Executive Order 13508

Draft Strategy for Protecting and Restoring the Chesapeake Bay

November 9, 2009

Developed by the Federal Leadership Committee for the Chesapeake Bay

This draft document reflects the current draft strategy of the Federal Leadership Committee for the Chesapeake Bay (FLC) under Section 203 of Executive Order 13508. The FLC is publishing this draft document for public comment. The current draft strategy includes preliminary recommendations that may change as the strategy is further developed. While this draft document reflects the FLC's current thinking regarding recommendations to protect and restore the Chesapeake Bay, the FLC reserves the discretion to modify the recommendations included in the document, or act in a manner different from this document as appropriate.

The actions and recommendations included in this draft strategy represent those that the FLC agencies currently propose to undertake with projected resources. The FLC has committed to using existing Bay resources to begin implementation of this strategy wherever possible. When available, funds from other activities may be used to support these high priority activities. The FY 2011 President's Budget is currently under development and will be released in February 2010. The completion of the FY 2011 President's Budget will help to inform the final Chesapeake Bay Restoration Strategy that will be released in May 2011. Additionally, over the next several months the FLC agencies will be working to refine the proposals outlined in this draft strategy and address public comments received.

This draft strategy is not a final agency action subject to judicial review, nor is it considered a rule. Nothing in this draft strategy is meant to, or in fact does, affect the substantive or legal rights of third parties or bind the federal agencies.

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Acronyms

CAFO	Concentrated Animal Feeding Operation
CBC	Chesapeake Bay Commission
CBP	Chesapeake Bay Program
CCC	Chesapeake Conservation Corps
CEC	Chesapeake Executive Council
COAST	Chesapeake Online Adaptive Support Toolkit
CWA	Clean Water Act
DC	District of Columbia
DHS	U.S. Department of Homeland Security
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FLC	Federal Leadership Committee for the Chesapeake Bay
GAO	U.S. Government Accountability Office
GIT	Goal Implementation Team
HUD	U.S. Department of Housing and Urban Development
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer System

NAS	National Academies of Science
NGO	Non-governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen Oxide
NPS	National Park Service
SRF	State Revolving Fund
TCF	The Conservation Fund
TSS	Chesapeake Bay Program Technical Support and Services Team
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Part 1

Executive Summary

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Part 1

Executive Summary

Promise and Challenges of the Chesapeake

A National Treasure

The effort to restore the Chesapeake Bay has garnered widespread public interest and captured national attention for several decades. It was one of the first attempts in the United States to restore a large body of water and led to similar efforts in other coastal areas. It is the unique nature of the Chesapeake and its special importance to millions of people, however, that have made the cleanup so critical.

The Chesapeake Bay is the nation's largest estuary—a place where freshwater and saltwater mix—and the third largest in the world. The vast watershed covers 64,000 square miles of the East Coast, stretching from upstate New York to southern Virginia, from the West Virginia panhandle to the Delmarva Peninsula. In the heart of the Chesapeake region are America's first permanent European settlement at Jamestown, Virginia, and the nation's capital city of Washington, D.C.

The Bay is a world-class ecological treasure that is home to more than 3,600 species of plants and animals, such as the blue crab and the bald eagle. The region is steeped in history that is treasured by residents, including the legacy of American Indian societies, the arrival of Europeans in the New World, the inspiration of American Revolution, and the tragedy of the Civil War. Across the watershed are spectacular landscapes, like the Shenandoah Mountains, the Susquehanna River Valley, and Smith Island. The Bay's waters represent a rich cultural heritage that includes world-renowned waterfowl hunting, trophy sport fishing opportunities, and the tradition of watermen who work for fish, crabs, and oysters. Seafood, tourism, and marine transportation

Chesapeake Bay Program

make the Chesapeake Bay a multibillion dollar economic driver for the mid-Atlantic.

The Bay and its watershed are also a recreational resource. Millions of people enjoy the waterways and landscapes for fishing, boating, hiking, picnicking, bird-watching, and relaxation. This close connection between people and nature reinforces the need for protection and restoration of the Chesapeake Bay and watershed. About 17 million people live in the region, and tens of thousands of streams, creeks, and rivers flow past their homes and through their neighborhoods. These local waterways are resources for communities throughout six states and the District of Columbia. The lives and livelihoods of many citizens are intertwined with the water and the land.

An Ecosystem in Trouble

Unfortunately, the Chesapeake Bay and many of its tributaries remain in poor health. The water continues to be polluted, populations of oysters are at an all-time low, and habitats such as underwater grass beds and wetlands are degraded. The problems facing the Chesapeake Bay stem from human activity that has transformed the natural landscape, the impacts of which have accelerated due to rapid growth and development. The population in the watershed has doubled since 1950, and the resulting development has destroyed forests and wetlands that previously filtered pollution and provided wildlife habitat. Farms have been converted to subdivisions, and suburban sprawl has led to a proliferation of roads, parking lots, and rooftops, as well as increased numbers of vehicles on the roads. Historic overharvest of fish and shellfish has contributed to the decline of key species in the Bay. Water is polluted primarily by nitrogen and phosphorus from agricultural land, cities and towns, wastewater plants, and airborne contaminants. The impact of these forces is magnified because the Bay is shallow and has the largest land-to-water ratio of any coastal body of water in the world.

Now the restoration and protection effort must adapt for climate change, which is projected to raise sea levels, warm the water and air, and affect the frequency and intensity of storms. Although the Chesapeake Bay effort already benefits from some of the world's best science, there is a need to improve research and monitoring, and foster the development of innovative technologies. A vital need also exists for expanded public education and citizen stewardship, so residents fully understand their impact on the environment and are engaged in making a difference.

A New Era of Federal Leadership

As the Chesapeake Bay restoration effort enters a new era, the country and world are watching. Protecting the environment is the defining challenge of the 21st century, and cleaning up the Bay is this region's responsibility—an obligation to the residents of today and generations of tomorrow. The solutions to create cleaner water, healthy communities, thriving farms, protected habitats and abundant fish and wildlife in the Chesapeake Bay and its watershed can serve as a national model. America must show that it can restore its largest estuary, which is fed by water flowing by the nation's capitol in the Potomac River.

Executive Order on Chesapeake Bay Protection and Restoration

A Historic Opportunity

May 12, 2009, was a historic day for the Chesapeake Bay. On that date, President Barack Obama issued Executive Order 13508 on Chesapeake Bay Protection and Restoration. It is the first-ever presidential directive on the Chesapeake Bay and the first Executive Order of the Obama administration related to the environment.

In the Executive Order, President Obama calls the Chesapeake Bay a "national treasure" and ushers in a new era of federal leadership, action, and accountability. The purpose of the Executive Order is "to protect and restore the health, heritage, natural resources, and social and economic value of the nation's largest estuarine ecosystem and the natural sustainability of its watershed."

The Executive Order recognizes that the efforts of the past 25 years were not making sufficient progress in restoring the Chesapeake Bay and its watershed, and that success would require responsible government agencies to make dramatic policy changes and initiate bold new actions.

To bring the full weight of the federal government to address the Chesapeake's challenges, the Executive Order establishes the Federal Leadership Committee for the Chesapeake Bay (FLC), which is chaired by the Administrator of the U.S. Environmental Protection Agency and includes the secretaries of the departments of Agriculture, Commerce, Defense, Homeland Security, Interior, and Transportation.

The federal agencies were charged with developing recommendations on how to improve seven important areas for the Chesapeake Bay: water quality, targeting of resources, storm water management on federal land, climate change, land conservation and public access, scientific tools and monitoring, and protection of habitat, fish, and wildlife. Draft reports containing the initial recommendations were completed in September 2009 and released to the public to ensure transparency in the process of renewing the effort to protect and restore the Bay.

The initiatives in the seven reports form the core of a new strategy for restoring the Chesapeake Bay and its watershed. The strategy also outlines federal coordination with state activities, identifies goals for the environment, creates a process for reporting on progress, and explains how efforts will be adapted based on science and resources.

A Collective Effort

The Executive Order acknowledges that although the federal government should assume a strong leadership role in the restoration of the Bay, success depends on a collaborative effort involving state and local governments, the private sector, nonprofit organizations and the region's residents.

Pursuant to the Executive Order, representatives of the FLC agencies have worked extensively with the six Bay watershed states (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia), the District of Columbia, and the Chesapeake Bay Commission. The federal government has also reached out to key stakeholders in the private sector and created a website to promote government transparency and public engagement. This information has shaped the recommendations and overall strategy, the further development and refinement of which will continue during a 60-day public comment period beginning November 9, 2009.

The final strategy for protecting and restoring the Chesapeake Bay is to be completed and released within one year of President Obama's Executive Order, by May 12, 2010.

Focus of Strategy

The draft strategy contains a comprehensive suite of federal initiatives to address the challenges facing the Chesapeake Bay and its watershed. Collectively, the initiatives support three actions:

- **Restore Clean Water**
- **Conserve Treasured Places and Restore Habitats, Fish, and Wildlife**
- **Adapt to the Impacts of Climate Change**

These actions are to be achieved through three primary means:

- **Empower Local Efforts**
- **Decision-Making Through Science**
- **New Era of Federal Leadership**

Restore Clean Water

Why?

Clean water is a precious resource to communities and people throughout the region and is essential for healthy habitats, wildlife and fish. The health of all water bodies in the watershed, from the most remote streams to the largest rivers, has an impact on the quality of the water in the Chesapeake Bay itself.

How?

Regulatory authority will be expanded to increase accountability for pollution and strengthen permits for animal agriculture, urban/suburban stormwater and new sources. The Environmental Protection Agency (EPA) is setting pollutant limits for nitrogen, phosphorus and sediment through the Chesapeake Bay Total Maximum Daily Load (TMDL). To meet these limits, states and the District of Columbia will develop detailed plans for reducing pollution and measuring progress every two years. EPA will impose consequences for missed targets. EPA will also initiate rulemaking to increase coverage and raise standards for Concentrated Animal Feeding Operations (CAFOs), municipal stormwater, and new dischargers of pollution. However, if the Chesapeake Bay states and D.C. strengthen their pollution control programs to achieve the reductions in nutrient and sediment pollution needed to meet Bay water quality standards, EPA does not expect that it would promulgate new Chesapeake Bay-specific regulations. New regulations of air sources will substantially reduce air deposition of nitrogen to the Bay watershed. A Chesapeake Bay compliance and enforcement strategy will ensure that CAFOs, stormwater, wastewater facilities, and air pollution sources meet legal requirements. EPA will also take action to reduce discharge of nutrients from municipal and industrial wastewater treatment plants, develop and promote a model program for managing onsite disposal systems, and reduce discharges of toxics to the Bay and its watershed. In coordination with EPA and other federal and state partners, DOI will lead studies on emerging contaminants in the Chesapeake Bay

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watershed and their possible impacts on priority fish and wildlife and their habitats.

Voluntary conservation incentives will be intensively targeted at high priority areas. The Department of Agriculture (USDA) will launch an aggressive, voluntary partnership effort to accelerate the adoption of conservation practices on the region's farms and forests. This will involve focusing resources on watersheds in critical need of action, targeting financial incentives for putting practices in place, and better coordinating programs with federal, state and local partners, including the private sector. To emphasize accountability, USDA's approach will also include a system for tracking progress and using science to adapt as necessary.

EPA and USDA will partner on a *Healthy Waters, Thriving Agriculture* Initiative. Through this initiative, EPA and USDA will work together to align resources to accelerate the adoption of conservation practices in priority watersheds and develop the next generation of conservation planning tools.

Federal lands and facilities will lead by example by improving stormwater management. The federal government is one of the largest landowners in the Chesapeake Bay watershed, so there is a tremendous opportunity to establish a common federal approach to reduce polluted runoff from existing facilities, new construction, and roads. Federal agencies will continue to promote environmentally friendly site selection, planning, and design and expand the use of land conservation easements. As funding permits, agencies will look to install innovative retrofits to manage stormwater from urbanized areas and paved roads and explore methods to prevent erosion from unpaved roads. This effort will begin with projects in high priority watersheds for protection of high-quality streams and restoration of degraded waterways.

Roads will be planned and designed to reduce polluted runoff and opportunities will be sought to retrofit existing transportation facilities. The Department of Transportation (DOT) will lead an effort to develop and promote methods and opportunities for controlling polluted runoff from transportation facilities that have impacts on the watershed. Federally assisted roads will continue to be planned and designed to mitigate the impacts of stormwater runoff. DOT will identify opportunities for retrofits to existing transportation facilities to reduce polluted runoff. DOT and EPA will work with cities and states to strengthen the opportunities and methods available for projects to mitigate and/or retrofit for stormwater impacts from existing infrastructure and explore innovative methods, processes, and technologies to further this effort.

What's Different?

These efforts include a focus on expanded regulation of pollution sources, as well as an emphasis on ensuring that current regulations are met. The strategy also focuses voluntary conservation efforts at those areas where they can have the most environmental impact. New emphasis is placed on improving practices on federal land and reducing polluted runoff from transportation infrastructure. These efforts, in combination with those of state and local governments and citizens, are expected to result in implementation by 2025 of the pollution control measures needed to restore water quality in the Bay.

