstanding recreational and natural resources. The Cacapon, one of the longest free-flowing, largely undeveloped rivers in the state, is a scenic warmwater stream that provides high quality fishing and boating opportunities in an outstanding scenic setting. Ninety miles of the Cacapon are listed on the Nationwide Rivers Inventory as potentially eligible for inclusion in the national wild and scenic rivers system.

The Shenandoah River, sometimes meandering through farmland while elsewhere tumbling violently over rocks, is popular with fishermen and rafters alike. Although fish consumption advisories are in place along several sections of the Shenandoah, 223 river miles of the river and its tributaries are designated trout-fishing waters.

While many of the tributaries in the watershed are known for their scenic beauty, they are not without their difficulties. Throughout the region, three major problems continue to plague the Potomac and its tributaries: overenrichment by nutrients, suspended sediments, and toxins. Of these three, nutrients are the number one water-quality dilemma.

The states actively participating in the Chesapeake Bay restoration, which currently include Maryland, Virginia, Pennsylvania and the District of Columbia, are committed to reducing nutrient loads to 40 percent of 1985 levels by the year 2000. Overenrichment with nutrients is not just a Bay problem however. Each tributary that has excessive nutrient levels also experiences reduced oxygen levels, noxious algae growth, and diminished populations of aquatic plants and animals. Further, nearly 75 percent of the nutrients entering the Bay have diffuse sources and so each of the hundreds of tributaries in the Potomac watershed carries of some portion of the nutrient overload. It is for this reason that Bay restoration efforts are refocusing on the tributaries as the key to reducing nutrient loading levels.

Suspended sediments, eroded soil carried by streams and waterways, cloud waters and block sunlight, thereby seting off a chain reaction that ultimately harms all living creatures in a stream environment. In portions of the watershed, toxins prevent fish consumption (such as on the Shenandoah) while in other places wastewater treatment plants overloaded by swift development foul downstream waters. These problems are not without their solutions, however, and multiple efforts are underway to restore these tributaries to healthier waterways.

One important Potomac tributary struggling with the effects of sediments as well as bacteria is the Anacostia river. The Anacostia drains much of the metropolitan Washington area. For many years, the Anacostia was severely degraded by raw or partially-treated sewage from the swiftly growing urban area. This severely polluted water from the Anacostia along with sewage effluent dumped directly into the Potomac turned the "Nation's River" into an embarrassment. Water quality has improved dramatically since the 1970's, primarily because of expansion and upgrades at the Blue Plains wastewater treatment plant. This massive complex, now one of the largest and most modern treatment plants in the world, processes 70 percent of the wastewater from the metropolitan Washington area. The Anacostia cleanup process is not complete--and challenges continue as the Washington area continues to swell--but through the efforts of private organizations and agencies from local, state and Federal governments, the river is on its way to recovery.

The Interstate Commission on the Potomac River Basin (ICPRB), in cooperation with West Virginia, Maryland, federal agencies and local governments, is working to revive the North Branch of the Potomac after decades of pollution, caused mainly by acid mine drainage but also by logging and other industrial activity. Water quality has improved on the river to the point that populations of stocked trout are becoming increasingly large and healthy, and, in some areas, are even repopulating. As the situation continues to improve, ICPRB is promoting a planned fishery resource for the North Branch that could rival the great trout streams of Montana and Wyoming. Those fisheries are worth millions of dollars to their surrounding economies.

Fisheries

The Potomac River is a major contributor to the Bay and a highly productive estuary with 64 fish species documented in the estuarine waters below Washington, D.C. The most important fishery species are oyster, blue crab, soft-shell clam, striped bass, shad, bluefish, flounder, weakfish, and white and yellow perch. However, fishery declines in the lower Potomac have long been a source of concern. Catches of certain species have been dropping dramatically, both in the Bay and in the Potomac River. The 1993 oyster season for the Potomac was an all-time low. Most scientists believe this is caused by a combination of factors, including sport and commercial overharvesting, natural climatological factors, and habitat degradation or loss due to physical and chemical pollution. A Chesapeake Bay watershed-wide initiative is underway, through the federal-state Chesapeake Bay Program, to restore these fisheries to both commercial fishermen and recreational enthusiasts. The effort includes improving fish passage to spawning areas in freshwater streams and abating water-quality problems. Elsewhere some improvements in water quality are also evident such as largemouth bass returning to the upper estuary where national bass tournaments are now held. Rockfish populations have also rebounded. Aquatic vegetation, or SAV, has begun a comeback as well, spurring a chain reaction of water quality improvements. Recreation enthusiasm continues to run high, as in 1990, when the Potomac River Fisheries Commission, the bi-state commission that manages the Potomac's tidewater fisheries up to the District of Columbia, issued more than 29,000 recreational fishing permits.

While many of the tributaries in the Potomac watershed no longer perform traditional functions to the extent they once did, they do continue to be magnets for recreation enthusiasts as well as fisheries that support the Chesapeake Bay, internationally known for its seafood.

WETLANDS

Wetlands are a vital but often misunderstood resource. More commonly termed swamps, bogs or marshes, wetlands mark the transition zone between land and water. Having characteristics of both dry land and waterways, wetlands are home to unique and diverse plants and animals that depend upon the constant dampness, the slow-moving shallow waters, or the continuous influx of nutrients and food. The function of wetlands as habitat for numerous plant and animal species and as filters for the heavy nutrient loads that plague the Bay make them a critical factor in the Bay cleanup. Historically, however, misunderstanding has fostered an imbalance in the valuation of wetlands versus development.

Wetlands can be found in a variety of forms and settings. For example, the largest remaining freshwater tidal wetland in the Washington area, Dyke Marsh, is representative of the Potomac watershed wetlands of two hundred years ago. The most common type of wetland though, is the forested, freshwater wetland. One example of this type can be found at Huntley Meadows Park in Fairfax County, Virginia. This 1,261-acre park set in suburban Washington is home to a variety of natural habitats from forest to meadow to wetland.

LIVING RESOURCES

The Potomac River is the second largest tributary to one of the nation's most treasured resources: the Chesapeake Bay. As the Chesapeake Bay's recovery moves forward, a variety of aquatic plants and animals serve as indicators of water quality and watershed health. Population growth among these living resources signals a recovery in progress. The same is true of the Potomac watershed. Whether the indicator is rising trout populations in the Potomac's North Branch or the spread of submerged aquatic vegetation (SAV) in the tidal Potomac, living resources play an important role as one of the tools to measure the success of cleanup efforts.

