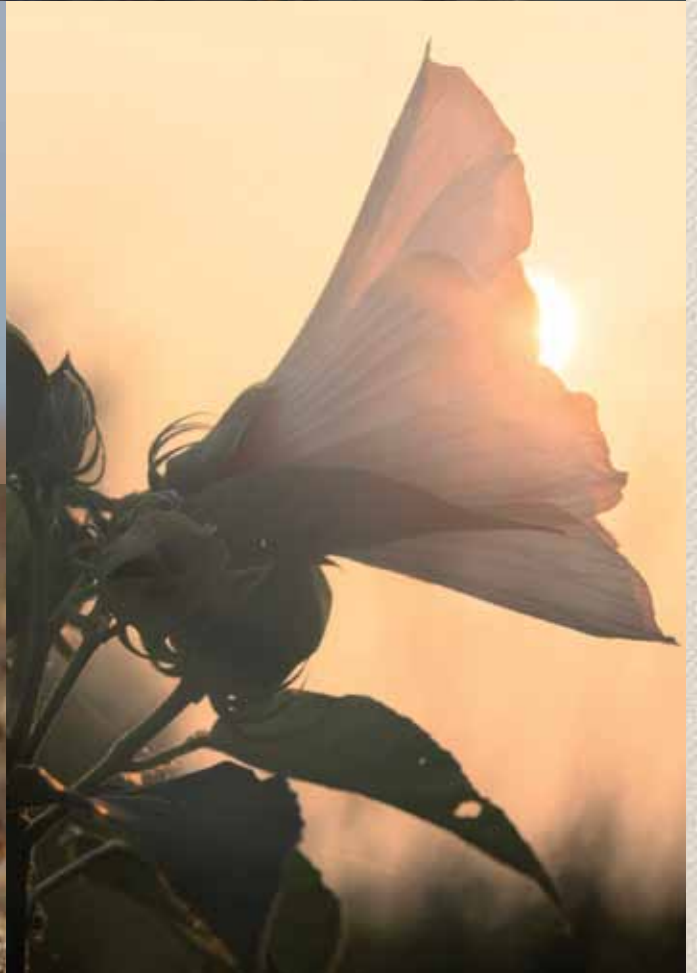


PROTECTING OUR
CHESAPEAKE
PROTECTING OUR
NATIONAL PARKS



NATIONAL PARKS CONSERVATION ASSOCIATION

www.npca.org



Water gives life

to our national parks, shaping land and sustaining the plant and wildlife that live in them. It is vital to preserving the natural features and historical settings that are essential to the visitor experience. Yet, outside the parks, the health of our waters is being jeopardized. Pollution from activities beyond park boundaries, such as erosion from land uses and nutrient pollution, damages the quality of the water that surrounds and flows through our national parks. Parks are increasingly threatened by activities occurring in their watersheds that support them.

The Chesapeake Bay watershed is home to more than 50 national park units. Shenandoah National Park in Virginia's Blue Ridge Mountains, Gettysburg National Military Park in Pennsylvania, and the C&O Canal National Historical Park along the Potomac River are just a few of the parks that share this common bond. Their streams and rivers, along with many others in the expansive watershed, ultimately flow into the Chesapeake Bay, which is recognized as one of America's Great Waters. National parks and the tourism-based economies they support have much at stake in efforts to restore the Chesapeake.

The James River and the Patapsco River are two of the many rivers that flow into the Chesapeake Bay. The James, which flows through rural and urban landscapes in Virginia, and the Patapsco, which flows through largely urban areas of Maryland, are home to two important

historical sites that preserve and interpret integral parts of our national heritage. Colonial National Historical Park on the James and York rivers and Fort McHenry National Monument and Historic Shrine on the Patapsco River encapsulate specific moments in the founding of our country and the wars fought to defend it.

This report explores these two historical parks and the contrast between historical and modern water quality of the watershed. This report recounts what the rivers looked like before significant agricultural practices, oyster harvesting, and extensive human development. It recommends options to restore the Chesapeake Bay and its rivers and streams to a highly productive ecosystem with cleaner water, fewer toxic contaminants, and more abundant aquatic and terrestrial life. Recognizing what has been lost helps us see what we have the opportunity to regain.



Here are mountains, hills, plains, valleys, rivers, and brooks all running most pleasantly into a faire Bay compassed but for the mouth with fruitful and delightsome land.