Conserve Treasured Places and Restore Habitats, Fish and Wildlife

Why?

The special natural landscapes and waterways of the region are irreplaceable. Not only are they vital to environmental health, but people treasure these places for recreation and for their crucial links to history and culture. The wildlife and fish of the region are an inherent part of the Chesapeake's identity and

ecosystem. There is no more cost-effective strategy for retaining environmental and economic health and cultural heritage than conserving existing farms, forests, natural areas, habitat, and other vital resources.

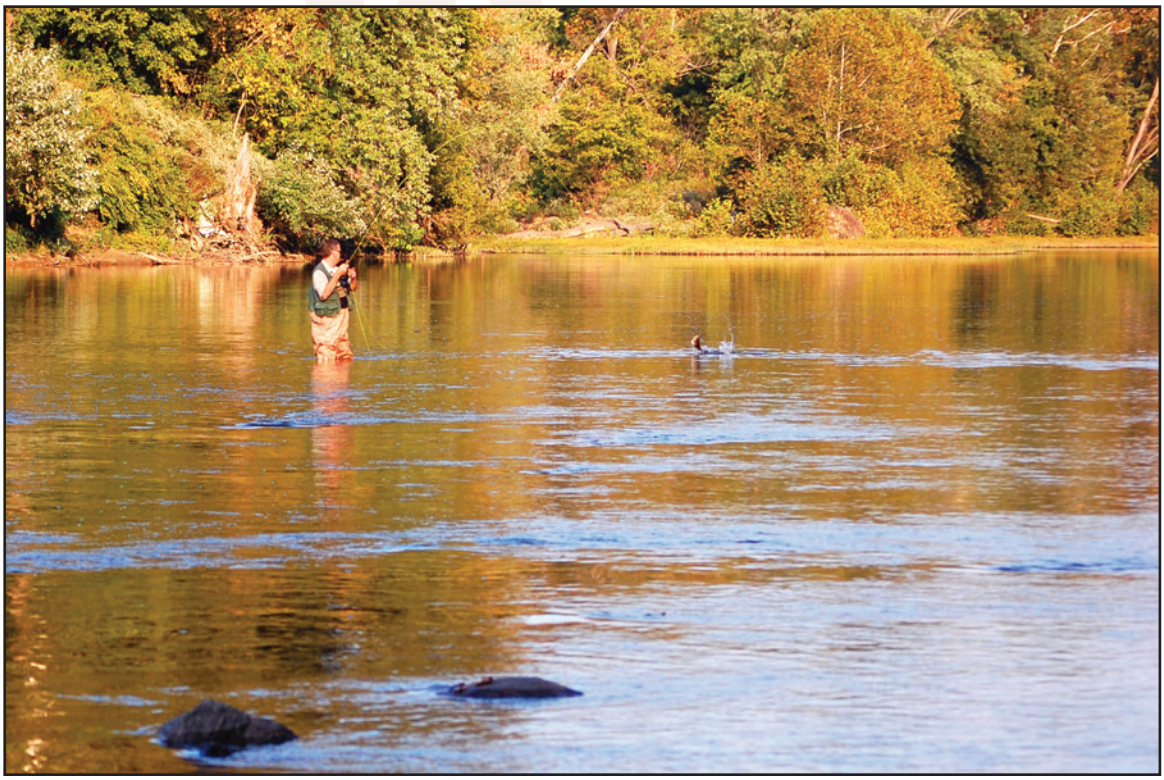
How?

The Chesapeake Treasured Landscapes Initiative is needed to leverage federal programs, assistance and resources to conserve valuable landscapes and increase public access.

The Department of the Interior (DOI), in collaboration with other agencies, will pursue development of a Chesapeake Treasured Landscapes Initiative to protect the environmental, historic, cultural, and recreational value of the region's forests, wetlands, river corridors, and open spaces. The federal government will focus funding to support state and local efforts to conserve landscapes and provide public access through purchases of land and conservation easements. To conserve landscapes, DOI may use, expand, or explore creation of new units of the National Park System, National Wildlife Refuges and National Historic Trails. National Trails and the Chesapeake Bay Gateways and Watertrails Network will seek to improve public access in concert with state and local governments and non-governmental partners, if appropriate. The National Oceanic and Atmospheric Administration (NOAA) will explore the viability of establishing marine protected areas within the Chesapeake Bay, while DOI may explore options for designating a river as part of the National Wild and Scenic Rivers system. To maximize private stewardship and conservation actions by all levels of government, key federal incentives and assistance will be targeted.

Restoration and protection efforts will be initiated on a watershed basis.

The Fish and Wildlife Service (USFWS) and NOAA will initiate a comprehensive campaign to restore aquatic and upland habitats and manage fish and wildlife. For habitat, this will involve protection of high-value wetlands and stream systems, prioritizing and targeting resources to pursue restoration projects on a larger scale in selected tributaries, and providing technical assistance and funding for states to address



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critical waterways. As part of this effort, the U.S. Army Corps of Engineers (USACE) is prepared to use its extensive ecosystem restoration experience in the Bay to help implement large scale restoration. As part of a shift to ecosystem-based management, NOAA will also coordinate an inter-jurisdictional, Bay-wide effort to ensure sustainable fisheries in the Chesapeake Bay. USFWS and NOAA, in coordination with other agencies, will also examine mechanisms to strengthen permit reviews and consultation authorities under existing mechanisms such as the Clean Water Act, Fish and Wildlife Coordination Act, Coastal Zone Management Act, Atlantic Coastal Fisheries Cooperative Management Act, Endangered Species Act, and Magnuson Stevens Fishery Conservation and Management Act.

Oyster restoration and blue crab management will be bolstered by a multi-jurisdictional effort. NOAA, USACE, and other federal agencies will coordinate with Maryland, Virginia, and the Potomac River Fisheries Commission with a goal to recover oyster reefs and establish self-sustaining oyster reef sanctuaries in key tributaries by 2020. The federal government must capitalize on the recent, multi-agency decision to restore native oysters to the Bay in the Chesapeake Bay Oyster Restoration Programmatic Environmental Impact Statement. Focused efforts in specific areas are resulting in marked increases in oyster abundance. Greater federal and state commitments to support oyster sanctuaries could further accelerate these efforts.

NOAA will help facilitate inter-jurisdictional Bay-wide strategies to ensure sustainable crab populations and harvest management aimed at achieving a sustainable population of 200 million adult blue crabs. Through continued cooperation with Virginia and Maryland, NOAA will present the best available science and provide the jurisdictions with advice necessary to ensure a sustainable annual harvest and informed management decisions.

What's Different?

These recommendations represent a significant effort to focus federal resources on conserving valuable Chesapeake landscapes and waterways, increasing public access and restoring areas that have been degraded. Community involvement will be a key component of this effort. These actions also include a new commitment to expand oyster sanctuaries and continue to ensure sustainable management of the blue crab population. These actions are a tangible example of a shift to ecosystem-based management that is important to the restoration of the Chesapeake Bay.

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Adapt to the Impacts of Climate Change

Why?

One of the most significant challenges to successful restoration and protection of the Chesapeake Bay is climate change. Scientists project that climate change will have a variety of impacts on the Chesapeake Bay and its watershed in the decades ahead, including rising sea levels, warmer water and air temperatures, and stronger storms. Because much of the region's infrastructure is tightly interwoven, regional climate adaptation planning to protect, upgrade, and adapt the region's infrastructure is essential. Ultimately, climate change considerations must be incorporated into each of the initiatives described in this strategy.

How?

Undertake a concerted effort to coordinate climate change science and adaptation throughout the watershed. NOAA and the U.S. Geological Survey (USGS) will work closely with federal and state partners to coordinate existing state programs and regional climate programs to provide the science and assistance to adapt to potential impacts of climate change on the Bay and its watershed. The coordinated effort will allow for collaboration among all levels of government, universities, and nonprofit and private organizations, and would be undertaken with consideration of an emerging national network of regional climate services.

Each federal agency with restoration and protection responsibilities in the Bay region will consider climate changes as they implement responsibilities, including programs, funding, and land management activities. Federal programs will focus on protecting communities and critical habitats and species from the impacts of climate change by targeting resources, launching pilot projects for adaptation, and developing incentives for conservation of priority areas.

What's Different?

Bringing federal and state efforts together is important for developing and communicating information vital to address the impacts of climate on water quality and increase resiliency of communities and valuable habitats to the impacts of a changing climate. These efforts will result in the development of the predictive tools for addressing adaptation action in the near-term and provide projections needed for planning management for the long-term

Empower Local Efforts

Why?

The condition of the environment has a critical impact on neighborhoods and communities, from cities to suburbs to rural areas. Local governments, watershed organizations, and residents have a great interest and ability to make a difference in the environment. Providing assistance and resources can empower these groups to implement needed changes. Awareness of opportunities and education can motivate the type of widespread behavioral change that is needed to improve the state of the Chesapeake Bay watershed.

How?

Technical assistance and resources to landowners, local governments, and watershed organizations will be expanded to help restore streams, creeks, and rivers in communities. EPA, USDA, and DOI, in collaboration with state and local partners, will provide more technical assistance and resources, as well as set restoration goals, on a more local watershed and community-based level. EPA will launch a new grant program for stream restoration in targeted areas and help guide the efforts of local governments to reduce water pollution. USDA will encourage the adoption of conservation practices on farms and forests through

Alex Indigo, Creative Commons

incentives and technical assistance, simplifying participation in programs, and strengthening partnerships with local governments, watershed groups, and communities. USDA will also expand support to local governments and watershed organizations across the watershed to enhance their tree cover in order to meet increasing demands for buffering temperature extremes and flooding. DOI will expand citizen stewardship efforts by engaging local community, tribal, and other organizations to improve local land and water resources through technical assistance and public education.

Federal agencies will support the development of innovative technologies and economic markets for ecosystem services.
Innovative technologies hold much promise for reducing water pollution, improving conservation practices and increasing revenue for working lands. EPA, USDA, and DOT will expand public-private research partnerships and focus federal funding on this aim. Additionally, economic markets for ecosystem services are emerging as an innovative way to provide landowners with an incentive to practice sustainable agriculture and forestry. Essentially, entities such as urban water utilities, industrial polluters, and land developers who must mitigate negative impacts to the watershed will pay for the implementation of conservation practices that offset those impacts. USDA will lead a collaborative federal effort to develop ecosystem markets in the Chesapeake Bay watershed.

Federal agencies will increase citizen stewardship, with an emphasis on engaging young people.
The restoration effort can be invigorated by the actions of the watershed's 17 million residents. To create opportunities for citizens to become directly engaged in on-the-ground and in-the-water restoration activities, DOI and other Federal agencies will explore development of a Chesapeake Conservation Corps (CCC). This new CCC would be developed in collaboration with non-governmental partners such as the Student Conservation Association and AmeriCorps to support putting young people to work on projects and equipping them with green job skills for the future.

Public education will be emphasized and an ongoing social marketing campaign will encourage residents to change habits to improve the health of the environment.
Public education through place-based interpretation, recreational experiences, and curriculum-based education will be supported through National Park Service (NPS), USFWS, and NOAA programs. NPS will increase the Chesapeake Bay Gateways and Watertrails Network and National Trails programs that provide visitors and residents opportunities to experience the natural and cultural heritage of the Bay region. USFWS will continue to offer public access and interpretation to visitors of the National Wildlife Refuges around the watershed. NOAA's long-standing role as a supporter of environmental education will continue. Federal agencies will also partner with nongovernmental organizations to launch an ongoing, watershed-wide social marketing campaign to educate residents about the impact of their actions on streams, creeks, rivers, and the Chesapeake Bay.

Livable, sustainable communities will be supported through the promotion of smart growth planning and alternative transportation options.
Because land use has a direct impact on the environment, federal agencies will promote sustainable development and smart growth through assistance and tools to local governments. DOT, EPA, and the Department of Housing and Urban Development (HUD) will convene a series of forums and partner with local governments to conduct integrated transportation, land use, housing, and water infrastructure planning in a sustainable and environmentally sensitive manner. DOT will

promote use of public transportation, bicycling, and walking, and partner with the Department of Energy (DOE) on a pilot project to support increased use of electric cars.

What's Different?

Historically, the Chesapeake Bay restoration effort has used a top-down approach. Empowering local communities will give greater momentum to the grassroots and build healthier, sustainable communities. Promoting innovation in technology, techniques and the marketplace is a new area of emphasis and will not only support restoration, but also bolster local economies.

Decision-Making Through Science

Why?

Science underpins the Chesapeake Bay restoration effort. Government must also be accountable for its restoration responsibilities and commitments, and scientific measures can be an accurate barometer of progress and drive action at all levels. While there are significant and robust information and data systems already in place, some gaps remain. Ensuring the Chesapeake Bay watershed population is informed of the scientific basis and results of actions is an important element in encouraging broad participation in restoring the Bay.

How?

ChesapeakeStat will serve as a comprehensive accountability tool for all restoration activities, including projects, funding, and progress, and be publicly accessible.