Birds

Whether combing the marshes or woodlands, or simply watching birds flock to a backyard feeder, bird-watchers of all levels find an abundance of species throughout the Potomac watershed. Thanks to its geographic location, the Potomac watershed links the major east coast flyways. Migratory birds and waterfowl find food and shelter in coves, marshes, rooftops, backyards and woodlands. The lower Potomac shores have become favorable nesting areas for the osprey and the endangered bald eagle, whose largest U.S. population is found in the Chesapeake Bay region. In fact, more than 60 bald eagles find summer roosts in the 2,600-acre Caledon Natural Area in King George County, Virginia.

The Washington area, despite its heavily urban character, has numerous bird residents and transients. A third of the species of birds that inhabit or regularly visit the continental United States and Canada may be found in the course of a year within the Capital City Beltway. Nearly 200 species regularly breed in the Potomac region, and more than half of those breed in the counties around the beltway. While species such as the bald eagle, Peregrine falcon, Bewicks wren and loggerhead shrike struggle to maintain their populations, the Eastern bluebird has become significantly easier to find in the region.

Animals

Although former residents of the Potomac watershed such as elk, timber wolf, panther and bison no longer roam the woodlands, many other species are thriving in portions of the watershed even in the face of rapid development. Fox, squirrel, chipmunk, rabbit and raccoon as well as such gamebirds as turkey and grouse are thriving while populations of white-tailed deer have soared. Two seemingly opposed forces, rapid development and growing wildlife population, have created a new challenge in the Potomac watershed: finding effective techniques to manage burgeoning populations of wildlife on decreasing habitat. Development of suburban Washington and Baltimore is expected to have increased three-fold from 1950 to 2000. As it stretches into western Maryland and West Virginia, natural habitat for many woodland animals is destroyed, forcing their larger numbers onto fewer acres. Often the result is that man's encounters with wildlife change from enjoyable and exciting to nuisances and sometimes dangerous. To meet this challenge, Bay watershed states are looking to alternative development strategies to manage growth. The preservation of natural areas, greenways and open space prevents the total destruction of wildlife habitat and allows for managed growth of intermingling of both wildlife and suburbia.

Forests

The two major federally managed forest areas within the Potomac watershed are the George Washington National Forest in Virginia and West Virginia and a portion of Monongahela National Forest lying within the Potomac watershed in West Virginia. Both are managed to enhance timber, forage, water and wildlife. The Spruce Knob/Seneca Rocks National Recreation Area within the Monongahela National Forest provides exciting hiking, climbing and camping while maintaining a spectacular natural setting. This mountainous 125,000-acre tract offers streams, scenic overlooks, rare plant and animal species, and significant geologic formations. Spruce Knob, at 4,862 feet, is the highest point in West Virginia.

The Potomac watershed provides habitat for myriad plants and animals--its living resources. However, even this extensive variety does not equal the diversity of vegetation and wildlife that once canvased this region. Gone are the elk, woodland bison, panther, passenger pigeon, timber wolf and mature American chestnut that once were mainstays of the Potomac watershed. Numbers of American shad, sturgeon, oyster, Bewicks wren and loggerhead shrike have seen significant decline. However, not all the news is bad. The cleanup of human impacts on the Potomac has improved the habitat for wildlife in general and, in particular, for waterfowl and the endangered American bald eagle. While development is likely to continue to reduce natural areas, careful management of open space can help insure that viable habitat remains for wildlife.

LAND RESOURCES

As with its wildlife and rivers, the Potomac watershed also supports extensive and varied land resources. The western reaches of the watershed drain the coal fields of the Appalachians from which coal arrived, first by canal boat and later by train, to metropolitan centers. Timber from hardwood forests across the Potomac watershed was also an important economic commodity. Much of the watershed provided the tree species used for colonial ships, homes and entire towns. Natural resources are important for more than their economic value though. The Potomac region is rich in managed and protected natural areas which serve as reminders of the abundant resources that have supported centuries of civilization on the Potomac.

Parks, Wildlife Refuges and Natural Landmarks

Throughout the Potomac watershed, national parks attract many visitors each year. While portions of the Potomac watershed have seen rapid growth and development, several significant parks have been maintained as reminders of what this region was once like. The Shenandoah National Park stretches across western Virginia overlooking the Shenandoah River and Valley. The park is known for abundant wildlife and hardwood forests typical of the eastern United States. Catoctin National Park in Frederick County, Maryland, offers great scenic beauty and a sense of complete wilderness. Under National Park Service management, this area is being allowed to develop into an eastern hardwood climax forest. Rock Creek Park in Washington, D.C., the first natural area designated as a park by Congress, is now managed by the National Park Service for a variety of flora covering a steep and rocky ravine. Great Falls National Park, on the shores of the Potomac River near Washington, is also home to an abundance of plants and wildlife while featuring a spectacular gorge with whitewater that is the joy of the nation's kayakers and canoeists.

National wildlife refuges (NWR) are managed primarily to provide habitat and protection for migratory waterfowl. Mason Neck NWR provides bald eagle habitat, upland forests, and vibrant marshes along the Potomac River in Virginia. Marumsco NWR and Featherstone NWR are two satellite units that protect important marsh lands along the river. Fraser Preserve, in Fairfax County, Virginia, is a combination of upland forest, river-bottom marsh and alder swamp owned and protected by The Nature Conservancy. At Cedarville State Forest in southern Maryland, Zekiah Swamp is one of the finest natural areas within the greater Washington area. The Smithsonian Institution has designated this 16-mile swamp as an area deserving top ecological priority because of its uniqueness in Maryland and its abundant plant and animal life.

National Natural Landmarks (NNL) are areas that represent important examples of the nation's natural history; they contain ecological or geological features of such distinctive quality as to be of national significance. There are three NNLs in the Potomac watershed. The Germany Valley Karst Area in West Virginia is one of the largest intermountain karst lowlands in the United States. The Sinnett-Thorn Mountain Cave System, also in West Virginia, is a significant geological feature. And Sugarloaf Mountain in Maryland is a typical example of the hardwood forests found in the Piedmont, the transition zone between the Appalachians and the coastal plain.

YOUR STEWARDSHIP ROLE: SOME IDEAS AND RESOURCES TO GET YOU STARTED

You don't have to be a scientist or ecologist to get involved. You just have to care about your community and your neighborhood river, stream, forest or wildlife. Here are some suggestions:

> Get involved in planning decisions made at the local level. This can be as simple as attending a few meetings in order to become a more informed voter or volunteering to serve on an advisory committee or citizen task force.

> Join or support organizations that are working to preserve the resources that interest you. Whatever you have to offer, there is a group that could use your help. For example, even if you are short on time and money you might help simply by donating some old furniture or office equipment to a struggling non-profit effort. These groups need people with all kinds of skills including carpenters, gardeners, typists or public speakers.