Captain John Smith



The Chesapeake Watershed: Then and Now

APPROXIMATELY 15,000 years ago the Susquehanna River Valley flooded to form the Chesapeake Bay and its watershed. Humans have been living on the Chesapeake and its 150 major tributaries for more than 10,000 years. From the American Indians who created thriving societies on the Chesapeake shores to the European settlers who became the initial founders of the United States, the Chesapeake Bay has been a cornerstone of American history and life for thousands of years.

One of the first European settlers was Captain John Smith. Smith was the successful leader of the first English colony in the United States, Jamestown. After serving as leader of Jamestown, Smith went by boat on a three-month exploratory survey of the Chesapeake Bay in the summer of 1608, mapping the locations of Jamestown, American Indian villages, and numerous bay tributaries.

Smith described the bay's shorelines, rivers, and creeks in his journals. His descriptions included detailed accounts of how the forests along the shorelines were "frequented with wolves, Beares, Deere and other wild beasts [sic]."

At that time the dense forests surrounding the bay and its rivers slowed sediment and freshwater runoff. Some scientists believe that the bay was saltier in the 1600s than it is today because so much rain water was absorbed by the adjacent old growth forests. The bay had exceptional water clarity due to the natural filtration provided by the bay's

famous oysters, marshes, swamps, and submerged grass beds.

Today the Chesapeake Bay is recognized as one of America's Great Waters because of its national significance. It is the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world. The Chesapeake watershed covers more than 64,000 square miles and spans six states and the District of Columbia. The ratio of land to water in the Chesapeake watershed is 14:1. Therefore, land use changes and practices strongly influence the water quality of the bay and its surrounding tributaries.

The Chesapeake Bay that Captain Smith describes has seen many changes during the last 400 years. Today's Chesapeake faces significant environmental problems, which makes it impossible to witness what the American Indians and the settlers did more than 400 years ago. Water clarity has diminished; nutrient and sediment loading has increased; and the oyster reefs have disappeared.

The Chesapeake Bay Foundation estimates that during the time of Captain Smith's exploration underwater grasses covered about 400,000 acres compared to 70,000 acres today. Wetlands have diminished from 3.5 million acres to 1.5 million acres. The abundant forests that covered the watershed have been replaced by development and agriculture. Scientists estimate that oysters were once so abundant in the Chesapeake Bay that it would take only three days to filter the entire bay. Now it takes a year.



Air and water pollution from land-based activities degrade water quality and contribute to growing dead zones, depleting aquatic life such as blue crabs and oysters. Such pollution threats include stormwater runoff containing fertilizer, chemicals, and sediments; municipal wastewater and industrial wastes; and airborne nitrogen and toxic mercury from power plants and motor vehicles. In the summer of 2006, scientists declared approximately 35 percent of the bay a “deadzone,” lacking enough oxygen to support life. Additionally, over harvesting and disease have reduced oyster populations that helped filter pollutants from water.

During the last three decades governmental and nongovernmental groups have been working to restore the Chesapeake watershed. Notable successes include the reduction of point source pollution and the decreasing trends in nitrogen and phosphorus pollution levels. However, much work remains to restore the bay to the highly productive ecosystem from historical times.

CHOOSE CLEAN WATER:

The National Parks Conservation Association (NPCA) recognizes that the health of our national parks is directly linked to the health of the waters that surround them and flow through them. Because of the many connections among the mid Atlantic region’s national parks and the Chesapeake watershed’s health, NPCA helps lead the Choose Clean Water Coalition, advocating for policies to protect and restore local water quality at dozens of national parks throughout the watershed and along the Chesapeake Bay.

www.choosecleanwater.org

AMERICA’S GREAT WATERS:

From the Chesapeake Bay to the Great Lakes, from Puget Sound to the Everglades, our Great Waters are the lifeblood of our nation, driving regional economies, enhancing our national parks, and shaping the daily lives of Americans. NPCA co-chairs America’s Great Waters Coalition, which formed in 2009 with the goal of making the restoration of Great Waters a national priority. The Coalition envisions a day when America embraces its Great Waters and ensures they are healthy, valued, and productive resources for our nation.



National Parks of the Chesapeake



The main river (James) abounds with sturgeon, very large and excellent good, having also at the mouth of every brook and in every creek both store and exceedingly good fish of divers kinds. In the large sounds near the sea are multitudes of fish, banks of oysters, and many great crabs rather better, in fact, than ours and able to suffice four men.