The Chesapeake Bay Program (CBP) will launch ChesapeakeStat, an accountability and decision-making tool modeled after the State of Maryland's BayStat program. ChesapeakeStat will be a web-based system that provides information about partner restoration activities, funding levels and progress toward goals. The website will also link to tools that use scientific information to drive decision-making on targeting of water quality actions on agricultural and urban lands; conserving lands with important ecological, economic and cultural value; identifying coastal areas vulnerable to sea-level rise and storm surge; and improving land-use planning.

Establish an Interagency Decision-Support Hub to strategically target and assess effectiveness of restoration and conservation practices.

USGS and NOAA will work with federal partners to integrate decision-support tools and supporting information. This will improve targeting of actions to restore water quality, preparing spatial plans to target habitats, and conserving important areas in the Bay and its watershed. Specifically, the Chesapeake Online Adaptive Support Toolkit (COAST) will have applications to improve targeting and assessment of water quality and habitat management practices and provide access to other tools such as NOAA's

Chesapeake Bay Program

Digital Coast and DOT's Eco-Logical. The Hub will utilize decision-support specialists to translate science outcomes into management implications and interact with partners to improve decision-making to achieve environmental goals.

A Chesapeake Monitoring and Observing System will use partnerships to improve the monitoring of environmental conditions beyond water quality and into the watershed.
Because monitoring provides essential information on the health of the environment and effectiveness of restoration activities, monitoring needs to be expanded from a focus on water quality to include more information on fish and wildlife, habitats, land use, climate change, socioeconomic factors, and management actions. Monitoring information from the streams, creeks, and rivers throughout the watershed is also needed. USGS and NOAA will lead efforts for a Chesapeake Monitoring and Observing System by coordinating with national monitoring networks and forming new alliances with federal and state programs and local watershed groups to address gaps in current monitoring.

What's Different?

ChesapeakeStat will be the first one-stop tool to improve accountability for all partners in the restoration effort. The Decision-Support Hub will integrate federal tools and activities for more efficient and strategic decision making. Science will be used to focus more precisely on the local level and adapt restoration efforts based on results.

A New Era of Federal Leadership

Why?

Though partners have achieved measurable reductions in pollution and implemented a variety of restoration measures during the past 25 years, the Chesapeake Bay and many tributaries remain degraded. In his Executive Order, President Obama directed the federal government to take a stronger leadership role and to lead by example. The federal agencies are uniquely positioned in terms of authority and expertise to usher in a new era of restoration. The initiatives in the strategy are consistent with federal policy, including Executive Order 13514 on Federal Leadership in Environmental, Energy and Economic Performance; the Obama Administration's climate change policies; and the findings of the Interagency Ocean Policy Task Force.

How?

The federal government will lead a collaborative process with the watershed states and the District of Columbia to create a comprehensive, coordinated strategy for the Chesapeake Bay and watershed.
Protecting and restoring the Chesapeake Bay and its watershed, with the wide spectrum of serious environmental challenges throughout the region, will require an unprecedented effort. To be successful, the federal government, the six watershed states, the District of Columbia, and the Chesapeake Bay Commission (CBC) must commit to historic levels of coordination and to fully integrating activities and programs. The Executive Order directs the federal government to lead the collaborative process.

Developing and using a coordinated strategy is a multi-step process that includes extensive collaboration to shape the strategy, selecting environmental goals, reporting progress, and adapting restoration actions as appropriate.

The Federal Leadership Committee for the Chesapeake Bay is evaluating the most effective and efficient processes for collaborating with states in developing and implementing a new strategy. The CBP partnership is under consideration as the forum for collaboration because it already has the core design and mechanisms necessary to integrate and coordinate federal and state activities. Senior officials and restoration experts from all levels of government regularly participate in various CBP committees, including the Chesapeake Executive Council (CEC), which includes key federal agency heads, state governors and the mayor of the District of Columbia.

The FLC can work closely with the CEC to embark on a new era of coordination and commitment.

Federal agencies will establish two-year milestones for implementing protection and restoration measures related to all aspects of watershed health and set programmatic goals to have practices in place no later than 2025.
The six states in the watershed and the District of Columbia have committed to meeting goals—called milestones—every two years for implementing measures to improve water quality. By meeting these milestones, all practices needed for restored water quality will be in place no later than 2025. The federal agencies will join the states in this commitment to establishing two-year milestones for measures that restore water quality, habitats, wildlife, and fish and shellfish, and conserve land and improve science. The federal two-year milestones will be established in May 2011, and necessary measures will be planned for implementation no later than 2025. Federal efforts will also be designed to directly support the states and District of Columbia in meeting their milestones.

As part of the development and implementation of a coordinated federal-state strategy, an interagency process, including states, will be established to develop clear environmental goals for restoring the Bay, including program performance indicators, target dates, and interim milestones. These will be released for public review and comment in early 2010 to inform the final strategy.

Transparency of the restoration effort will be increased through several public reporting tools and an independent evaluation that will analyze the water quality program.

Reporting on Progress

ChesapeakeStat will provide a public, ongoing system for tracking restoration activities, spending and progress. The Executive Order also requires the publication of an annual Action Plan that describes how federal funding will be used during each fiscal year. To the extent possible, the Action Plan will incorporate the spending of Bay watershed states to provide a comprehensive accounting of the resources dedicated to restoration.

Additionally, the Executive Order requires an annual Progress Report reviewing environmental conditions in the Chesapeake Bay and watershed, assessing implementation of the Action Plan during the preceding fiscal year and recommending steps to improve these efforts. This reporting may be included in an enhanced version of Chesapeake Bay Program's annual health and restoration report, the *Bay Barometer*, beginning in 2011.

Independent Evaluation

The National Academies of Science (NAS) is currently being utilized to provide a fully independent review of the Chesapeake Bay Program's water quality activities to improve strategic and specific efforts. Federal agencies will build on the lessons from the NAS study to establish an ongoing independent evaluation process that covers all aspects of the Executive Order directives.

Adaptive Management

Under the new strategy, federal agencies and state partners will increase the practice of adaptive management. Managers will use extensive feedback from monitoring and tracking tools to understand the effectiveness of restoration activities, identify ways to adapt the efforts, and put the new approaches into practice.

What's Different?

Despite federal and state cooperation in the past, the effort to protect and restore the Chesapeake Bay and its watershed lacked a truly unified strategy. Previous goals for restoration were set a decade or more in the future. Short-term milestones will accelerate progress, increase accountability, and allow for adaptive management to ensure government is moving toward meeting goals for the Bay and watershed.

Conclusion

The past 400 years of human activity in the Chesapeake Bay watershed has left this national treasure in poor shape. Restoring and protecting the Chesapeake Bay and its watershed will not be easy, as the last several decades have shown. The wide spectrum of serious environmental problems and the incredibly diverse network of stakeholders in the region, combined with the sheer size of the Bay and its 64-million-acre watershed, magnify the challenge.

But the health of the Bay and its watershed should steadily improve as significant progress in restoration is made and tracked through the two-year milestones. The first signs of improvement should be in the freshwater streams and rivers that flow into the Bay. The Chesapeake, however, is a vast and complex ecosystem, and it takes time for nature to heal.

Scientists are unsure of exactly how quickly the Bay will respond to restoration efforts because cleanup of such a large estuary is unprecedented. But scientists widely agree if restoration measures are put in place and natural areas are protected, the health of the ecosystem will improve accordingly, although there could be a delay as pollutants are decreased and water quality, habitats and aquatic life are reestablished.

The federal focus on restoring clean water, conserving treasured landscapes and restoring fish and wildlife, and adapting for climate change will require a tremendous amount of work and resources to be implemented properly. It will be necessary to empower local efforts and make decisions based on science. The ultimate key to success—seamless, coordinated federal-state-local action—will also require a renewed dedication, along with persistence and patience.

Federal officials are keenly aware of the economic realities facing the restoration effort and the need to efficiently and effectively spend financial resources. But investment in the Chesapeake Bay and the thousands of streams, creeks and rivers of the region will yield a priceless return for the environment, for local and regional economies, for the cultural and historic heritage, and, most importantly, for communities in cities, suburbs and rural areas.

The timing for a renewed commitment to restoration is ideal. The pieces for success are in place around the watershed in the form of leadership, science and public interest. All stakeholders must capitalize on the historic opportunity presented by the Executive Order. Meeting the objectives of President Obama's declaration is a federal obligation. Restoring clean water and protecting nature throughout the region is a duty to the millions of people who call this place home. The generations that come after us will point to this time as a defining moment for reviving the integrity and splendor of the Chesapeake Bay and its watershed.

Part 2

Health of the Chesapeake Bay and Watershed

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Part 2

Health of the Chesapeake Bay and Watershed

The section provides an overview of the health of the Bay and its watershed to better understand the challenges being addressed by the new federal initiatives.

By the Numbers

The Chesapeake Bay is the largest estuary in the United States and the third largest in the world. The Bay is about 200 miles long, and its width ranges from 3.4 miles to 35 miles. The Bay and its tidal tributaries have 11,684 miles of shoreline, more than the entire U.S. West Coast. The surface area of the Bay and its tidal tributaries is 125 billion square feet, or about 4,480 square miles.

The Bay holds more than 15 trillion gallons of water, about half of which is from the Atlantic Ocean. The rest drains into the Bay from an enormous 64,000-square-mile watershed that includes parts of six states—Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia—and the entire District of Columbia. The Chesapeake's land-to-water ratio is 14:1, the highest of any coastal water body in the world.

The Bay supports more than 3,600 species of plants, fish, and other animals, including 348 species of finfish, 173 species of shellfish, and more than 2,700 plant species. The Chesapeake is home to 29 species of waterfowl and is a major resting ground along the Atlantic Flyway. Every year, about one million waterfowl winter in the Bay region. The Bay produces about 500 million pounds of seafood per year.

The Bay watershed is home to almost 17 million people. About 100,000 people move to the area each year. Experts predict that the population will increase to 20 million by 2030. Everyone in the watershed lives just a few minutes from one of the 100,000 streams and rivers that drain into the Bay. During the 1600s, 95 percent of the watershed was forested. Now about 58 percent is forest. The rest of the land has been developed for other uses, such as agriculture and urban and suburban lands.

USGS

- During the 1600s, 95 percent of the Chesapeake Bay watershed was covered by forest. Today, 58 percent of the watershed is forest. Between 1982 and 2003, 2 million acres of farms and forestland were converted to developed uses.
- In 1950, the Bay watershed was populated by about 8 million people. Today, 17 million people live in the watershed. Approximately 100,000 new residents move to the Chesapeake Bay watershed each year.
- In the 1950s, annual oyster harvests from the Bay typically exceeded 35 million pounds. Today, oyster harvests produce less than 600,000 pounds annually.

Environmental Conditions

For the past 25 years, the federal government and the Bay watershed states have formally coordinated their efforts in an attempt to restore the Bay and its watershed. Despite successes in certain parts of the ecosystem or specific geographic areas, the overall health of the Bay and many of the region's streams, creeks, and rivers remains poor.

Water Quality in the Bay

For the Chesapeake Bay to be healthy and productive, the water must be safe for people and must support aquatic life, such as fish, crabs, and oysters. The water should be fairly clear, have enough oxygen, contain the proper amount of algae, and be free from chemical contamination. Water quality in the Bay remains poor because of pollution from nitrogen, phosphorus, sediment, and chemicals. Rain causes these pollutants to run into local streams, creeks, and rivers and the Bay itself. To improve water quality, the flow of pollution must continue to be reduced. This will increase water clarity and oxygen levels in the Bay and will decrease harmful algae blooms and chemical contaminants.

Habitat and Food Web

For life to thrive in the Chesapeake Bay, high-quality food sources and healthy habitats are required. Clams and worms need an unpolluted environment at the bottom of the Bay. Abundant underwater grasses and wetlands are vital to juvenile fish and crabs and other wildlife such as birds. These wetlands also filter and absorb pollution. For all aquatic life to flourish, the algae that make up the foundation of the food web must be of the proper type and in the right amounts. The health and abundance of these animals and habitats are gauges of the Bay's health. Overall, the vital habitats and lower food web that support life in the Chesapeake Bay continue to be degraded. More underwater grasses and wetlands are needed both for habitats and for their ability to filter pollution. Bottom habitat in the Bay and the health of algae must improve.