> Exercise your responsibilities as well as your rights. Pack your trash out when you visit parks, trails, forests and waterways. Comply with requests not to remove vegetation or artifacts, and do not trespass. Show respect for other cultures' heritage.

> Convert your yard, patio or balcony into a wildlife-friendly habitat. Feeders, bird houses, pools of water, and trees and shrubs provide necessary nourishment and shelter to wildlife. Even a small plot can easily become a haven for wildlife.

For more information about the Potomac and its resources, feel free to call the Interstate Commission on the Potomac River Basin (ICPRB) at (301) 984-5841. For more information on the Potomac Visions project or the Alliance for the Chesapeake Bay, call (301) 881-8678.

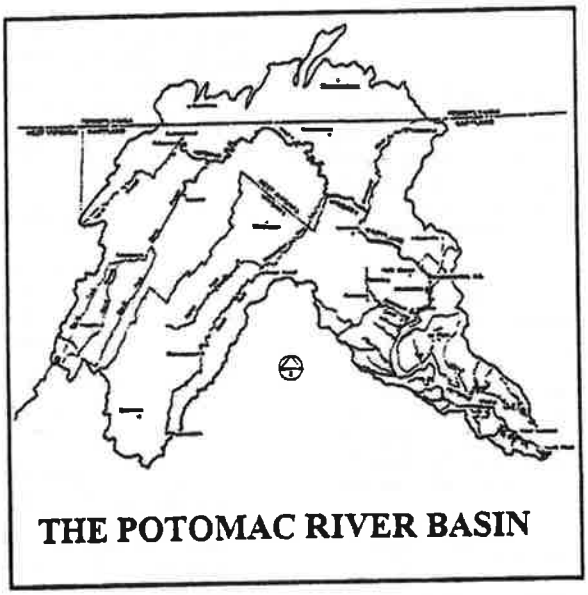
A river's watershed is all the land that contributes runoff to that river. The Potomac's watershed extends over 14,000 square miles and encompasses an incredible variety of landscapes. With its wealth of history and natural resources, the Potomac watershed is clearly a national treasure. It is also home to 4.6 million people and includes portions of four states and the District of Columbia. Restoring and protecting its resources is a truly complex challenge. This fact sheet is one of four dealing with different aspects of the Potomac watershed. The fact sheets are part of the Potomac Visions Project, a cooperative effort to assist locally-led conservation programs throughout the watershed. However, four fact sheets can't begin to describe all the Potomac watershed has to offer.

This text was drafted by Jeff Moffatt, Alliance for the Chesapeake Bay, for the Potomac Visions Project. The United States Environmental Protection Agency provided financial and technical assistance to the Visions Project.

RECREATION IN THE POTOMAC WATERSHED

RECREATION DIVERSITY

For outdoor enthusiasts, the Potomac watershed's recreational resources are many. With its long history, living resources, extensive woodlands and scenic beauty all embraced by a mild climate, the Potomac watershed is popular for many forms of recreation. Boating, swimming, hiking, camping, fishing and hunting are all possible throughout the watershed. In fact, a number of recreational resources in the region are nationally significant. These recreational resources are not only important to outdoorsmen, but revenues generated by tourism, entrance fees, licenses and purchases of equipment and supplies are important to states, communities, and local residents. For example, in 1991 more than half of the citizens of Maryland participated in wildlife-associated activities generating over three-quarters of a billion dollars in revenues.



THE POTOMAC RIVER BASIN

Recreation, however, is not without its impacts. The population of the Potomac watershed continues to grow and national survey results indicate that the number of wildlife-related recreational enthusiasts is on the rise as well. Increasing use may mean increased incidence of abuse and the potential for a variety of negative impacts on natural resources. Careful management and a public awareness of impacts and conservation can go a long way toward insuring that the Potomac's recreational resources can be enjoyed by generations to come.

NATIONAL PARKS

Throughout the Potomac watershed, national parks attract many visitors each year. The Shenandoah National Park stretches across western Virginia overlooking the Shenandoah River and Valley. Renowned for abundant wildlife and hardwood forests typical of the eastern U.S., the Shenandoah National Park is perhaps best known for Skyline Drive. This automobile-based parkway includes hiking trails, picnic areas and many overlooks offering panoramic views of the Appalachian foothills. Other significant sites in the park include a picturesque rock outcrop known as Stony Man, Swift Run Gap where the Shenandoah Valley was first discovered by Europeans, and various limestone caverns that can be toured by visitors.

Catoctin National Park in Frederick County, Maryland, offers great scenic beauty and a sense of complete wilderness. With its hiking trails and opportunities for boating, swimming, fishing and picnicking, Catoctin National Park is perfect for family outings. Under National Park Service management, this area is being allowed to develop into an eastern hardwood climax forest. Catoctin National Park also borders on Camp David, the presidential retreat.

While portions of the Potomac watershed have seen rapid growth and development, several significant parks have been maintained as reminders of what this region once was like. Rock Creek Park in Washington, D.C., the first natural area designated as a park by Congress, is now managed by the National Park Service for a variety of flora covering a steep and rocky ravine. The largest remaining freshwater wetland in the Washington area, Dyke Marsh, is representative of the Potomac watershed wetlands of two hundred years ago.

Great Falls National Park, on the Virginia shores of the Potomac River near Washington, is home to an abundance of plants and wildlife while featuring a spectacular gorge with whitewater that is the joy of the nation's kayakers and canoeists. Another reminder of a bygone era, Roosevelt Island in the broad lower Potomac supports a stand of hardwoods, a marsh and rocky shoreline. Surrounded on all sides by Washington, D.C., Roosevelt Island is a dramatic example of wilderness in an urban area.

NATIONAL RECREATION AREAS

Deep in the Monongahela National Forest, the Spruce Knob/Seneca Rocks National Recreation Area in West Virginia offers outstanding opportunities for outdoor recreation in a setting typical of the Appalachian mountain woodlands. From rock climbing, scenic vistas and interesting geologic formations on the peaks to fishing and whitewater boating in the valleys, this area has plenty to offer. Seneca Rocks, one of the best-known landmarks in West Virginia, is a highly regarded rock-climbing area. Eagle Rock, North Fork Mountain, Spruce Knob, Panther Knob and other high peaks offer spectacular opportunities for hiking and climbing. Spruce Knob, at 4,862 feet, is the highest point in the state. Because of these outstanding features, spectacular waterways, and the area's overall pristine natural setting, Spruce Knob/Seneca Rocks has significantly greater potential as an outdoor recreation area than has been realized. This complex of unique resources, along with the very similar George Washington National Forest (home to the Shenandoah National Park), lies within 250 miles of an estimated one-third of the population of the United States.