**Captain Christopher Newport
1607**



THE CHESAPEAKE WATERSHED contains more than 50 national park units and is home to three of the top five states for national park visitation – Virginia, Pennsylvania, and the District of Columbia. The national parks include Shenandoah National Park and Harpers Ferry National Historical Park in the headwaters of the bay; Civil War battlefields such as Gettysburg National Military Park and Manassas National Battlefield Park; and the National Mall and Memorial Parks in Washington, DC.

Although there is not yet a national park that encompasses the bay, the Chesapeake Bay Gateways Network is a partnership among parks, refuges, museums, historic sites, and water trails to create a network spanning the Chesapeake Bay and its watershed. The partnership, coordinated by the National Park Service, works together to help people understand the importance of the bay and all the areas that feed into the watershed.

The health of national parks depends on the health of the landscapes that surround them; therefore, the parks around the

Chesapeake face many of the same threats that the Chesapeake and its rivers face.

Two rivers that flow into the Chesapeake Bay, the James River in Virginia and the Patapsco River in Maryland, are home to two historical parks that commemorate moments in the founding of our country – Colonial National Historical Park and Fort MCHenry National Monument and Historic Shrine. Unfortunately the water quality of these rivers has declined dramatically as a result of urbanization and other land use changes.

Exploring historical accounts of life along the rivers helps us understand the quality of the water that once existed. By understanding the past, we can understand what opportunities are available for restoring the Chesapeake Bay and what actions can be taken to preserve the ecosystem on which the parks depend.

COLONIAL NATIONAL HISTORICAL PARK ON THE JAMES RIVER

Colonial National Historical Park (NHP), which includes sites at Historic Jamestowne, and Yorktown Battlefield, straddles the

peninsula between the lower part of the James and York rivers in Virginia. The park spans the time from the first settlers of colonial America to the last major battle of the Revolutionary War at Yorktown, which secured independence for the United States. It shows visitors what settlers saw, how they lived their lives, and how they started to build this country.

American Indians have been in the Chesapeake region for thousands of years, using rivers like the James as a transportation channel connecting important sites. They built their villages along its banks and used the river and its riparian plants to build items critical to their daily lives, such as canoes from trees and mats from grasses. The James River was an integral part of life for the tribes. Based on historical narratives, water quality of the James River during the time of the American Indians was clean and clear.

Jamestown was founded in 1607 as the first British Colony in what became the United States. It was located in the marshes of the James River, which made life difficult for settlers. However, they took advantage of the benefits of living along the river.

Settlers and explorers, impressed by what they saw, wrote back to Europe about the abundance and size of the James River and Chesapeake oysters. Swiss explorer Francis Louis Michel said in 1701 after visiting Virginia, "The abundance of oysters is incredible. There are whole banks of them so that the ships must avoid them [sic]." The earliest charts and maps showing the oyster reefs were sketched by Robert Tindall in 1607.

Visitors to Colonial NHP now experience a setting today with only passing similarities to what the settlers and Captain John Smith saw. Forests of cypress and white oak still line the banks of the river with trees being of similar size today as they were 400 years ago. However, the oyster reefs that the Jamestown settlers saw that sprung out of the water are no longer there today.

Water is an essential feature to Colonial NHP. It is bordered by 40 miles of rivers and contains 24 miles of streams, several ponds, and thousands of acres of wetlands. More than 25 percent of the park is comprised of wetlands, providing critical habitat and filtering pollutants.

Colonial NHP faces a series of threats that are putting the park and the people who depend on the water surrounding the park at risk. These threats include:

- Surface disturbing activities from development and agriculture;
- Chemical leaks, oil spills, and dumping of toxins from nearby military, industrial, and commercial centers;
- Nonpoint source pollution containing pesticides and fertilizers used on agricultural, residential, and industrial lands;
- Increased groundwater contamination from underground storage tanks, septic tanks, and landfills; and
- Loss of wetlands due to the incremental deposit of sediment from development outside and upstream of the park.

Alleviating these threats is important because Colonial NHP is a local economic driver. According to the National Park Service, more than 3.3 million people visited the park in 2009, spending more than \$56 million. They helped generate 777 jobs.

Governmental and nongovernmental organizations across the region are working to improve the water quality of the James River. According to the James River Association, an organization focused on protecting the James River, the way that Virginia manages stormwater will be the single greatest factor determining the future health of the river and will determine the condition that future generations of residents on the James and visitors to places like Colonial NHP will see.