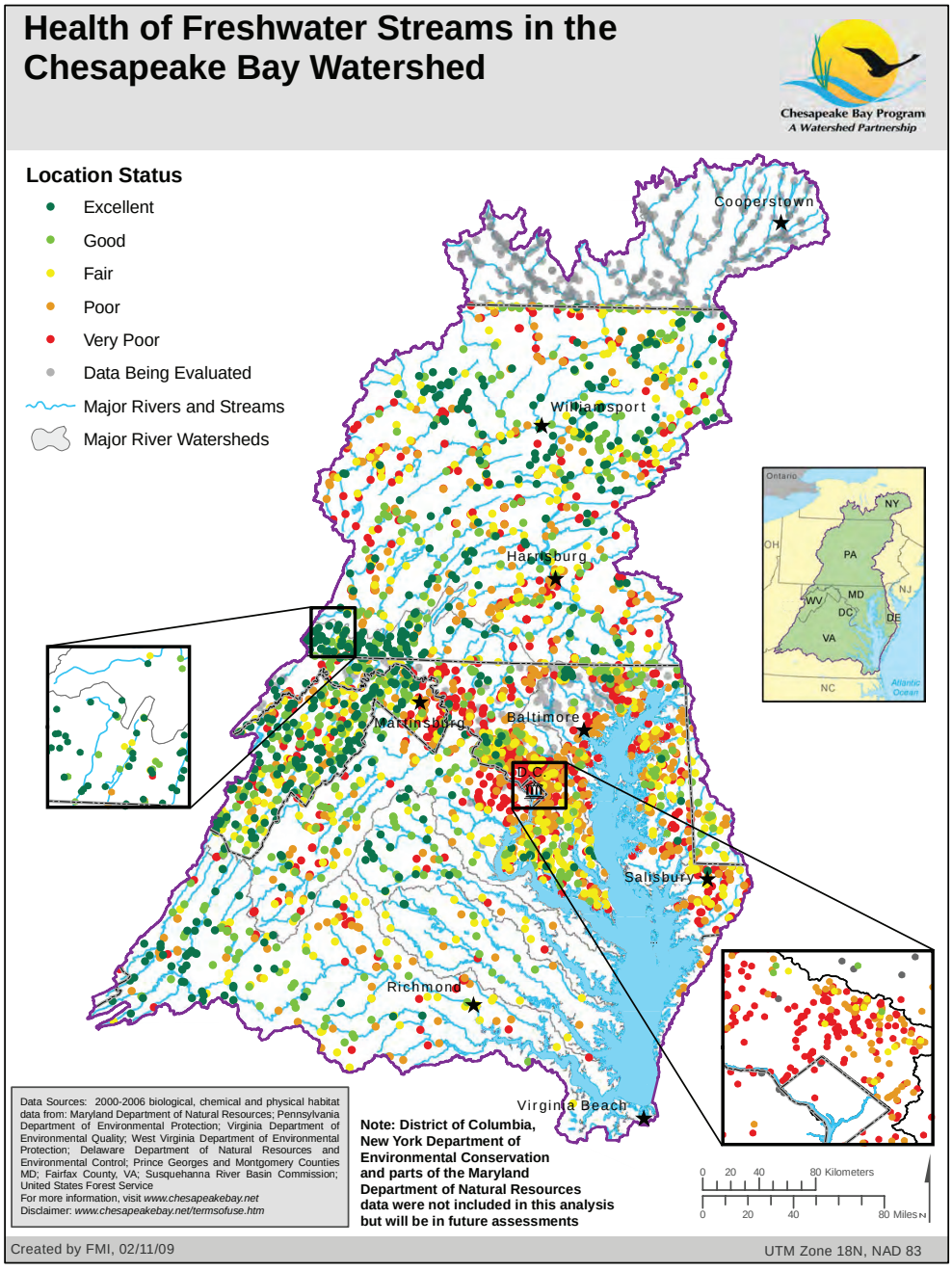
Fish and Shellfish

For the Chesapeake Bay to be considered restored, fish and shellfish must be healthy and abundant. Blue crab, oyster, striped bass, shad, and menhaden are some of the Bay's most iconic species. These fish and shellfish are an essential part of the region's commercial fisheries, recreational activities, and cultural and culinary identity. They also play critical roles in the Bay's ecosystem and require clean water, ample aquatic habitat, and properly managed fisheries to be healthy and reproduce. The Chesapeake's fish and shellfish suffer from polluted water, lack of habitat, and disease. They also face challenges such as overharvesting pressures and reduced food sources.

Health of Streams, Creeks and Rivers

Healthy freshwater streams and rivers have local and regional importance. Clean waterways are a benefit to residents who use them for recreation, drinking water, business, and other purposes. The watershed's streams, creeks, and rivers also eventually flow into the Chesapeake Bay, so their water quality has a direct impact on the health of the estuary. Streams tend to be in very poor to fair condition around large urban areas such as metropolitan Washington, D.C. (see Figure 1). Streams in heavily farmed or mined areas are also often in very poor to fair condition. In contrast, streams tend to be in good to excellent condition in forested areas with ample natural habitat and low levels of pollution.

Figure 1 – Health of Freshwater Streams in the Watershed



Pollution Sources

The Chesapeake Bay and its tributaries are unhealthy primarily because of pollution from excess nitrogen, phosphorus, and sediment entering the water. The main sources of these pollutants are agriculture, urban and suburban runoff, wastewater, and airborne contaminants.

Agriculture

About 25 percent of the land in the Bay watershed is used for agriculture. The practices some farm owners and operators use to maximize their crop yields can cause deterioration in the quality of the Bay and its watershed. When farm operators improperly apply fertilizers and pesticides, these materials flow off

the land and deliver excess nitrogen, phosphorus, and chemicals to the Bay. The nutrients and bacteria in animal manure, which is used for fertilizer, can seep into groundwater and run into waterways if managed improperly. Incorrect tilling and irrigating of cropland can promote erosion and can lead to additional sediment loads being delivered to the watershed's streams and rivers. These practices can be improved, enhanced, or modified as appropriate to reduce pollutant loads from agriculture throughout the Bay watershed.

Urban and Suburban Lands

The population increase in the Bay watershed during the last 60 years has had significant impacts on the quality of the Chesapeake Bay because the growth has been accompanied by expansive growth in the amount of land covered by hard surfaces such as roofs, roads, parking lots, and other areas. These impervious surfaces prevent water from seeping into the ground during rain and snow events. As a result, the water running across the hard surfaces carries nitrogen, phosphorus, and sediment from lawn fertilizer, pet waste, and other sources. These pollutants end up in the Chesapeake Bay and its tributary waters. Between 1990 and 2000, the amount of land in the watershed covered by impervious surfaces increased by about 41 percent, while population in the Bay watershed grew by 8 percent. Stormwater running off urban and suburban lands is now the fastest-growing source of pollution to the Bay.

Wastewater Treatment

The population growth described above has also led to a need for more and larger wastewater treatment plants. Upgrading these facilities to reduce discharges of nitrogen and phosphorus will require funding, which ultimately comes from taxpayers. All of the 483 significant municipal and industrial wastewater treatment plants in the Bay watershed already use or are scheduled to install improved technology that will greatly reduce their nitrogen and phosphorus discharges. Nevertheless, due to their discharge volumes, some of these plants may still contribute to nutrient problems in the Bay. Wastewater treatment plants generally do not treat or remove contaminants present in small quantities such as pharmaceuticals and personal care products.

Air Pollution

Even larger than the Chesapeake Bay's watershed are its airsheds, the areas from which emission sources have the potential to contribute significantly to the air pollutants that deposit to the Bay and its watershed. Dependent on the pollutant and the sources, the sizes of airsheds vary. The airshed for nitrogen oxide (NOx), for example, is about 570,000 square miles, or seven times the size of the watershed. Airborne nitrogen and chemicals such as mercury contribute to poor water quality in the Bay watershed. Air pollution is generated by a variety of sources, including power plants, industrial facilities, farming operations, and automobiles and other gasoline-powered vehicles.

Pollutants released into the air are carried by winds and fall back to the earth's surface via rain, snow, fog, or dry particles. Airborne pollutants that fall on the land can be transported by runoff or groundwater into streams and rivers to the Bay.

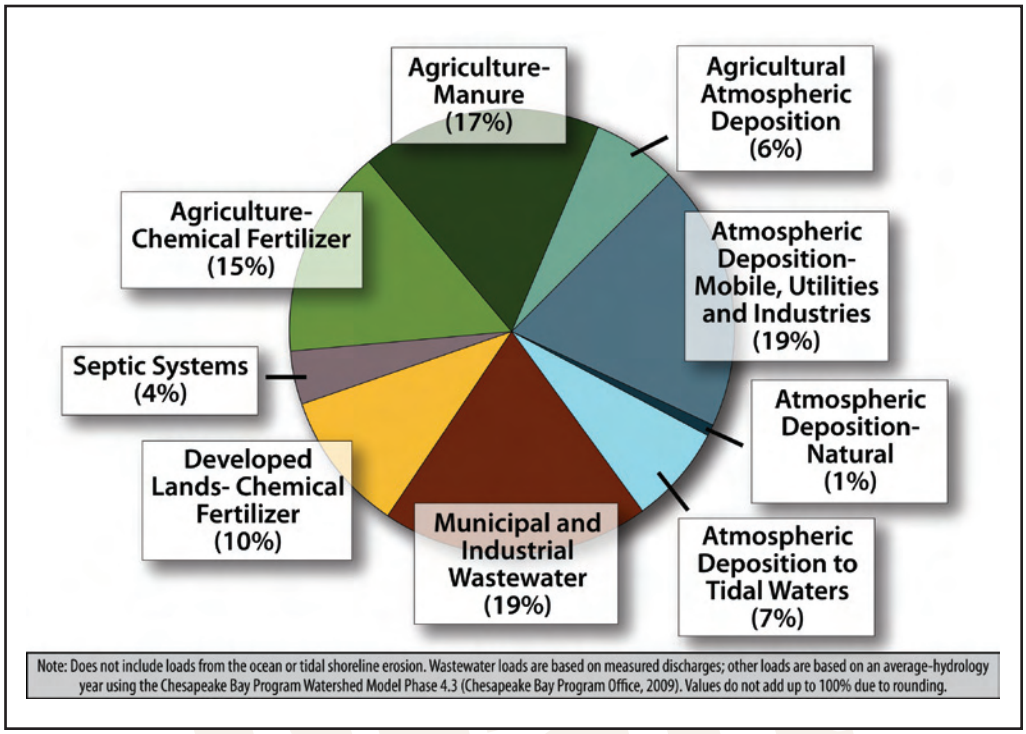
Other Impacts on the Bay and Watershed

Fisheries Harvest

The Chesapeake Bay and its tributaries have historically been rich grounds for commercial and recreational fisheries. Demand for seafood has driven these commercial fisheries, and crabbing and angling have long been popular activities for residents. But these fisheries have put tremendous pressure on the population of key Chesapeake species such as blue crabs and oysters.

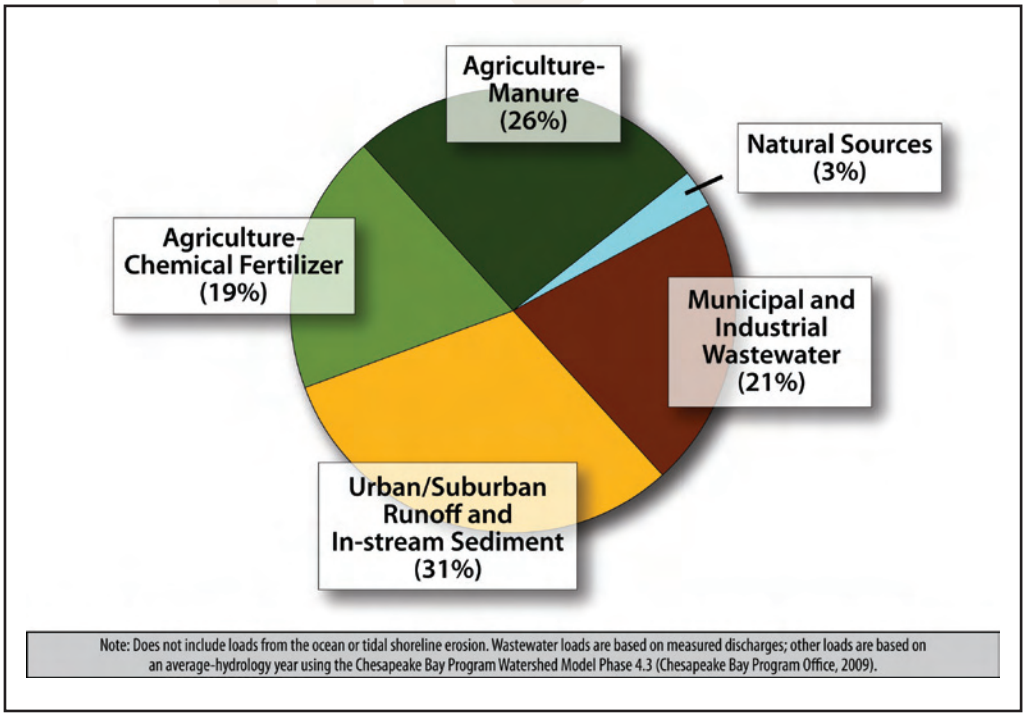
For more than a century, oysters made up one of the Bay's most valuable commercial fisheries. The combination of over-harvesting, disease, sedimentation and poor water quality has since caused a severe decline in their numbers throughout