TRAILS AND PARKWAYS

The Appalachian National Scenic Trail, one of the nation's premier long-distance trails, runs northeast to southwest, following the mountains across the Potomac watershed. Famous for its primitive, scenic beauty, the Appalachian Trail attracts serious hikers as well as those seeking a day-long outing for frequent access points make short trips very convenient. The Blue Ridge Parkway is a scenic drive winding along the crest of the Blue Ridge. Skyline Drive, to the north, is also a slow-speed driving parkway that follows the crest of the Blue Ridge mountains. Both have many stopping points where visitors can see the expanse of the Shenandoah Valley to the west and miles of Virginia stretching eastward toward the ocean. Also available are hiking trails, picnic and camping sites.

The C&O Canal National Historical Park is a wonderful opportunity for leisurely hiking or cycling combined with a fascinating look at American history. Begun in 1852, the C&O Canal reached Cumberland, Maryland in 1856, providing what was then the safest and quickest means to transport coal and agricultural products to the growing tidewater populations. The advent of the speedier and more efficient railroad, however, brought the demise of the C&O canal system. Today, it is the region's premier greenway, a ribbon park that runs along the Potomac for more than 184 miles. The hiking trail, or towpath, is actually the path used by mules and their drivers to pull boats carrying goods up and down the canal. From the towpath, visitors can see the Potomac, the canal and locks, and the scenic hills surrounding the river.

The conversion of former railroad right-of-ways into hiking trails is an expanding technique for trail development. The Washington and Old Dominion Railroad National Recreation Trail follows the abandoned railroad from Alexandria to Purcellville in Virginia; this multi-purpose trail runs through interesting urban areas, countryside, several parks and lovely natural areas.

Laurel Ridge Conservation Education Center near Vienna, Virginia is the site of the national headquarters of the National Wildlife Federation. Its Mountain Laurel Trail through wood and meadow habitats is accessible to the handicapped, and interpretation is available on cassette tape and Braille transcriptions. This trail has been designated a National Recreation Trail by the National Park Service for its significance as a national model for other self-guiding, fully-accessible nature trails.

WATER RECREATION

From the Chesapeake Bay to the Appalachian Mountains, residents of the Potomac watershed love their rivers. Exciting activities such as rafting the Shenandoah River, kayaking the Savage River, fishing the Monocacy, or sailing on the lower Potomac, draw recreational enthusiasts to the waters of the Potomac and its tributaries. But while the Potomac watershed has abundant water-borne activities to offer, they are not without price. Issues of over-use and abuse as well as safety have prompted various states in the watershed to undertake studies of recreational impacts.

The Interstate Commission on the Potomac River Basin (ICPRB), in cooperation with West Virginia, Maryland, federal agencies, and local governments, is working to revive the North Branch of the Potomac after decades of pollution, caused mainly by acid mine drainage but also by logging and other industrial activity. Water quality has improved on the river to the point that populations of stocked trout are becoming increasingly large and healthy, and, in some areas, are even repopulating. As the situation continues to improve, the fishery resources of the North Branch could rival the great trout streams of Montana and Wyoming. Those fisheries are worth millions of dollars to their surrounding communities.

The rivers of the eastern panhandle of West Virginia are renowned for their natural character and high quality fishing and boating opportunities. This region offers a variety of large and small wild and rural streams worthy of note. The 1990 West Virginia Statewide Assessment notes that the river system, including such important tributaries as the South Branch, Opequon Creek and Back Creek, possesses outstanding recreational and natural resources. The Cacapon, one of the longest free-flowing, largely undeveloped rivers in the state, is a scenic warmwater stream that provides high-quality fishing and boating opportunities in an outstanding scenic setting. Ninety miles of the Cacapon are listed on the Nationwide Rivers Inventory as potentially eligible for inclusion in the national wild and scenic rivers system. Goose Creek, Catoctin Creek, the Monocacy River, and sections of the Shenandoah and Potomac are already designated as wild and scenic rivers in their respective states due to their scenic beauty, importance to local communities, and ecological value.

The Shenandoah River, sometimes meandering through farmland while elsewhere tumbling violently over rocks, is popular with fishermen and rafters alike. Although fish consumption advisories are in place along several sections of the Shenandoah, 223 river miles of the river and its tributaries are designated trout-fishing waters. Another water activity for which the Shenandoah is popular is whitewater rafting and canoeing. A 1992 study found that between June 13 and September 7 of that year, 11,072 people floated or paddled down the river on rafts, innertubes, canoes or kayaks. Great Falls Park in Virginia also offers powerful whitewater. Once considered non-navigable, it is now designated as Class VI whitewater (life-threatening), the only such area in the state. It is run only by experienced boaters with special equipment and a state permit. In 1989, another Potomac tributary, the Savage River in western Maryland, gained international attention for its whitewater when it hosted the first world whitewater championships held in the U.S. The Savage had previously been the site of the 1972 Olympic whitewater trials and continues to attract annual championship races.

While the Potomac and its tributaries offer quality trout fisheries and whitewater boating opportunities in highly scenic natural settings, fishery declines in the lower Potomac have long been a source of concern. The 1993 oyster season for the Potomac was an all-time low.

A Chesapeake Bay watershed-wide initiative is underway, through the federal-state Chesapeake Bay Program, to restore these fisheries to both commercial fishermen and recreational enthusiasts. The effort includes improving fish passage to spawning areas in freshwater streams and abating water-quality problems. Some improvements are already evident. Largemouth bass returned to the upper estuary in 1976, and now national bass tournaments are held there. Rockfish populations have also rebounded. Aquatic vegetation has begun a comeback as well, spurring a chain reaction of water quality improvements. Recreation enthusiasm continues to run high however, as in 1990, the Potomac River Fisheries Commission, the bistate commission that manages the Potomac's tidewater fisheries up to the District of Columbia, issued about 29,000 recreational fishing permits.

Federal and state agencies are not the only groups working to restore the Potomac watershed. Many private, civic and non-profit organizations have dramatically impacted waterways and recreation areas in their communities. For example, Falling Spring Greenway, a non-profit group, is working to protect a creek of historical and recreational importance in their community of Chambersburg, PA. Falling Spring is one of three limestone spring creeks in Pennsylvania--they are rare throughout the nation--and is acclaimed for its scenic beauty and exciting trout fishing.

YOUR STEWARDSHIP ROLE

You do not have to be a champion whitewater kayaker or mountain climbing pro to enjoy all the recreation opportunities in the Potomac watershed. You just have to enjoy nature and all that it has to offer and care enough about protecting and preserving it for the future. Here are some suggestions:

> Get involved in planning decisions made at the local level. This can be as simple as attending a few meetings in order to become a more informed voter or volunteering to serve on an advisory committee or task force.