FORT MONROE NATIONAL MONUMENT:

On November 1, 2011, President Obama designated Fort Monroe as a National Monument by using the Antiquities Act for the very first time in his presidency. Fort Monroe and the Old Point Comfort Peninsula are national treasures that encapsulate many critical milestones in our nation's history. Slavery got its start here in Virginia and it also began its long overdue demise. Jefferson Davis, Abraham Lincoln, Harriet Tubman, and Edgar Allen Poe were all part of its history. Over two miles of Chesapeake Bay shoreline will be accessible for public enjoyment! This proclamation is a culmination of years of advocacy by NPCA and many others to create our 396th addition to the National Park System. Fort Monroe National Monument is an important addition to the park presence in the Chesapeake Bay.



On the shore, dimly seen
through the mists of the deep,

Where the foe's haughty host
in dread silence reposes,

What is that which the breeze
o'er the towering steep,

As it fitfully blows, now
conceals, now discloses?

Now it catches the gleam of
the morning's first beam,

In full glory reflected, now
shines on the stream;

'Tis the star-spangled banner!
O long may it wave

O'er the land of the free and
the home of the brave!

Francis Scott Key
"The Star-Spangled Banner"



FORT McHENRY NATIONAL MONUMENT AND HISTORIC SHRINE ON THE PATAPSCO RIVER

Fort McHenry National Monument and Historic Shrine, best known for defending Baltimore Harbor during the War of 1812, is located on the Patapsco River directly downstream from Baltimore. On the evening of September 13, 1814, Francis Scott Key witnessed the British bombardment of Fort McHenry while imprisoned on a British ship. The next morning he saw the British assault squadron had called off its attack and was heading back down the Patapsco River toward the Chesapeake Bay and that an American flag was still flying. Inspired by America's defense of Fort McHenry, Key wrote a poem initially published as the "Defence of Fort M'Henry" that later would be our country's national anthem, "The Star-Spangled Banner."

The Patapsco River was first explored by Smith in 1608. Smith wrote in his journals that the Patapsco River's clay and minerals

reminded him of Eastern Europe and were believed to have medicinal properties. They did not see any people on the land.

The earliest European settlers along the banks of the Patapsco acquired land permits in the late 1600s and introduced extensive tobacco cultivation. Tobacco was the first major export commodity from the Patapsco Valley. While tobacco was a highly valuable crop, the tobacco industry was one of the biggest influences on the degradation of water quality of the Patapsco River. As early as the 1750s, much of the land under tobacco cultivation had been depleted. Eventually after the degradation of the land and British agents control over tobacco prices, cultivation turned from tobacco to grain products.

The Industrial Revolution greatly impacted the Patapsco River from the 1770s to the 1900s. Industries located along the Patapsco depended on the river for power generation

and the shipping of goods. Industries included iron foundries, textile factories, and flour and paper mills.

The Patapsco River watershed has undergone intense deforestation and strip mining for Elkridge's iron industry. These practices caused the Patapsco River at Elkridge Landing to collect enough silt in the late 1770s to stop ships from coming to the landing.

While the Patapsco still feels the effects of years of cultivation and industrialization, it has slowly improved from 100 years ago due to the closing of highly polluting industries, the increased availability of a public sewer system, and the passage of the Clean Water Act of 1972 and with that the regulation of industrial and sewage discharges. Today the threats are from urbanization, which brings stormwater runoff and siltation that degrades water quality. The challenge, similar to the James River, is to decrease impervious surfaces that cause high rates of stormwater runoff, which leads to higher sediment and nutrient loads.

Addressing these threats is critical to improving the water quality surrounding Fort McHenry and ensuring that visitors to the park enjoy the natural surroundings as well as the historical fort and features. According to the National Park Service, more than 600,000 people visited the park in 2009. They spent almost \$38 million and helped to support

more than 450 jobs. It is critical that these visitors continue to visit Fort McHenry and appreciate its surrounding waterways.

Two recent initiatives include actions that target nonpoint source pollution and may improve the water quality of the Patapsco River. In 2009 the Baltimore Commission of Sustainability adopted "The Baltimore Sustainability Plan." One component of the plan is to ensure that Baltimore's waters are fishable and swimmable. This is seen as achievable through actions such as reducing impervious surfaces, increasing the urban tree canopy, and protecting and restoring stream corridors.

The Urban Waters Federal Partnership, recently announced by the Obama Administration, is a national initiative that may improve the health of the Patapsco River and promote its economic, environmental, and social benefits. The Patapsco watershed is one of seven pilot locations selected for this partnership program, which aims to reconnect urban communities with their waterways by improving federal coordination and collaborating with community revitalization efforts to reduce blight, create economic opportunities, and establish open spaces. Projects will include increasing green infrastructure, which will help reduce stormwater and sediment runoff. Funding for this partnership is critical for it to succeed.