Figure 2 – Sources of Nitrogen to the Bay



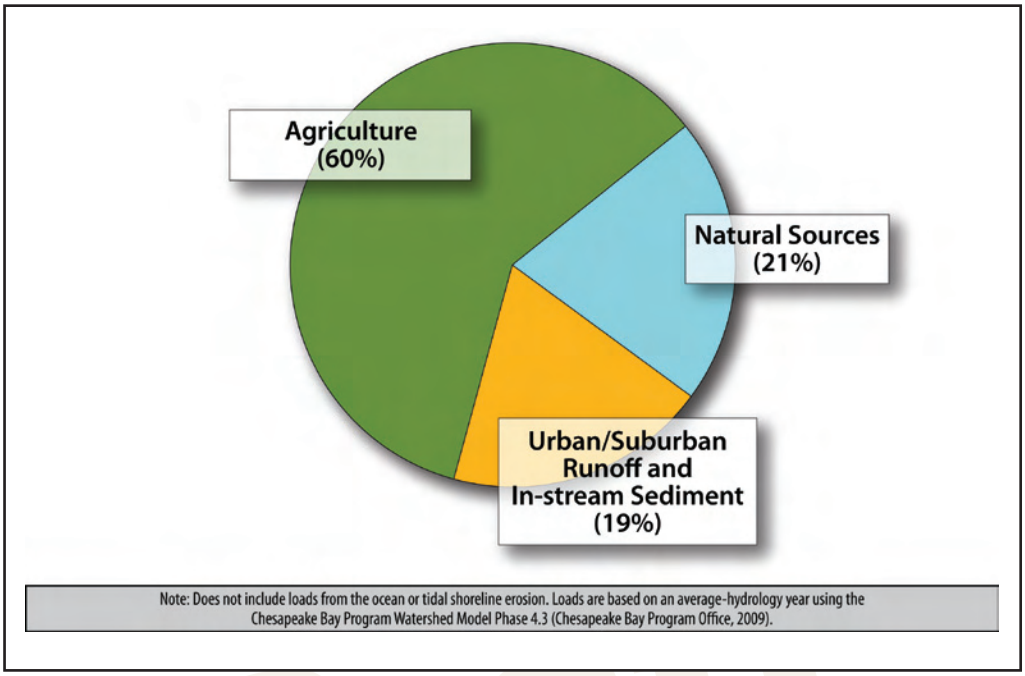
Note: Does not include loads from the ocean or tidal shoreline erosion. Wastewater loads are based on measured discharges; other loads are based on an average-hydrology year using the Chesapeake Bay Program Watershed Model Phase 4.3 (Chesapeake Bay Program Office, 2009). Values do not add up to 100% due to rounding.

Figure 3 – Sources of Phosphorus to the Bay



Note: Does not include loads from the ocean or tidal shoreline erosion. Wastewater loads are based on measured discharges; other loads are based on an average-hydrology year using the Chesapeake Bay Program Watershed Model Phase 4.3 (Chesapeake Bay Program Office, 2009).

Figure 4 – Sources of Sediment to the Bay



the Chesapeake. The Bay's native oyster population is now estimated to be less than 1 percent of its historical abundance. The decline in the Bay's native oyster population is often illustrated in terms of its impact on water quality. In the late 19th century, the native oyster population could filter a volume of water equal to that of the entire Bay every three to four days. Today's depleted population takes nearly a year to filter the same volume of water.

It is estimated that more than one-third of the nation's blue crab catch comes from the Chesapeake Bay. Blue crabs—harvested as hard shell crabs, peeler crabs, and soft shells—have the highest value of any Chesapeake commercial fishery, bringing in more than $50 million per year. They also support a major recreational fishery in the Bay. Since the early 1990s, blue crab catches have dropped to levels lower than recorded in previous decades. This decline has been linked to increased fishing, as well as habitat loss from degraded water quality. According to the 2008 winter dredge survey, which took place just before the start of the 2008 commercial season, the abundance of adult (age 1 or older) blue crabs was estimated to be about 120 million crabs.

Invasive Species

Invasive species are animals and plants that are not native to their current habitat and have a negative effect on the ecosystem they invade. Invasive species negatively affect an ecosystem by encroaching on native species' food and/or habitat. Invasive species thrive because the ecosystems they invade lack the natural ecological controls, such as predators and disease, that keep the species in check in their native environment. Invasive species rank as one of the top threats to the country's native species, just after habitat destruction. Once an invasive species population is established, it is unlikely to be completely eradicated.

Climate Change

Although there is still much uncertainty surrounding climate change projects and specific impacts, available information is sufficient to begin adapting to and

mitigating the most likely impact scenarios and to raise awareness among policy makers and the public. Impacts to the Bay and watershed are expected as a result of sea-level rise; increases in water temperature, acidity, and salinity; and changing rainfall patterns and increases in rainfall intensity. Many of the region's urban centers and significant ecosystems are in low-lying areas that are particularly vulnerable to sea-level rise and storm surge. The impacts of climate change extend to infrastructure, habitat, fish and wildlife populations, stream flow, water quality, and valued Bay landscapes and waters. Climate change threatens past restoration gains and the effectiveness of future actions to protect and restore the Chesapeake Bay and its watershed.

Human Activities in the Chesapeake Bay Watershed

Everything that happens on land has an impact on the water. The man-made pressures on the Chesapeake Bay and its watershed began more than 400 years ago, when the first European colony was founded at Jamestown, Virginia. During the four centuries that followed European settlement, the human population in the watershed swelled, forests were cleared, industrial activity grew, fish and shellfish were harvested, towns and cities were built, and harmful substances were released into the environment. These factors disrupted the natural functioning of the entire ecosystem and led to a tremendous decline in the Bay's health.

As more people move into the Bay watershed, development of new homes, roads, and businesses continues. Development itself is not necessarily harmful to the Bay, but the way we develop the land—where we locate roads and buildings and how we build them—can have a lasting negative impact on our natural environment. Sprawling, low-density residential and commercial areas built far from existing cities and town centers require improved linkages and infrastructure, including more roads and businesses. In fact, transportation and related infrastructure (roads, parking lots, and driveways) account for 55 to 75 percent of all paving of open space in cities, towns, and subdivisions. Open areas between existing centers and sprawl eventually fill with more new development. This type of sprawl development consumes forests, shorelines, and agricultural lands, and increases the pollution of land and water. The initial construction of new developments contributes substantial amounts of sediments to the Bay and its tributaries. Construction sites can contribute, on a per-acre basis, 10 to 20 times more sediment than do agricultural lands.

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Also, as people move farther away from city centers, they often have to spend more time on the road to reach their destinations, increasing both congestion and pollution. Vehicle emissions are one source of airborne nitrogen—a type of air pollutant—that eventually falls to the ground and can add to excessive nutrient loads to the Bay.

Building away from existing centers also dramatically changes the heritage and economic diversity of local communities. Development in small and rural communities can impact existing local industries such as farming, fishing, and forestry. New residential and commercial development in these areas can also alter the visual character and "sense of place" that make the Chesapeake region unique.

Development has been the largest cause of forestland loss in the Chesapeake Bay watershed during the past 15 to 20 years. Between 1982 and 1997, the Bay watershed lost over 750,000 acres of forestland to development, a rate of about 100 acres per day and a total size equal to 20 Districts of Columbia. At least 36 percent of all forestland is at high risk to development over the next five to 10 years. This loss of forestland is a permanent loss of air and water filters, wildlife habitat, and other significant functions that forests provide, such as absorbing air pollution and retaining up to 85 percent of the nitrogen from sources such as automobiles and power plants.

In addition to forest loss, 60 percent of Chesapeake forests are divided by roads, subdivisions, and farms into disconnected fragments surrounded by other land uses. Forest fragmentation isolates animal and plant populations into smaller areas, and makes forestland more vulnerable to development, fires, and invasive species.

Conversion of farmland to development can adversely affect the sustainability of agriculture, which is a significant part of the culture, heritage, and economy of the region. Agriculture in the Bay watershed is under increasing pressure from development. Between 1982 and 2003, nearly 1 million acres of crop and pasture land were converted to large and small built up areas. Multiple impacts are associated with the loss of agricultural land, including declining access local, fresh foods, diminishing carbon sequestration in agricultural vegetation and soils, and declining aquifer recharge, which negatively affects groundwater flows.

Modifying Human Activity: A Collective Effort

As explained above, many of the problems with the Chesapeake Bay are the result of human activities in the Bay watershed. Thus, a significant part of the solution will require changes in the way people live and work in the watershed.

The effort to restore and protect the Chesapeake Bay will never be successful without the active involvement of the watershed's nearly 17 million residents. People can and often do take care of the things that affect them directly—their homes, yards, neighborhoods, communities, and the special places they care deeply about. Taking small actions in these places can make a real difference in the health of communities, rivers, and the Bay itself. Some actions contribute directly to clean water, such as choosing to not fertilize lawns, installing rain barrels and rain gardens, planting native trees and shrubs, or picking up after pets. Other actions build sustainable and vibrant communities, such as choosing to buy from local farmers, supporting a local land trust in efforts to conserve forest land, or working with children to engage them in local history and heritage. All of these approaches are needed to link citizens' ties to their communities to the larger cause of conserving and restoring the Bay watershed.

Demonstrating the value of changing our behaviors is a difficult task. Often, such changes are viewed as a threat to people's lifestyle or economic well-being. Reducing stormwater runoff, for example, may require the installation of new technologies in both residential and commercial developments. Requirements to use new roofing technologies or porous pavement have the potential to raise the price of such development. Partnering with states and communities to lead change in community planning and individual choices is important to bring all stakeholders and residents into the effort to achieve and sustain a healthy system.

Part 3

Federal Initiatives

Chesapeake Bay Program

Part 3

Federal Initiatives

The Executive Order directed federal agencies to make recommendations for improving the restoration and protection of the Bay and its watershed. This section presents the key challenges identified by the Executive Order and the initiatives for which federal agencies will seek necessary resources to accelerate progress. This section also presents examples of the results anticipated from the agencies' actions. More detailed information on actions associated with these initiatives is provided in individual reports developed under section 202 of the Executive Order (to be published in revised draft form in November 2009), and more detail on the process for establishing results and outcomes is provided in Part 4 of this strategy.

Initiatives and Outcomes

1. *Reducing Pollution and Restoring Water Quality*
   Reduction in nitrogen, phosphorus, and sediments discharged to streams, rivers, and the Bay and substantive support to the Bay jurisdictions' two-year water quality milestones.
2. *Chesapeake Farms and Forests for the 21st Century*
   Increased conservation on agricultural and forest lands to improve water quality while sustaining working farms, forests, and communities.
3. *Chesapeake Treasured Landscape Initiative*
   Conservation of treasured landscapes and places, increased public access to waterways, and expanded opportunities and education for citizens.
4. *Restoring Habitats and Sustaining Species*
   Significant improvements and resiliency of habitats and species on a scale large enough to sustain ecologically viable populations of fish and wildlife.
5. *Coordinate Tools and Science for Strategic Decision-Making*
   Have the scientific tools, monitoring, and decision-support assistance needed to drive significant improvement in the restoration and protection of the Bay and its watershed.
6. *A Strategy for Chesapeake Communities and Resources to Adapt to Climate Change*
   Specific information on the impacts of climate change and provision of the tools and resources needed to increase resiliency of communities and habitats in vulnerable areas.
7. *Federal Leadership by Example*
   Provide measurable contributions to the restoration effort through exemplary planning and design of federal facilities.
8. *Planning for Livable, Sustainable Communities*
   Promote positive, watershed-wide practices in transportation and smart growth planning that support vibrant, livable communities.

1. Reducing Pollution and Restoring Water Quality

Coordinated by U.S. Environmental Protection Agency

Clean Water

Clean water is one of the most precious resources to communities and people throughout the region and is essential for healthy habitats, wildlife, and fish, from the most remote streams in the watershed to the depths of the Chesapeake Bay. It is vital to have water that is not polluted; has enough oxygen to support

Eric Vance, U.S. EPA

fish, crabs, and other aquatic life; and is clear enough for sunlight to reach underwater grasses. In 2008, however, water quality in the Bay was extremely poor, meeting only 21 percent of established goals.

The Keys to Improving Water Quality

Significant reductions in nitrogen, phosphorous, sediment, and chemical contaminants are needed to achieve water quality goals throughout the Bay and its watershed. In 2008, an estimated 283 million pounds of nitrogen and 16.3 million pounds of phosphorus reached the Bay, according to computer models. To meet water quality goals for the Bay, nitrogen and phosphorus loads will have to be reduced by 30 percent and 8 percent respectively.

Achieving these load reductions will require significant reductions in runoff from urban and suburban lands and farmland; discharges of pollution from municipal and industrial wastewater facilities; leaching to surface waters from onsite (septic) systems; and atmospheric deposition of nitrogen to the Bay and its watershed from sources such as industrial and automobile emissions. Reducing these pollutants will require improved technologies and expanded use of pollution reduction practices. EPA intends to work with the six watershed states, the District of Columbia, federal partners, local governments, and other parties to put in place a comprehensive, transparent and accountable set of commitments and actions that together ensure that the technologies and management practices needed to restore Bay water quality are implemented by no later than 2025. Strategies to achieve water quality standards must also account for projected population growth and development. EPA is leading the federal effort to identify the next generation of tools and actions to restore water quality in the Chesapeake Bay and its watershed.