> Join or support organizations that are working to preserve the resources and recreation sites that you enjoy. Whatever you have to offer, there is a group that could use your help. For example, even if you are short on time and money you might help a lot simply by donating some old furniture or office equipment to a struggling non-profit effort. If you dread public speaking for instance, there may be a group that needs carpenters, gardeners or typists.

> Exercise your responsibilities as well as your rights. Pack your trash out when you visit parks, trails, forests and waterways. Comply with requests not to remove vegetation or artifacts and do not trespass. Show respect for another culture's heritage.

> Convert your yard, patio or balcony into a wildlife-friendly habitat. Feeders, bird houses, pools or water, and trees and shrubs provide necessary nourishment and shelter to wildlife. Even a small plot can easily become a haven for wildlife.

> Get out and enjoy the many recreation opportunities. Consider yourself blessed to have so many to choose from so close to home. Besides, the exercise is good for you.

MORE INFORMATION

A river's watershed is all the land that contributes runoff to that river. The Potomac's watershed extends over 14,000 square miles and encompasses an incredible variety of landscapes. With its wealth of history and natural resources, the Potomac watershed is clearly a national treasure. The watershed is also home to 4.6 million people and includes portions of four states and the District of Columbia. Restoring and protecting its resources is a truly complex challenge.

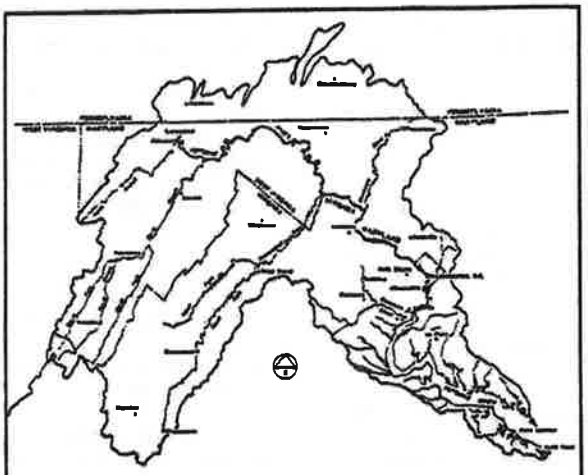
This fact sheet is one of four dealing with different aspects of the Potomac watershed. The fact sheets are part of the Potomac Visions Project, a cooperative effort to assist locally led conservation programs throughout the watershed. However, four fact sheets can't begin to describe all the Potomac watershed has to offer. For more information about the Potomac and its resources, feel free to call the Interstate Commission on the Potomac River Basin (ICPRB) at (301) 984-1908. For more information on the Potomac Visions project or the Alliance for the Chesapeake Bay, call (301) 881-8678.

This text was drafted by Jeff Moffatt, Alliance for the Chesapeake Bay, for the Potomac Visions Project. The United States Environmental Protection Agency provided financial and technical assistance to the Visions Project.

CONSERVATION TECHNIQUES FOR THE POTOMAC WATERSHED

A HISTORY OF CONSERVATION

Because of the Potomac region's long history (having sustained human populations for more than 10,000 years) the impacts of resource exhaustion, pollution, and expanding settlements were felt relatively early. Southern Maryland tributaries such as Port Tobacco, Mattawoman, and Piscataway were all navigable before the Revolution. By 1807, ports on these creeks were beginning to silt up and were falling out of use. By 1887, approximately ten million gallons of untreated sewage were dumped daily into the marshlands surrounding the lower Anacostia. Commercial fishing for sturgeon from the Potomac ended in the 1920s.



THE POTOMAC RIVER BASIN

Gradually, as it became clear that the frontier was not limitless, people came to realize it was necessary to "give something back" to the river if it was going to continue to support them. In 1890, President Harrison appointed a board of sanitary engineers to recommend improvements to waste handling in the Nation's Capital. Many years and many improvements later, sewage treatment along the Potomac is again the subject of discussion as each jurisdiction strives to meet and maintain tough nutrient reduction commitments for the Potomac in the year 2000.

Preservation of historic and natural resources also has an early history in the basin, beginning with the preservation of Mount Vernon, the nation's first historic preservation project, in 1852. In 1890, Rock Creek Park was established. This wilderness gem in the city was described by John Quincy Adams as "this romantic glen . . . " and by Theodore Roosevelt as " . . . as wild as a stream in the White Mountains." Today, the focus is on preservation techniques (such as greenways and heritage landscapes) and habitat restoration projects that can provide multiple benefits. To mitigate the impacts of increasing population growth and development, Potomac communities need techniques that address a variety of critical objectives: sustained economic growth, improved water quality, stabilized wildlife populations, and maintenance of a unique "sense of place."

The Potomac basin, with its long history of conservation efforts and its great natural and cultural diversity, is a premiere laboratory for the advancement of conservation techniques. There are a wealth of ideas, examples, and skilled practitioners in the region. Any community embarking on a conservation effort would do well to learn from the Potomac experience. What follows is a small sample of what can be found here.

EXAMPLES OF TECHNIQUES IN USE (OR BEING DEVELOPED) IN THE BASIN

Whatever your conservation goal, there are basic tasks, such as gathering information and building support, that must be accomplished. Conservation techniques can also be grouped according to type of action (e.g., establishing regulations or providing technical assistance). Both basic tasks and techniques are listed below along with sample projects within the watershed. Many more projects could have been listed, and many of the listed projects could be placed under several headings.

Task: Gathering information on existing resources and trends; assembling available information in a format useful for planning and management decisions.

Potomac examples include: *Portrait of a River - The Ecological Baseline of the Cacapon River* by the Pine Cabin Run Ecological Laboratory in West Virginia; A proposal by Virginia's Commission on Population Growth and Development and the Council on Information Management to create a statewide GIS system; West Virginia's 1990 statewide assessment of natural, recreational, and historical resources; In Virginia, the Middlebrook - Brownsburg Survey, a project of the Valley Conservation Council, will include natural and cultural data on base and overlay maps.

Task: Setting goals and objectives through a process of visioning, planning, and consensus-building.

Potomac Examples include: Accokeek Foundation's Potomac River Heritage Project, which will link and give visibility to hundreds of natural, historical, cultural, and archeological sites of national significance; The "multi-objective river corridor" planning process recently demonstrated by the Lord Fairfax Planning Distric Commission and two Virginia counties; and the West Virginia Watershed Conservation and Management Program which is developing goals and strategies for 9 different conservation issues through a series of stakeholders' meetings.