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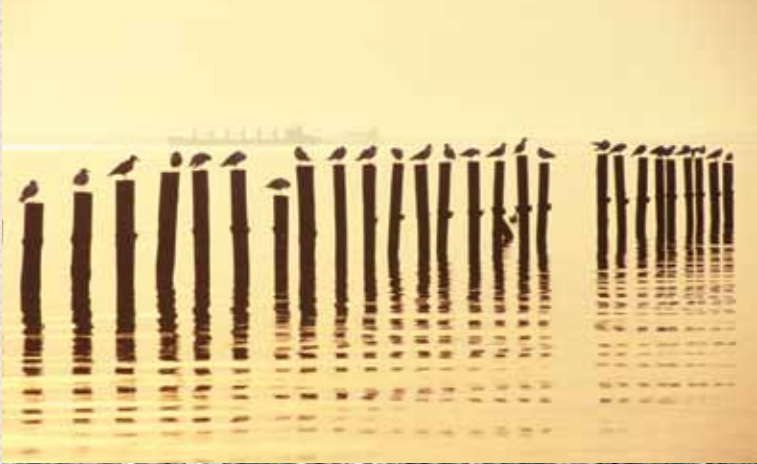
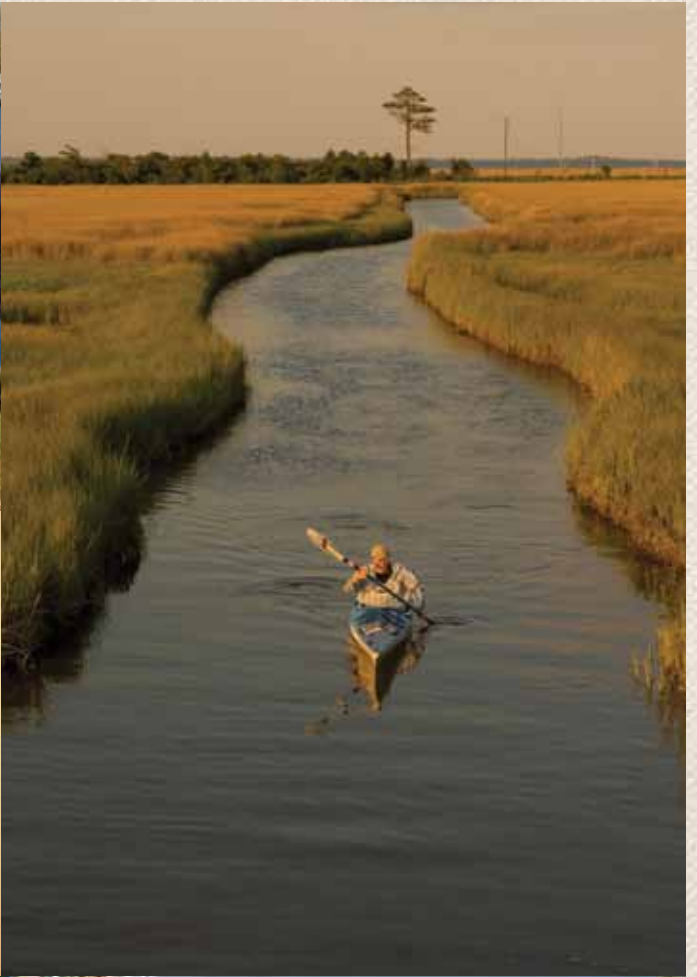
3

days to filter
the bay because
oysters were so
abundant. Now
it takes 1 year.



LANDSCAPE CONSERVATION:

NPCA's Landscape Conservation Campaign seeks to connect, protect, and restore lands and waters surrounding the national parks through a variety of approaches. The goal is for national parks to be more fully protected and sustained as integral parts of larger, ecologically healthy landscapes.



Restoration of the Chesapeake

THE CHESAPEAKE BAY was the first estuary in the nation to be targeted for integrated watershed and ecosystem restoration. Restoration of the Chesapeake Bay spans three decades and includes notable successes, such as the reduction of point source pollution and the decreasing trends in nitrogen and phosphorus pollution levels. However, much work remains to restore the watershed to a highly productive ecosystem that supports our national parks.

In 1998, the Chesapeake Bay was listed as impaired under the Clean Water Act for failure to meet water quality standards, specifically for nitrogen, phosphorus, and sediment. Despite efforts to clean the bay, it still does not meet the standards. The Clean Water Act requires each state to develop Total Maximum Daily Loads (TMDL) for their impaired waterways. The bay states agreed that, in this case, a “state by state” approach would not be as effective as a regional approach and invited the U.S. Environmental Protection Agency (EPA) to develop a bay-wide TMDL.