Initiatives

A. Create a new accountability program to guide federal and state efforts to restore the Bay. In December 2010, EPA will establish a Total Maximum Daily Load (TMDL) for the Chesapeake Bay. Under the TMDL process, EPA intends to provide the watershed states and the District of Columbia with draft loading reduction targets for nitrogen and phosphorus for each major river basin in the fall of 2009 and sediment targets by spring 2010. EPA expects that the seven jurisdictions will use these draft loading targets to further subdivide and allocate the needed reductions among point and nonpoint sources of nutrient and sediment pollution. Using that information, EPA intends to establish waste load and load allocations for those sources in the Bay TMDL.

Because the Bay TMDL will allocate pollutant reductions to both point and nonpoint sources to meet the Bay's water quality standards, EPA expects the six watershed states and the District of Columbia to provide EPA with documented "reasonable assurance" that nonpoint source loading reductions will be achieved.

Pursuant to section 117(g) of the Clean Water Act (CWA) and other authorities, EPA has built on the forthcoming Bay TMDL and announced its "expectations" for Watershed Implementation Plans to be developed by the six watershed states and the District of Columbia to achieve the pollutant reductions needed to restore the Bay. In brief, EPA expects the six watershed states and the District of Columbia to commit to establish and implement:

- ***Watershed Implementation Plans*** that (1) identify the pollutant reductions needed from all sources and commit to achieve them for both point and nonpoint sources either through regulations,

permits, or enforceable agreements[1], or, in states that are not signatories to the Chesapeake 2000 agreement, through alternative programs that EPA can be assured will achieve necessary load reductions and (2) include commitments to dates by which any necessary regulations or other instruments would be established and implemented.[2]

- ***A series of two-year milestones detailing near-term actions*** and loading reduction targets to evaluate progress toward water quality goals. EPA believes that the watershed jurisdictions need to take strong action to assure the public that nutrient and sediment discharges to the Bay will be reduced and controlled in the face of continued population growth and development of the watershed. EPA believes state adoption of enforceable or similarly accountable pollution control programs will reduce pollutant loadings to a degree far greater than EPA and the Bay watershed jurisdictions have been able to accomplish to date. Along with its "expectations," EPA will identify a number of potential "consequences" EPA may impose in the event that jurisdictions do not commit to establish and implement Watershed Implementation Plans or do not achieve their two-year milestones. These consequences could include revising the draft or final Bay TMDL to impose more stringent requirements on point sources of nutrient and sediment pollution; EPA objection to state-issued NPDES permits; using existing regulations to address new or expanded discharges of nutrients and sediment; and withholding or reallocating federal grant funds under CWA sections 117 and 319.

B. New rulemakings/actions under the Clean Water Act, Clean Air Act, and other authorities. To lead by example, EPA will initiate several actions to establish transparent accountability and set strong performance standards for restoring the Bay.

EPA will initiate rulemakings under the Clean Water Act to reduce nitrogen, phosphorus, and sediment pollution in the Chesapeake Bay watershed from the following sources. However, if the Chesapeake Bay states and D.C. strengthen their pollution control programs to achieve the reductions in nutrient and sediment pollution needed to meet Bay water quality standards, EPA does not expect that it would promulgate new Chesapeake Bay-specific regulations.

- ***Concentrated animal feeding operations (CAFOs):*** Expand coverage and set stronger minimum performance standards for permits, including for the land application of animal manure.
- ***Stormwater:*** Expand the coverage of the regulatory municipal separate storm sewer system (MS4) program to include high-growth areas and strengthen minimum performance standards within permits consistent with Bay water quality goals.
- ***New or expanded discharges of nutrients and/or sediment:*** Ensure that new or expanded discharges are offset by appropriate reductions when needed to meet Bay water quality goals. Such offsets would account for scientific uncertainty and would be in addition to existing reductions necessary to achieve Bay water quality goals
- ***Other pollutant sources:*** As necessary, EPA will initiate rulemaking under the CWA to address additional pollutant sources.

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[1] Enforceable agreements can include voluntary, incentive-based programs with contracts specifying the practices that will be implemented using cost-share dollars.

[2] EPA expects the signatories to the *Chesapeake 2000* agreement, i.e., Maryland, Virginia, Pennsylvania, and the District of Columbia, to develop Plans to achieve needed nutrient and sediment reductions whose control actions are based on regulations, permits or otherwise enforceable agreements that apply to all major sources of these pollutants, including nonpoint sources. EPA does not necessarily expect Delaware, New York, and West Virginia to base all control actions identified in their Plans on such regulations, permits, or enforceable agreements, but nevertheless strongly encourages them to do so. This difference in expectations reflects, in part, the jurisdictions' different status as signatories (or not) of the *Chesapeake 2000* agreement and the implications of that status for EPA's expectations pursuant to CWA Section 117(g).

EPA will propose and finalize its rulemakings as expeditiously as possible pursuant to authority provided in CWA sections 117 and 402 and other relevant statutory provisions.

EPA will take other actions as appropriate to reduce discharge of nutrients and sediments to the Bay including:

- Ensuring that advanced nutrient removal technologies are installed by municipal and industrial wastewater dischargers that collectively discharge about 90 percent of the total municipal and industrial nutrient loads to the Bay, where necessary to meet the facilities' water quality-based permit limits.
- Working closely with the Bay Clean Water State Revolving Fund (SRF) programs to encourage them to make or increase their investments in SRF-eligible Bay restoration projects and market the program to prospective recipients in the Bay watershed.
- Developing a model state program for reducing nitrogen loadings from onsite systems to be implemented by state health and environmental departments.
- Implementing its current nitrogen control programs for air emissions and establishing air deposition allocations as part of the load allocations in the Bay and tributary TMDLs.

EPA will also implement a Chesapeake Bay compliance and enforcement strategy that focuses on four key sectors—stormwater, CAFOs, municipal and industrial wastewater facilities, and stationary and mobile air sources.

As described in the Section 202(a) report on water quality, EPA will take additional actions to reduce discharges of toxic pollution to the Bay.

C. An enhanced partnership between USDA and EPA to implement a "Healthy Waters, Thriving Agriculture" Initiative. To move out quickly on the "Chesapeake Farms and Forests for the 21st Century" (see below), EPA and USDA have formed an enhanced partnership to implement a "Healthy Water, Thriving Agriculture" initiative that outlines key actions for advancing the effort. Meeting the challenges in the Bay will require federal agencies to commit and coordinate resources on a scale that matches the scope of the environmental and agricultural issues in the region. EPA has a unique opportunity to undertake with USDA several new and ambitious efforts that build and expand upon the strong working relationships that have been reinforced in the development of the Chesapeake Bay Watershed Initiative under the federal Farm Bill. EPA will align its resources such as the 319 program, State Revolving Fund, CWA section 117, State Innovation Grants, and the STAR grants with USDA resources to focus on several key areas that will result in significant improvements for the Bay and farming communities:

- Develop and implement an intensive and strategic effort to expand the use of ***key conservation practices in the high priority watersheds*** in the Bay.
- Collaborate in development of ***next generation conservation planning tools*** with other federal, state, agricultural and research partners.
- ***Establish centerpiece projects in each of the Bay states*** to demonstrate benefits of significant and innovative conservation approaches to addressing key issues in the region.
- ***Align EPA programs and resources with USDA efforts*** to achieve water quality improvements by developing critically needed tools and technologies to help farmers meet their conservation and farm operation objectives.

Examples of Anticipated Results from Restoring Water Quality Initiatives

- By 2025, as further defined by a series of interim two-year milestones, ensure that all management practices and technologies needed to restore the Bay's nutrient and sediment impairments are in place.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

2. Chesapeake Farms and Forests for the 21st Century

Coordinated by U.S. Department of Agriculture

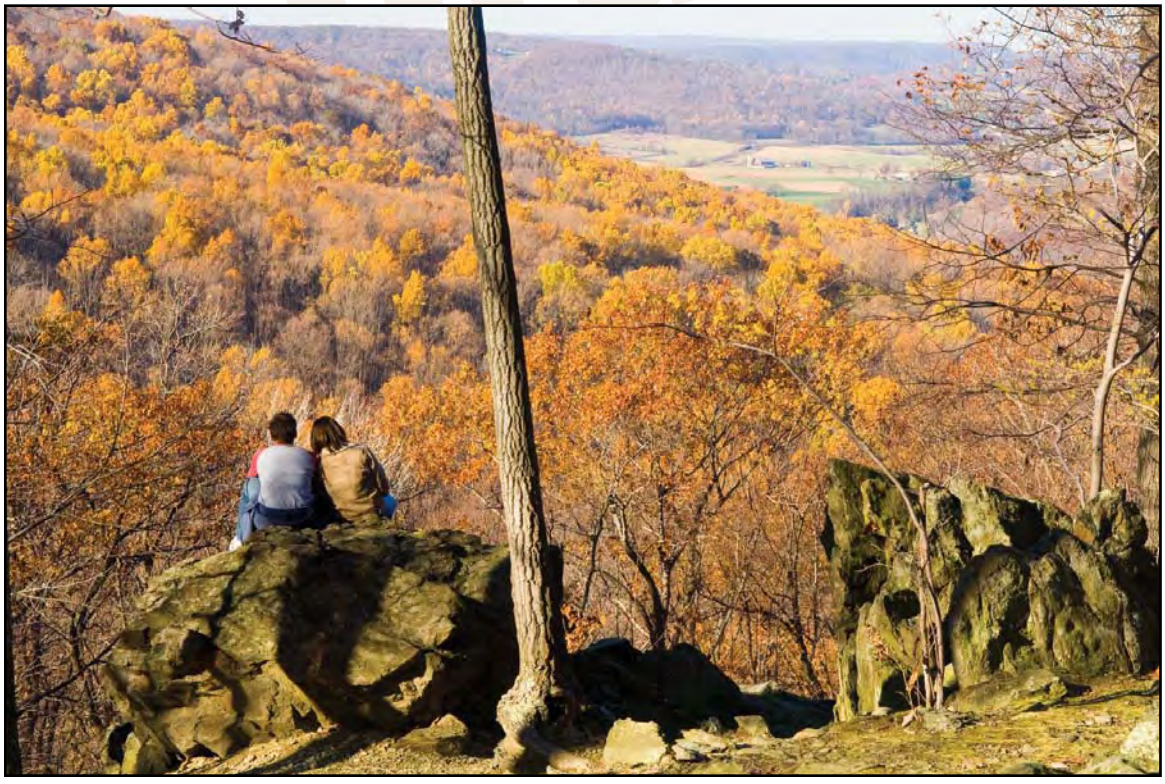
Farms and Forests in the Chesapeake Bay Watershed

Farming and forestry have been vital components of the Bay watershed, providing a reliable source of food, feed, fiber and rural landscapes. These lands account for 75 percent of the 44 million acres that make up the watershed. Forests occupy the majority of that area, while about one-third of that amount is used for agriculture. Farm and forest lands also anchor rural communities and provide precious open space, wildlife habitat, and other amenities important to the cultural and environmental fabric of the Chesapeake Bay watershed. In addition, urban and community forestry becomes a more important force in the 21st century for local governments to realize the ecosystem services, as well as the social and commercial benefits, associated with tree cover.

The Conservation Need

The stewardship of farm and forest lands has a tremendous influence on the quality of natural resources in the watershed. Agriculture, as an important component of the landscape and economy, is also a major source of nitrogen, phosphorus, and sediment that adversely affect the quality of the Bay and its tributary waters. Forests reduce these nonpoint source pollutants even though the majority of forests in the watershed receive little or no management. Increased management of forests will lead to improved water quality. The trend of shifting both farms and forests to other uses generates multiple negative impacts including carbon emissions, sedimentation, wetland losses and habitat fragmentation.

Today, farm and forest lands are under increasing pressure from development—since 1982, conversion of farm and forest acres to development averaged 200 acres per day. Among the long-term consequences of losing these agricultural and



Eric Vance, U.S. EPA

forested areas are declines in access to local, fresh foods; reduction in the capture of carbon in soils and plants; reduction in water recharge; and increased runoff from roads, roofs, and parking lots. Consider that a one-acre parking lot produces about 16 times the volume of runoff that comes from a one-acre meadow. Once these impervious surfaces cover more than 10 percent of a watershed, the rivers and streams become seriously degraded.

Losing farms and forests is not in the best interest of the Chesapeake Bay ecosystem. Maintaining healthy, sustainable farms and forests is an essential component to protecting and restoring the Chesapeake Bay. Well-managed forest and farm lands are the preferred land uses for water quality; these lands capture and filter the water that ultimately flows to the Chesapeake Bay. While our focus is on water quality, the approach must include dimensions of increasing economic viability and rural wealth, strengthening and building markets for local foods and ecosystem services, and protecting the natural heritage that makes the Chesapeake Bay watershed a national treasure. USDA is leading the federal effort to increase implementation of high-impact conservation practices in priority watersheds to better protect the Bay and its tributary waters.