Task: Educate the public and promote conservation goals

Hard Bargain Farm, operated by the Alice Ferguson Foundation in Maryland, offers hands-on education programs to over 10,000 children a year; A River Revival, sponsored by all humanities councils in the Basin, aims to explore the linkages between history and ecology; The Renfrew Institute in Waynesboro, Pa., offers both environmental and historic education programs.; The D.C. Environmental Education Consortium recently published "D.C. Naturally", a guide to education resources.

Technique: Involve citizens in active stewardship of resources

Falling Spring Greenway in Chambersburg, Pa., has worked to keep livestock from damaging a nationally recognized wild trout stream; The annual "Potomac River cleanup" is coordinated basinwide by the Alice Ferguson Foundation; The Washington Metroplitan Council of Government Small Habitat Improvement Project involves citizens in wetlands plantings, reforestation, and other restoration projects.

Technique: Develop regulations to control impacts or enforce sensitive area protections.

Rockingham County, Va. regulates large producers; Charles County, Md. has a Stream Valley Management and Protection Program; Adams County, Pa. developed an Interchange Zoning Ordinance.

Technique: **Provide technical or financial assistance**

Small grants to citizens' river groups are available through Pennsylvania's bond fund; Maryland's Chesapeake Bay Trust supports grassroots restoration projects; Virginia's Environmental Endowment provides mini grants to citizen groups; The Chesapeake Bay International Stewardship Exchange brings teams of experts to communities who have requested assistance with a project or issue.

Technique: **Build networks among communities and organizations working for conservation goals**

The Potomac River Greenways Coalition works throughout the basin to promote and link local greenway projects; The Potomac River Network was recently organized by environmental educators working in the tidal Potomac; The Maryland Volunteer Water Quality Monitoring Association, coordinated by the Alliance for the Chesapeake Bay, helps citizen groups to track stream health.

Technique: **Establish conservation reserves through easements, incentives, or purchase.**

The Southern Alleghanies RC&D has a land conservancy program; The Potomac Conservancy works with private property owners to protect land along the freshwater portion of the river; The Valley Conservation Council secures agreements from landowners to protect streambanks.

Technique: **Take a watershed approach to integrate management and restoration programs (both land and water).**

The Anacostia Watershed Restoration Committee coordinates the work of the multi-jurisdictional Anacostia cleanup effort; The Potomac Headwaters Water Quality Project in West Virginia defines water quality issues broadly; The North Branch Restoration Agreement involves two states and the Interstate Commission on the Potomac River Basin.

YOUR STEWARDSHIP ROLE: SOME IDEAS AND SOME RESOURCES TO GET YOU STARTED

You don't have to be an expert technician or a planner to get involved, you just have to care about your community and your home river. Here are some suggestions:

- ***Learn more about your area's resources, what's being done to protect them, and how you can get involved.*** Call for a *Watershed Watch* packet. Consider joining an adopt a stream or volunteer monitoring program.
- ***Get involved in planning decisions made at the local level.*** This can be as simple as attending a few meetings in order to become a more informed voter, or you might volunteer to serve on an advisory committee or citizen task force.
- ***Spread the Word!.*** Invite a speaker to your community group, club, church, or business function. Volunteer to help with programs at your local school. Call the sources listed below for materials to distribute at local fairs and festivals.
- ***Watershed conservation begins at home!*** Call for a copy of *Baybook* and *BayScapes* to learn more.

A river's watershed is all the land which contributes runoff to that river. The Potomac's watershed extends over 14,000 square miles and encompasses an incredible variety of landscapes. With its wealth of history and natural resources, the Potomac watershed is clearly a national treasure. When you consider the watershed is also home to 4.6 million people, and includes portions of four states (plus the District of Columbia), you begin to realize that protecting and restoring its resources is a truly complex challenge.

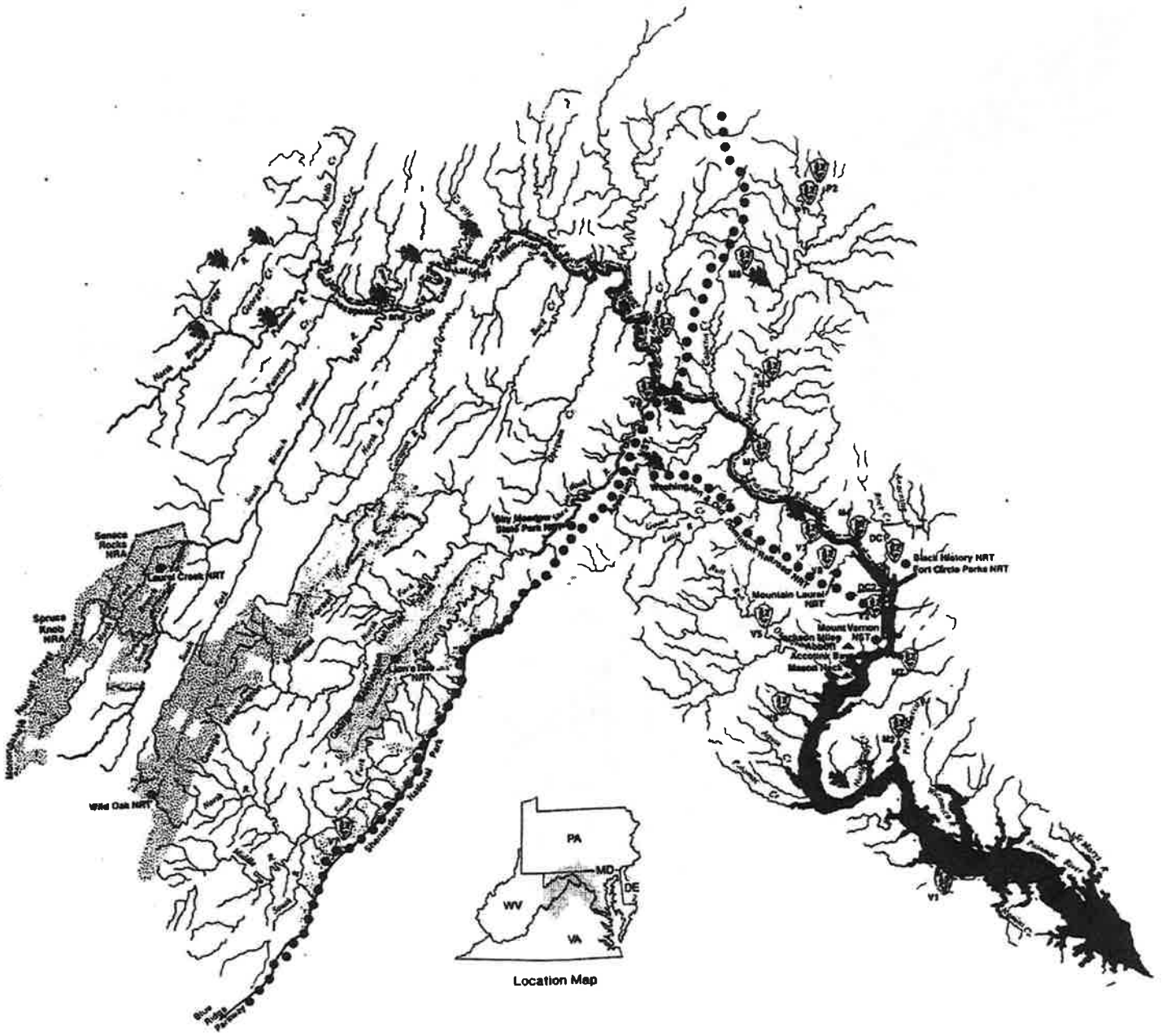
This fact sheet is one of four dealing with different aspects of the Potomac watershed. (Others cover recreation, natural resources, and the people and communities of the watershed.) The fact sheets are part of the Potomac Visions Project, a cooperative effort to assist locally-led conservation programs throughout the watershed. For more information see the resources listed at the end of this fact sheet.