Twelve years after being listed as impaired, in December 2010, EPA issued a bay-wide TMDL, which identified the maximum aggregate of pollutants possible for achieving water quality standards. The pollutant aggregates are divided among states, which give states the flexibility to decide which actions to take to reduce pollutants in the bay. In

November 2010, each state in the watershed submitted a Watershed Implementation Plan (WIP) designed to meet the TMDL requirements. These WIPs were reviewed and approved or modified and ultimately approved by EPA. EPA and the states are currently working on implementation of these plans.

Another step to advance Chesapeake Bay restoration came on May 12, 2009 with President Barack Obama’s Executive Order 13508 - Chesapeake Bay Protection and Restoration, which recognizes the bay as a national treasure and calls for a renewed commitment by the federal government to restore and protect the nation’s largest estuary and its watershed. The Executive Order called for federal agencies to develop a plan for protecting and restoring the bay.

In September 2010, federal agencies released the Strategy for Protecting and Restoring the Chesapeake Watershed and an action plan in response to the Executive Order that outlines on-the-ground and in-the-water projects aimed at protecting and restoring the watershed by conserving land, increasing public access, and expanding citizen stewardship. Actions are taking place to implement these projects. For example, the National Park Service has begun mapping current and potential access sites throughout the bay, with input from the public. The plan is dependent upon congressional appropriations of the President’s budget request.



ever since
10,000

Future of the Chesapeake

FROM THE TIME 10,000 YEARS ago when the first American Indians inhabited this region, these waterways have remained a vital part of the lives of the people who depend on the rivers for transportation, sustenance, and livelihoods. Today they remain just as significant to the ecological and economic wellbeing of this region and our nation.

Although the Chesapeake Bay will likely never return to the state that Captain John

Smith and Francis Scott Key saw at the time they penned their writings, we can use these historical accounts to reflect on the past conditions of the bay so that we can understand the opportunities we have to protect and restore them as much as possible. These reflections can guide discussions, influence policies and programs, and educate citizens about their role in restoring the Chesapeake Bay

years ago when the first American Indians inhabited this region, these waterways have remained a vital part of the lives of the people who depend on the rivers for transportation, sustenance, and livelihoods.



Recommendations to Protect the Chesapeake's National Parks

“The abundance of oysters is incredible. There are whole banks of them so that the ships must avoid them.”

Swiss explorer
Francis Louis Michel



Carry out the Chesapeake's pollution diet – the bay-wide Total Maximum Daily Load, or TMDL. In 2010, following an extensive two-year public process, EPA established the Chesapeake Bay TMDL, a historic and comprehensive “pollution diet” designed to reduce runoff from polluting the rivers and streams flowing into the Chesapeake Bay. This pollution diet identifies the necessary and enforceable pollution reductions and deadlines needed to protect and restore the Chesapeake Bay.

Improve stormwater guidelines and rules that reduce runoff from urban and suburban development. EPA is studying whether it should tighten its rules on how best to reduce polluted runoff from city streets and lawns. This kind of runoff contributes a significant amount of nitrogen, phosphorus, and sediment pollution flowing into the Chesapeake Bay. Rigorous standards that include incentives and aggressive use of green infrastructure solutions are needed to address specific runoff-related pollution.

Shape the landscape of national parks in the Chesapeake. In addition to Fort McHenry, Colonial National Historical Park, and Fort Monroe National Monument, the National Park Service (NPS) is identifying sites along the bay for inclusion in the park system. The Captain John Smith Chesapeake and Star-Spangled Banner National Historic Trails along with the Chesapeake Bay Gateways Network each showcase the bay's beauty and history for visitors. Individuals can help identify high priority landscapes along these national trails to guide land conservation efforts by submitting ideas through public meetings and comment periods on proposed NPS plans.

Support full funding for the Land and Water Conservation Fund (LWCF). Public lands dot the Chesapeake Bay landscape. Most park units have gaps within their boundaries, making management of these lands more expensive and complicated. Fully funding the LWCF gives the NPS the tools needed





to acquire lands from willing sellers within park boundaries in order to protect the natural, historical, and cultural heritage of the region and nation.

Get out on the water. The NPS Chesapeake Bay Office is identifying public access needs and opportunities along the National Trails, and they need your input. Individuals can share with NPS the special places they believe are needed to allow boaters to put in and enjoy our national parks.