Initiatives

Never before have agriculture and forestry been as central to current national policy issues—climate change, water resources, renewable energy and rural America's role in creating a 21st century economy.

Working with farmers, forest landowners, other private land managers, and other federal partners, USDA will launch an aggressive, voluntary, partnership conservation initiative to improve water quality while sustaining and enhancing the Chesapeake's farms and forests, which through careful stewardship deliver clean water and local products to rural and urban communities alike, increase carbon sequestration, and contribute to a healthy Chesapeake Bay ecosystem and economy. There are six major elements of this initiative:

A. **Focus on the highest priority watersheds by identifying the watersheds** and their most critical acres for immediate conservation action in order to better protect the Bay and its tributary waters. Defining the highest priorities to focus public and private actions offers the best opportunity for success.

B. **Focus and integrate federal and state programs by focusing programs** on priority conservation practices, and delivering programs and assistance most effectively. Strong partnerships with states and local governments, communities, and the private sector are essential to achieve the environmental objectives for the Bay. Models for this integrated, multi-partner approach exist and could be expanded such as the CEC's 2007 Forest Conservation Directive that considers trees and forests on all lands, urban and rural, and in communities across the the Bay and its watershed.

   DOI (through USGS and FWS) will lead studies on emerging contaminants in the Chesapeake Bay watershed and their possible impacts on priority fish and wildlife species and their habitats. Particular emphasis will be placed on the health, growth, reproduction, and sustainability of these fish, wildlife, and plant communities within targeted areas of the watershed. These efforts will be coordinated with EPA and other federal and state partners.

C. **Accelerate conservation adoption** by working with partners to expand the range of incentives, simplify program participation, and encourage private sector investment in conservation actions to restore the health of the Bay. Coordinated programs that empower voluntary actions through incentives and focus technical and financial assistance are a fundamental part of improving the Bay.

D. Accelerate development of new conservation technologies by increasing public-private research partnerships and focusing federal funding to foster and promote innovation to expand the "conservation toolbox." New technologies that increase revenue opportunities for farmers and their communities will also increase rural wealth and sustain the restoration of the Bay.

E. Implement a sound accountability system by establishing environmental outcomes; tracking, monitoring, and assessing progress; ensuring that federally supported conservation measures are applied and maintained; and partnering with EPA and USGS to use science to adapt and improve the strategy to protect and restore the Chesapeake Bay watershed. This system of accountability has many parts starting with ensuring that public agencies deliver their resources and assistance effectively.

F. Launch a "shared federal leadership" commitment to support ecosystem markets in the Chesapeake Bay, including:

- ***Collaborate across federal agencies***, with leadership by USDA's new Office of Ecosystem Services and Markets, to support existing efforts to build an ecosystem marketplace for the Chesapeake Bay. Executive departments and agencies, working in collaboration, can support the development of markets as a cross-sector Chesapeake Bay restoration strategy.
- ***Development of market-based tools and technologies***. Essentially, markets can connect the critical ecosystem services provided by farms and forests to beneficiaries who are willing or required to pay for their stewardship—such as urban water utilities, industrial polluters and land developers who need to mitigate unavoidable negative impacts to the watershed. These buyers could pay landowners for stewardship activities that result in nutrient or sediment reductions, or wetlands and habitat creation. Land registries and user-friendly software that interprets high resolution imagery are the types of tools being developed by federal agencies and other partners to support the success of the ecosystem marketplace. Collaboration with various elements of the private sector are critical for ensuring appropriate tools are developed.
- ***Ensure markets are credible, accessible, and accountable*** by building market infrastructure, including regional standards and guidelines for trading, and methods for aggregating landowners and verifying conservation outcomes. USDA will work with partners on quantification and reporting systems that are scientifically sound and verifiable, and account for net benefits over time. Potentially, revenues from ecosystem markets can help landowners diversify their income stream.

Examples of Anticipated Results from the Chesapeake Farms and Forests for the 21st Century Initiative

- Nutrient and sediment delivery to rivers, streams, and ultimately the Bay is reduced as high impact conservation practices are applied on critical farm and forest acres in priority watersheds. For example, when the goal for protecting working forests—agreed to in the 2007 Forest Conservation Directive—is accomplished in 2020, the Bay will realize a reduction of 3.2–4.2 million lbs of nitrogen per year.
- New partnerships develop innovative technologies that make conservation more effective in reducing nitrogen, phosphorus, and sediment losses from agriculture and forestry.
- Urban tree canopies continue to expand as a priority practice in communities across the watershed and ecosystem and social benefits of urban forests are realized by local communities.
- Sound science and strong partnerships come together to deliver data that demonstrate the contribution of a vibrant and conservation oriented agriculture and forestry sector to restoring and protecting the Chesapeake Bay.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

3. Chesapeake Treasured Landscape Initiative

Coordinated by U.S. Department of the Interior in collaboration with the U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, and Department of Defense.

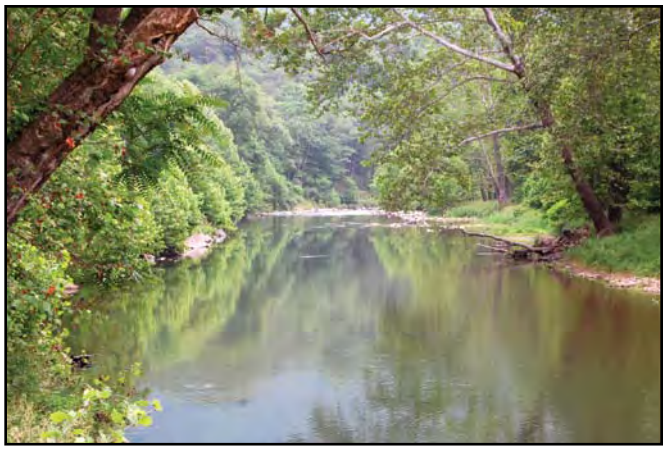
The Chesapeake Landscape

Spanning parts of six states and the District of Columbia, the Chesapeake watershed is one of the nation's most treasured landscapes, a rich mixture of ecological, historic and cultural gems. There is the Chesapeake Bay itself, the nation's largest and most storied estuary, some 200 miles long with 11,000 miles of shoreline and a pillar of tourism, recreation, and commerce. The great rivers feeding the Bay—the Susquehanna, Potomac, James, and others—are each nationally prominent in their own right. Surrounding these waters are the majestic vistas, farms, forests, marshland, and main streets at the center of much of nation's history. Jamestown, Gettysburg, the Shenandoah Valley, Blackwater, Pennsylvania Amish Country, Tidewater Virginia, the Eastern Shore, the Susquehanna Water Gaps, Smith and Tangier Islands—these are but a few of the treasures of the Chesapeake, a profoundly significant region of great meaning for the nation.

The Conservation Need

Conserving land in the Chesapeake Bay region is no longer a simple matter of sealing off wild places to remain untouched. Today, land conservation is at the crux of both ecological health and community well-being.

Many of the Chesapeake's treasured landscapes are threatened. Development has increasingly altered both natural and cultural landscapes, tearing at the very fabric that defines the region and supports our way of life. Forests in the region fall at the rate of 100 acres each day. More than 90,000 farm acres are lost each year. Fifteen years after a theme park threatened the Manassas battlefield, concerns rise over a planned shopping center on land important to the 1864 Battle of the Wilderness. Many of the region's important



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places may soon be altered irreversibly or lost forever. Moreover, converting forests and open spaces to development simply exacerbates pollution problems now harming the Bay and its rivers. On average, an acre of forest delivers just 3.3 pounds of nitrogen to streams annually; an acre of developed land delivers 32.9 pounds of nitrogen annually.

Bay states and partners have already identified some 2.3 million unprotected acres as important to conserve—including 695,000 acres of forest land of highest value to maintaining water quality—but this represents only one portion of the full goal. This figure does not include many other key conservation objectives, nor does it include conservation goals for culturally important landscapes beyond Maryland's farmland preservation goals.

Also, for people to deeply value the Chesapeake Bay and the thousands of streams, creeks, and rivers that flow into it, they need more access to nature throughout the watershed. This allows people to enjoy activities such as fishing, swimming, kayaking, hiking, and picnicking, which creates opportunities for public education, personal connections with nature, and citizen stewardship.

This situation calls out for a new emphasis in the effort to save the Chesapeake Bay—a commitment to conserve treasured Chesapeake landscapes and expand public access throughout the watershed as the foundation for ensuring a sustainable ecosystem into the future.

Initiative

DOI, with other key federal agencies, will launch the Chesapeake Treasured Landscape Initiative, engaging and assisting state, local, and private partners in an effort to conserve the Chesapeake's treasures. This initiative will focus on conserving and sustaining the most ecologically and culturally significant landscapes along the Bay and its major rivers, including working landscapes (farming, forestry, and fishing), lands of unique historical value, and vital wildlife habitat. The initiative will also expand public access to Chesapeake waters.

This initiative will encompass four critical elements (note: elements C and D are closely linked to other actions in the coordinated implementation strategy):

A. Coordinate federal funding to support state and local landscape conservation and public access. The federal government will seek support for strategic efforts to conserve priority landscapes and seek to provide public access through purchases of land and conservation easements by:

- ***Identifying and prioritizing landscapes:*** Survey the region for culturally significant landscapes, build on existing state systems of ecologically significant landscapes and create a comprehensive, publicly accessible geospatial land conservation database to support strategic protection targeted on the most significant and threatened landscapes.
- ***Identifying and prioritizing public access:*** Develop a region-wide needs assessment and plan for focusing federal investments in public access improvements.
- ***Targeting available funding:*** Work with states to target new investments within the Chesapeake region as funding permits. This may include Forest Legacy funds, Land and Water Conservation Fund, state grants, and other funding programs.
- ***Coordinating efforts:*** Ground conservation actions in a coordinated strategy focused on the most significant and threatened lands and leveraging federal, state, and local funds.

B. Conserve nationally significant landscapes and improve public access through existing, expanded, and possibly new federal land management units. The federal government will:

- ***Explore creating and expanding federal management units***, such as new units of the National Park System, National Historic Trails, and National Wildlife Refuges. Models appropriate for this region will likely be nontraditional, collaborative partnerships, retaining many patterns of land ownership and land and water use.
- ***Explore the use of a suite of federal authorities and programs to pursue protection of special waters for ecological and cultural heritage purposes***, including exploring viability and interest in establishing marine protected areas in the Chesapeake Bay and designating Wild and Scenic Rivers.
- ***Acquire key resources and provide public access*** by utilizing funding from the Land and Water Conservation Fund and other programs at high priority resources and access sites within existing federal management units.

C. Provide incentives and assistance for landscape conservation and public access. To maximize private stewardship and conservation actions by all levels of government, key federal incentives and assistance must be maintained, enhanced, and targeted. This includes:

- ***Providing technical assistance and capacity building*** to build added conservation capacity among local governments and land trusts; support a capacity-building program focused on land trusts; expand and coordinate the network of technical assistance providers; and integrate local, state, regional, and landscape-scale conservation planning.

- ***Strengthening financial incentives*** for conservation by exploring modifications to tax policy and landscape conservation criteria to certain federal funding programs and building landscapes into developing ecosystem services markets.
- ***Improving land conservation requirements*** by ensuring that mitigation activities are directed towards actively addressing ecosystem restoration priorities, including through the use of mitigation banks and by linking water quality regulation to the impacts of growth in landscapes.

D. Foster citizen stewardship. Conserving landscapes depends on an ethic of personal and collective responsibility and action. To have strategic impact, the federal government must rely not only on its internal education programs and capabilities, but must also leverage the capabilities and resources of external partners. The coordinated use of internal and external resources and expertise is essential to achieve broad environmental literacy, foster a stewardship ethic, and contribute toward a competitive and advanced workforce. Perhaps the best way to foster stewardship of the Chesapeake Bay is through education, especially for the millions of children who live in the watershed. The long-term health of the environment will depend on their interest and ability to protect nature.

The federal government will:

- ***Consider a Chesapeake Conservation Corps*** to mobilize citizen stewardship in conservation and restoration actions, with a special focus on engaging youth, developed in collaboration with non-governmental partners such as the Student Conservation Association.
- ***Pursue necessary resources to expand public education, including K–12 educational experiences*** through award of competitive grants (NPS Chesapeake Bay Gateways Network and USFWS Schoolyard Habitat and Connecting People with Nature programs) to support partners in providing programs related to meaningful watershed educational experiences.
- ***Seek to enhance place-based stewardship interpretation*** through existing federal partnership systems such as national trails and Chesapeake Bay Gateways, National Parks, and the National Wildlife Refuge System.