RESOURCES:

For more information about the Visions Project or the Potomac and its resources – the Interstate Commission on the Potomac River Basin (ICPRB), 301-984-5841

For *Watershed Watch*, *Baybook*, or *BayScapes*, The Alliance for the Chesapeake Bay, 301-881-8678

This text was drafted by Carole Ann Barth, Alliance for the Chesapeake Bay, for the Potomac Visions Project. The United States Environmental Protection Agency provided financial and technical assistance to the Visions Project.



SIGNIFICANT RESOURCES: MAP A

LEGEND

National Parks

- DC1 Rock Creek Park
- DC2 Theodore Roosevelt Island
- M1 Chesapeake and Ohio Canal Natl Historical Park
- M2 Thomas Stone National Historic Site ★
- M3 Monocacy National Battlefield ★
- M4 Clara Barton National Historic Site ★
- M5 Antietam National Battlefield
- M6 Catoctin Mountain Park
- M7 Piscataway Park
- P1 Eisenhower National Historic Site ★
- P2 Gettysburg National Military Park
- V1 George Washington Birthplace National Monument
- V2 George Washington Memorial Parkway
- V3 Great Falls Park
- V4 Harpers Ferry National Historical Park
- V5 Manassas National Battlefield Park
- V6 Prince William Forest Park
- V7 Shenandoah National Park
- V8 Wolf Trap Farm Park
- ★ site is also a National Historic Landmark (see Map B)

National Forests

- George Washington National Forest
- Monongahela National Forest

National Recreation Areas

- Seneca Rocks NRA
- Spruce Knob NRA

National Recreation or Scenic Trails

- Blue Ridge Parkway
- Appalachian NST
- Black History NRT
- Fort Circle Parks NRT
- Laurel Creek NRT
- Lions Tale NRT
- Mount Vernon NST
- Mountain Laurel NRT
- Sky Meadow State Park NST
- Washington & Old Dominion Railroad NRT
- Wild Oak NRT

National Wildlife Refuges

- Mason Neck National Wildlife Refuge
- Accotink Bay Wildlife Refuge
- Jackson Miles Abbott Wetland Refuge

Lands owned or transferred by The Nature Conservancy

The Potomac River Watershed

Prepared by the National Park Service's Rivers, Trails and Conservation Assistance Program with assistance from the Accotink Foundation and Interstate Commission on the Potomac River Basin