Provide funding for Chesapeake Bay restoration. Efforts to restore the Chesapeake Bay take many forms, from a wetlands restoration project in Pennsylvania to cultural or historical interpretation among one of the many sites in the Chesapeake Bay Gateways Network. Funding for restoration efforts needs to continue so we can make progress in protecting and restoring the Chesapeake.

Provide funding for our national parks. With more than 50 national parks in the Chesapeake Bay watershed, the NPS is

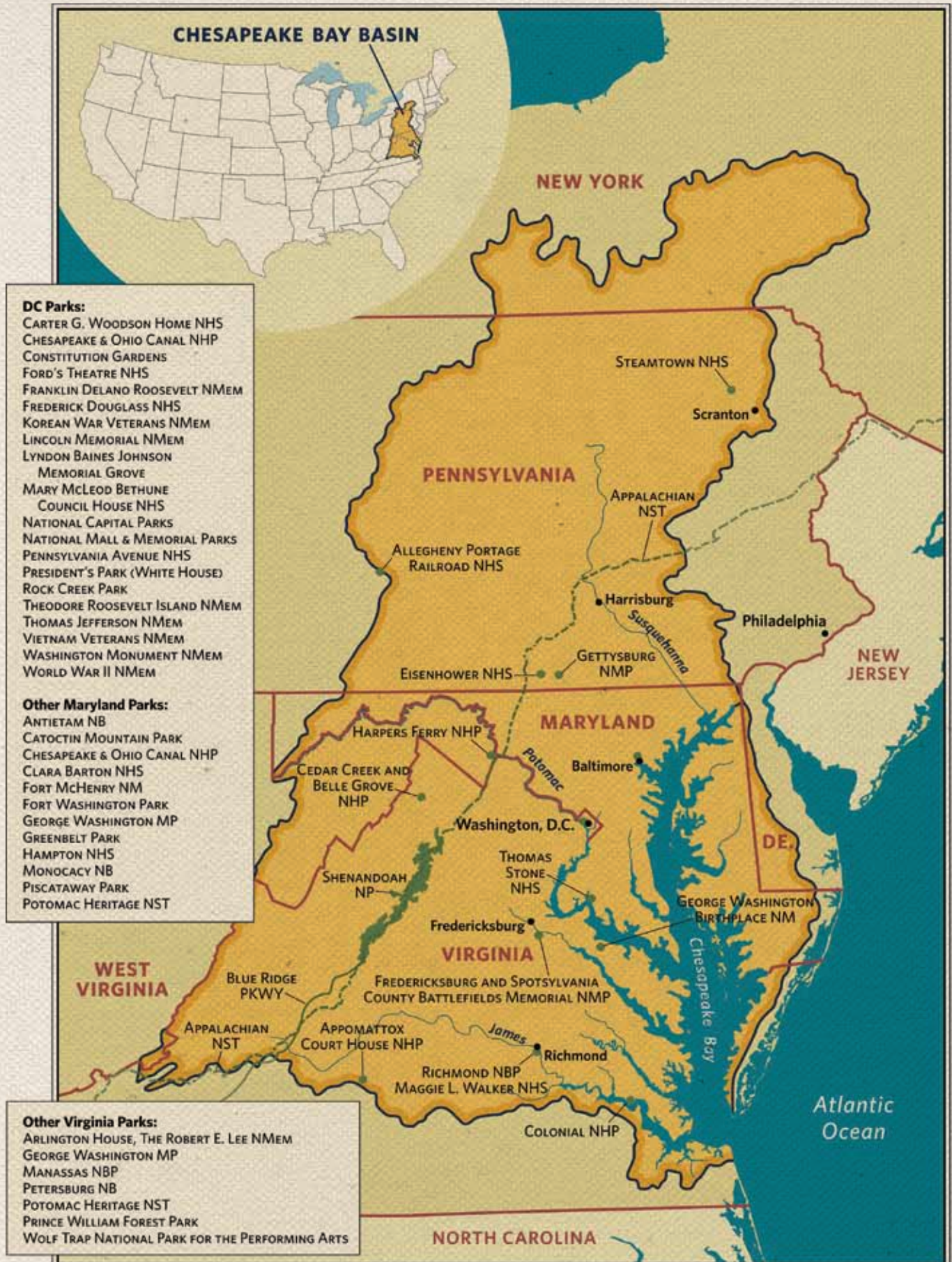
responsible for protecting some of our nation's most sacred natural, cultural, and historic places. However, underfunding our national parks has opened a gap between what is needed to maintain rangers, interpretation, and other services and what is actually being provided by Congress.