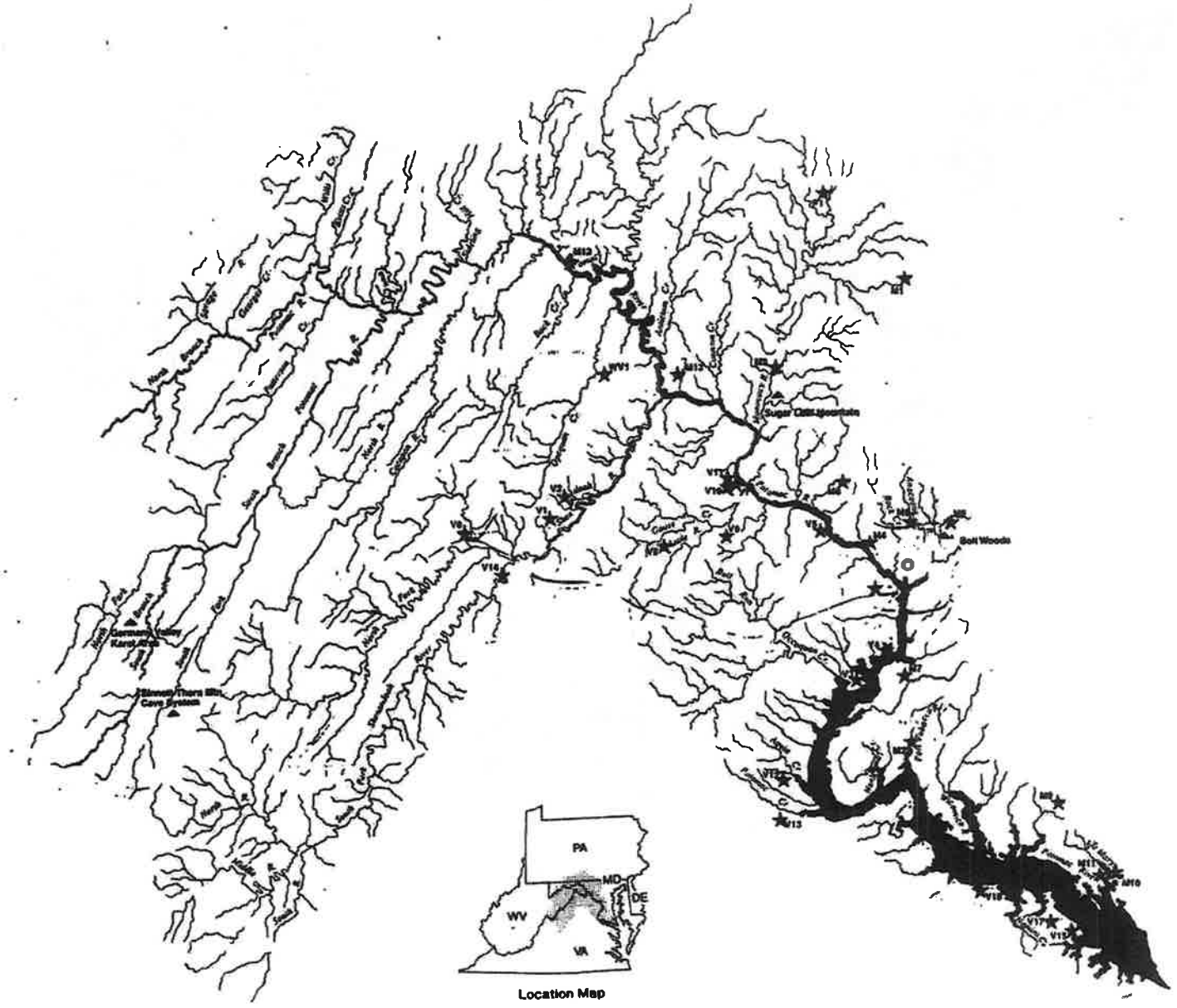
Scale 1:500,000

1 inch equals approximately 8 miles

10 0 10 20 30 MILES

10 0 10 20 30 40 KM

N



Location Map

SIGNIFICANT RESOURCES: MAP B

LEGEND

National Natural Landmarks ▲

Germany Valley Karst Area
Sinnett-Thorn Mtn Cave System
Bolt Woods
Sugar Loaf Mountain

National Historic Landmarks ★

- O District of Columbia- 86 sites - -(listed in appendix)
- AA Arlington/Alexandria- 10 sites -
- M1 Whittaker Chambers Farm
- M2 Habre-de-Venture (Thomas Stone NHS)
- M3 Monocacy National Battlefield
- M4 Clara Barton House (Clara Barton NHS)
- M5 Rachel Carson House
- M6 Gaithersburg Latitude Observatory
- M7 Accokeek Creek Site
- M8 Spacecraft Magnetic Test Facility (Goddard)
- M9 Resurrection Manor
- M10 St Mary's City Historic District
- M11 West St Mary's Manor
- M12 Fort Frederick
- M13 Kennedy Farm / John Brown's Headquarters
- P1 Dwight D. Eisenhower Farmstead (Eisenhower NHS)
- V1 Greenway Court
- V2 Saratoga
- V3 Gunston Hall
- V4 Mount Vernon
- V5 Potomac Canal Historic District
- V6 Cedar Creek Battlefield & Belle Grove
- V7 Ball's Bluff Battlefield & National Cemetery
- V8 General William "Billy" Mitchell House
- V9 Oak Hill (James Monroe House)
- V10 Oatlands
- V11 Waterford Historic District
- V12 Aquia Church
- V13 Carl Melchers Home (Belmont)
- V14 Thunderbird Archeological District
- V15 Spence's Point (John R Dos Passos Farm)
- V16 Stratford Hall
- V17 Yeocomico Church
- WV1 Traveller's Rest

site is also a National Park Unit (see Map A)

The Potomac River Watershed

Prepared by the National Park Service's Rivers, Trails and Conservation Assistance Program with assistance from the Accokeek Foundation and Interstate Commission on the Potomac River Basin

Scale 1:500,000

1 inch equals approximately 8 miles

10 0 10 20 30 MILES

10 0 10 20 30 40 KM

N↑

Appendix VI

Here Are a Few Examples of the Great Ideas Found in the Potomac Basin

(in no particular order--and even more are out there!)

- Models for small grants: Pennsylvania's 1993 bond fund provides for grants to citizens' river groups; Maryland's Chesapeake Bay Trust; and Virginia's Environmental Endowment (VEE).

- The Chesapeake Bay International Stewardship Exchange, a plan to bring teams of experts into communities or watersheds to address issues identified by local teams representing both government and private organizations.

- Potomac Electric's "Conser-vision".

- A proposal by Virginia's Commission on Population Growth and Development and Council on Information Management to create a statewide GIS system.

- A proposal by the National Center for Resource Innovations of Arlington, Va., for a GIS program in one community in the basin.

- The annual "Potomac River cleanup" coordinated basin-wide by the Alice Ferguson Foundation's Hard Bargain Farm Environmental Center.

- S.567, a bill on the Chesapeake Bay Program introduced in Congress by Senator Paul S. Sarbanes of Maryland--Section 6 provides for small grants and technical assistance through states to community-based organizations and local governments.

- The Maryland Volunteer Water Quality Monitoring Association.

- Coors Brewing Company's Clean Water 2000, which provides significant support to a number of Potomac conservation projects.

- The Accokeek Foundation's Potomac River Heritage Project.

- The "multi-objective river corridor" planning process recently demonstrated by the Lord Fairfax Planning District Commission and Shenandoah and Page counties in Virginia .

- Mount Vernon's state-of-the-art assessment of its viewshed.

- West Virginia's river conservation process now under conceptual development.

- Hard Bargain Farm Environmental Center, operated by the Alice Ferguson Foundation in Prince George's County, Md.

- The Valley Conservation Council's "riparian easements," agreements by landowners to protect streambanks through conservation measures.

- The proposed "Potomac River Revival" sponsored by all humanities councils in the basin.

- Garland Hudgins, a landowner on the Shenandoah River, has created a "boaters rest" for canoeists through an easement held by the Virginia Department of Game and Inland Fisheries.

- The St. Clement's Island/Potomac River Museum in St. Mary's County, Md., the only museum devoted to the river's natural and cultural heritage in general.

- West Virginia's 1990 statewide assessment of natural, recreational and historical resources.

- The Anacostia River Restoration Project, especially the Washington Metropolitan Council of Governments SHIP program and the Interstate Commission on the Potomac River Basin's public outreach.

- Fairfax County's proposed "Stream Valley Stewards" initiative.

- The Stream Valley Management and Protection Program in Charles County, Md.

- Maryland's 1992 heritage tourism marketing strategy.

- Pine Cabin Run Ecological Laboratory's stream health assessment, as reported in *Portrait of a River: The Ecological Baseline of the Cacapon River.*

- Friends of the North Fork of the Shenandoah River's "River Rangers" environmental education curriculum.

- The Potomac National Scenic Heritage Trail.

- The C&O Canal.

- The Potomac Headwaters Water Quality Project in West Virginia.

- The recent North Branch Restoration Agreement.

- The Valley Conservation Council's model natural, cultural and scenic assessment underway in the Middlebrook/Brownsburg corridor in the Shenandoah Valley (Augusta and Rockbridge counties).

- The Southern Alleghenies RC&D's land conservancy program -- a combination of two great ideas.

- Virginia's Tourism Accreditation Program, offered by the Department of Economic Development's Tourism Development Group.

- The Potomac Conservancy, working with private property owners to protect lands along the freshwater portion of the river; currently dedicated to work in the Potomac Gorge.

- The Potomac River Greenways Coalition, working in the entire basin to promote and link local greenway projects.

- The Potomac River Network, working in the entire basin to link environmental educators.

- Hampshire County, West Virginia, Riparian Task Force.