Get involved. Through the many decisions we make each day, every individual can help restore and protect the Chesapeake Bay and its national parks by limiting use of fertilizers and pesticides, landscaping with native plants, conserving water, and composting fallen leaves and other yard waste. Individuals can volunteer at a national park and help by eradicating invasive species, conducting trail maintenance, leading hikes, and teaching educational programs. Every step taken helps restore the Chesapeake Bay and protect its national parks for future generations. To learn more, visit www.chesapeakebay.net and contact the NPS Chesapeake Bay Office in Annapolis to find out how you can help.

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Sources

Alliance for the Chesapeake Bay.

Patapsco River fact sheet. Annapolis: Alliance for the Chesapeake Bay, 1997. <http://www.acb-online.org/pubs/projects/deliverables-150-6-2003.pdf>

Beacham, Deanna E. Interview by Rachel Belkin. Washington DC, August 3, 2011.

Carr, Lois Green, Philip D. Morgan, and Jean Burrell Russo. Colonial Chesapeake Society. Chapel Hill: Published for the Institute of Early American History and Culture, Williamsburg, Virginia, by the University of North Carolina Press, 1988.

“Chesapeake Bay Gateways Network.” National Parks Conservation Association | Protecting Our National Parks for Future Generations. <http://www.npca.org/parks/chesapeake-bay-gateways-network.html> (accessed October 6, 2011).

Conserving Chesapeake landscapes protecting our investments, securing future progress. Annapolis: Chesapeake Bay Commission and Chesapeake Conservancy, 2010. <http://www.chesbay.state.va.us/Publications/Conserving-Chesapeake-Landscapes.pdf> (Accessed October 6, 2011).

Curtin, Philip D., Grace Somers Brush, and George Wescott Fisher. 2001. Discovering the Chesapeake the history of an ecosystem. Baltimore: Johns Hopkins University Press.

Eshelman, Ralph E., Scott S. Sheads, and Donald R. Hickey. The War of 1812 in the Chesapeake: a reference guide to historic sites in Maryland, Virginia, and the District of Columbia. Baltimore, Md.: Johns Hopkins University Press, 2010.

Ghinger, Pat, Chris Cerino, and Rebecca Bell. The Chesapeake Bay in Captain John Smith's Time. Captain John Smith 400 Project Curriculum Unit. Chestertown: Sultana Projects. http://www.johnsmith400.org/The_Chesapeake_Bay_in_1608.pdf. (accessed October 6, 2011).

Hoobler, Dorothy, and Thomas Hoobler. Captain John Smith: Jamestown and the birth of the American dream. New York: John Wiley & Sons, 2006.

Kotula, Adrienne. Interview by Rachel Belkin. Washington, DC, August 17, 2011.

Mountford, Kent. Interview by Rachel Belkin. Lusby, MD, August 12, 2011.

Park Waters in Peril. Washington D.C.: National Parks and Conservation Association, 1993.

Schwindt, Ellen. Tobacco and Wheat. Maryland With Pride faculty room worksheets. http://www.pride2.org/NewPrideSite/MD/Lesson8/Wheat_Guide.pdf (accessed October 6, 2011)

Smith, John, and John M. Thompson. The journals of Captain John Smith: a Jamestown biography. Washington D.C.: National Geographic Society, 2007.

Tate, Thad W., and David Ammerman. The Chesapeake in the seventeenth century: essays on Anglo-American society. Chapel Hill: Published for the Institute of Early American History and Culture by the University of North Carolina Press, 1979.

Stynes, D.J. 2011. Economic benefits to local communities from national park visitation and payroll, 2009. Natural Resource Report NPS/NRPC/SSD/NRR—2011/281. National Park Service, Fort Collins, Colorado.

Tayac, Gaby. Interview by Rachel Belkin. Washington, DC, August 2, 2011.

“The Friends of Patapsco Valley and Heritage Greenway, Inc.” The Friends of Patapsco Valley and Heritage Greenway, Inc.. <http://www.patapscoheritagegreenway.org/> (accessed October 6, 2011).

“The James River Association | JRA.” The James River Association | JRA. <http://www.jamesriverassociation.org/> (accessed October 6, 2011).

We have a story to tell: the native peoples of the Chesapeake region. New York: National Museum Of The American Indian, 2006. <http://www.nmai.si.edu/education/files/chesapeake.pdf> (Accessed October 6, 2011).

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