Examples of Anticipated Results from a Chesapeake Treasured Landscapes Initiative

- Nationally significant landscapes, viewsheds, and ecosystems are identified and protected for their ecological, cultural, and community values through partnerships with states, local governments, and nonprofit organizations.
- Water quality is directly improved as a result of targeting land protection.
- Public access to the Bay and rivers throughout the watershed is increased for recreation.
- Citizen understanding of the natural and cultural significance of the region is significantly enhanced resulting in greater personal stewardship of the resources of the Bay region.
- Youth throughout the region are engaged in the conservation and restoration of the natural and cultural heritage of the region.
- Communities are engaged to make sustainable economic and land use decisions, protecting community values and local resources.
- Sustainable local and regional economies are promoted and enhanced through such means as heritage tourism and protection of valued working landscapes.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

4. Restoring Habitats and Sustaining Species

Coordinated by the National Oceanic and Atmospheric Administration and Department of the Interior in cooperation with an interagency team from the Environmental Protection Agency, the U.S. Army Corps of Engineers, the Department of Defense, and the USDA Forest Service.

The Chesapeake's Fish & Wildlife

Success in protecting and restoring the Chesapeake Bay ecosystem will ultimately be measured by the vitality and richness of its fish and wildlife and the health and well-being of the people who rely upon them. For thousands of years, the Chesapeake's beautiful forests and waving marshes have supported iconic fish and wildlife, a robust regional economy and a quality of life treasured by the people who call the region home. Protection and restoration of habitats is essential to sustaining the iconic species of the Bay, and contributes significantly to the reduction of nitrogen, phosphorus, sediment, and contaminants loads to streams, rivers, and the Bay.

The Protection and Restoration Need

Sustaining and restoring fish and wildlife populations and the proper function of habitats requires better protection of healthy habitats and restoration of degraded ones. Healthy habitats provide an array of vital ecosystem services including the provision of food and drinking water, protection from flooding and severe weather events, nutrient cycling, and pollution control, as well as cultural, recreational and aesthetic benefits. Fish and wildlife species and the land and water spaces they require are increasingly challenged by the combined forces of climate change impacts and land use change. To achieve necessary long-term resiliency and sustainability of the Chesapeake ecosystem, vital habitat restoration must be approached in a systematic manner that raises the bar for habitat protection and restoration. The fish and wildlife of the Chesapeake Bay are some of the

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most studied in the world, yet many populations remain in a degraded state due to a variety of stressors including poor water quality, eutrophication, low oxygen, development, disease, overfishing, invasive species, contaminants, and climate change. Habitat loss from land use change and urbanization is a significant stressor. Oyster populations are less than 1 percent of historic levels. Over 5,000 miles of fish spawning habitat on Bay tributaries remain blocked by man-made obstructions. Key fish and shellfish species have declined dramatically in abundance or productivity. Additionally, the Chesapeake Bay fishing industry holds tremendous commercial, cultural and historical value. Managing the fisheries for blue crabs, oysters, striped bass, shad, and menhaden is also critical to restoring and protecting the population of these species and their important place in the ecosystem.

NOAA and USFWS are leading the federal effort under the Executive Order to strengthen programs to restore and protect habitats and manage critical fish and wildlife in the Bay and its watershed, and will continue to work extensively with the states.

Initiatives

NOAA and USFWS will collaborate on two key approaches to restore habitats and sustain healthy fish and wildlife for future generations. These efforts will create new ways to restore aquatic and terrestrial habitats on a landscape scale.

A. Energize large-scale efforts to restore habitats. Large-scale habitat restoration seeks to integrate efforts to recover the natural state and ecological functions of degraded habitats in priority areas to benefit fish and wildlife and improve the public good. The federal government is uniquely positioned to foster large-scale restoration by jointly targeting resources and leveraging this investment with state, community, industry and private citizen contributions and involvement. The federal government will seek to:

- ***Maximize benefits by prioritizing and targeting federal wetland and habitat restoration initiatives across agencies and partners*** to implement projects. Federal agencies will coordinate with states to identify habitats for key species along targeted tributaries and leverage efforts to restore these ecosystems on a landscape scale. Prioritization of target areas will integrate habitat restoration priorities with water quality goals.
- ***Provide technical assistance and targeted funding*** to promote natural habitats, conserve wetlands, and establish healthy fish corridors. NOAA and USFWS will coordinate with states to identify critical waterway segments to prioritize on-the-ground projects for living shorelines, riparian buffer installation, wetland restoration, stream restoration, upland habitat improvements, fish passage and dam removal, and other focused restoration projects.
- ***Protect investment in both large-scale restoration and treasured landscape conservation*** by managing invasive species in both aquatic and terrestrial habitats through increased detection efforts and coordinated rapid response to infestations.
- ***Develop a comprehensive, baywide, ecological native oyster restoration strategy*** to repopulate the Bay with healthy, self-sustaining native reefs. Federal agencies will coordinate with Maryland, Virginia, and the Potomac River Fisheries Commission to recover historical oyster bars and establish self-sustaining oyster reef sanctuaries in 20 key tributaries throughout the Bay by 2020. USACE would contribute to planning and constructing reefs and to overall program support. The federal government, in close cooperation with the states, must capitalize on the recent, multi-agency decision to restore native oysters to the Bay and accelerate ongoing efforts to bring about real change. Substantial efforts focused in subestuaries are demonstrating marked increases in oyster abundance. Greater federal and state commitments to supporting oyster sanctuaries will accelerate these efforts.

B. Employ sustainable practices for managing habitat and fish and wildlife populations. The federal government will:

- ***Support ecosystem-based fisheries management approaches*** through establishment of interjurisdictional Baywide strategies, comprehensive stock assessments, and evaluation of alternative approaches to improve fisheries management, including quota-based management, limited access programs, and gear-restricted areas.
- ***Promote the protection of key species and their key habitats*** in a way that integrates landscapes and waterways, consolidates best available information, develops a strategic ranking, and supports efforts such as the new Atlantic Coast Fish Habitat Partnership and Atlantic Coast Joint Venture (migratory birds).
- ***Strengthen waterbird and shorebird conservation*** in the Chesapeake Bay and Mid-Atlantic region by focusing on Important Bird Areas identified by the Atlantic Coast Joint Venture partnership and strengthening support for the North American Waterfowl Management Plan.
- ***Protect valuable land and water habitats through permit reviews and consultation under existing authorities including*** the CWA, Fish and Wildlife Coordination Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, Coastal Zone Management Act, and the Lacey Act.
- ***Assess impact of environmental contaminants*** such as heavy metals, PCBs, PAHs, and endocrine disruptor compounds on the health of fish, wildlife, and plants.
- ***Conduct a socio-economic assessment*** to determine what ecosystem services are most valuable to the people and communities in the Bay watershed.
- ***Identify actions to benefit fish and wildlife resources*** affected by the operation of hydropower facilities (e.g., Conowingo Dam) in the Chesapeake Bay watershed.
- ***Support science and modeling to advance understanding of the Bay ecosystem***, including long-term multispecies monitoring to inform decision making for fisheries, wildlife, and aquatic and terrestrial habitats.
- ***Make data easily accessible to resource managers*** through existing web-enabled technologies and provide training and technical assistance in the use of spatial tools for decision-making (see section 5 of this chapter).
- ***Establish long-term, baywide strategies to ensure sustainable crab populations over time*** and take management actions aimed at achieving the interim rebuilding target (sustainable population of 200 million adult blue crabs at least one year old). Sound science is essential to reaching effective management decisions and establishing accountability that sustainable populations are achieved. Via a joint understanding with Virginia and Maryland, NOAA will provide the science foundation for management decisions.

Examples of Anticipated Results from a Fish and Habitat Recovery Strategy

- Priority habitats are restored to maximize benefits for fish, wildlife, and the public good.
- Increased satisfaction of recreational and commercial users.
- Decreased number of annual fish kills resulting from degraded habitat and water quality conditions.
- Increased connectivity between vital habitats as evidenced by wide-ranging species.
- Healthy, sustainable fish and wildlife populations that improve ecological, commercial, and recreational value of the Bay.
- Valuable land and water habitats are protected from development, exploitation, and other destructive activities.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

5. Coordinate Tools and Science for Strategic Decision-making

Coordinated by the Department of the Interior and the National Oceanic and Atmospheric Administration in cooperation with an interagency team from the Environmental Protection Agency, the U.S. Army Corps of Engineers, the Department of Defense, and the U.S. Department of Agriculture.

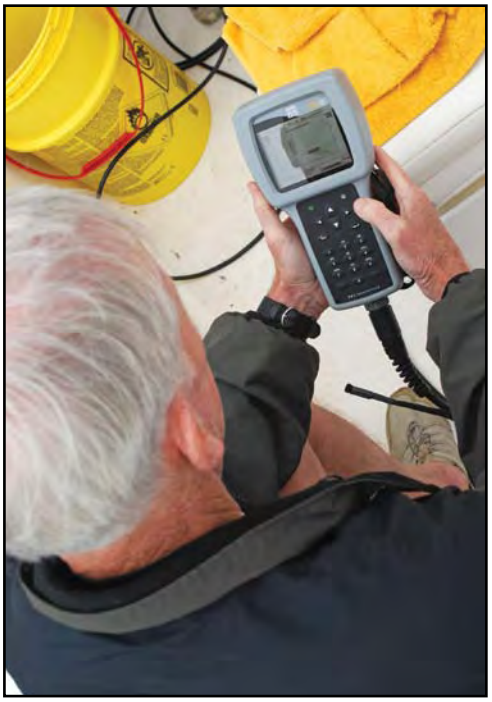
The Need for Coordinated Technical Assistance and Information

The strategies and programs outlined above, and in the current Chesapeake Bay Program goals, call for strengthening science and implementing ecosystem-based management for more strategic decision making, improving accountability, and addressing new challenges including climate change. Ecosystem-based management is being recognized as a priority objective for comprehensive management of the ocean, coasts, and Great Lakes in the Interagency Ocean Policy Task Force interim report. For the Bay watershed, the success in implementing adaptive, ecosystem-based management to accomplish restoration and conservation relies on significant improvements in the technical assistance, decision-support tools, monitoring data, and research and modeling provided by federal agencies. The federal agencies must improve interaction with states and local governments to move beyond the focus on restoring water quality and identify shared priorities for addressing the evolving goals of restoring and sustaining fish and wildlife, improving habitats, conserving landscapes, fostering stewardship, and addressing climate change.

The federal government can support partners' decision-making by assessing needs; expanding tools and science to use adaptive ecosystem-based management to prioritize and target; making available the most effective engineering designs and conservation practices; providing the ability to forecast probable outcomes and assess trade-offs of different management options; using monitoring and research to evaluate the effect of management actions; and making adjustments to improve actions and policies. Increasing the tools, decision-support assistance, monitoring and research by federal agencies is needed to better coordinate with states and localities to improve decision-making, align resources and enhance accountability. The key audiences are citizens and watershed groups, local governments, federal and state resources managers, and elected officials.

The desired outcome is to have the tools, monitoring, and decision-support assistance provided through an adaptive-management framework to address all the goals needed for significant improvement in the restoration and protection of the Bay and its watershed. The Chesapeake partnership will need to dramatically increase the involvement of citizens and local governments and better align federal, state, non-governmental organizations, and academic efforts to strive for a sustainable Bay and watershed and meet the increasing demands for goods and services of the 17 million people in the watershed.

USGS and NOAA are working with federal partners to strengthen the science supporting ecosystem-based management in the Chesapeake Bay watershed.



Chesapeake Bay Program

Initiatives

The availability and applicability of new tools, including computer modeling, data collection and analysis, and communication technology, can support greatly improved targeting of federal resources in the geographic and programmatic areas that will most immediately improve the Bay and its watershed. The federal government will bring improved watershedwide planning tools to the restoration effort. Although improved practices throughout the watershed are ultimately needed by all citizens, communities, states, and the federal government, a renewed commitment to use innovative tools to strategically prioritize and target will focus first on actions with the greatest potential for improving water quality, communities, and habitats. The federal government will:

A. Establish an Interagency Decision-support Hub to integrate information access, tools and expertise to improve decision-making and accountability. USGS and NOAA will work with federal partners to establish an interagency Hub to improve and integrate decision-support tools and to meet the needs of federal, state and local decision makers. The Hub will build from the Chesapeake Online Adaptive Support Toolkit (COAST) to integrate existing tools and science to address the water quality and other critical goals of the Chesapeake partnership (sustainable fish, wildlife and habitats and conserving landscapes). The federal government will more effectively coordinate the supporting science elements needed for improved decision-making including information management, monitoring, research, and modeling by interacting with state and academic partners through the Chesapeake Bay Program Technical Support and Services team (TSS). Through the Decision-support Hub, the federal government will:

- ***Develop GIS-based decision and analysis tools that support the specific needs for targeting of restoration and conservation actions***. The tools will be accessible through COAST, which will be linked to ChesapeakeStat. Enhanced or new tools, including high-resolution imagery and corresponding geo-spatial analysis, are needed to support targeting of water quality actions on agricultural and urban lands; land-use planning; conserving lands with important ecological, economic and cultural value; and protecting vulnerable coastal areas from sea-level rise and storm surge. Existing tools to help meet these needs, which will be linked through COAST, include NOAA's Digital Coast System (*http://www.csc.noaa.gov/digitalcoast*) for distribution of training and multiple data sets to coastal managers and improved transportation planning using DOT's Eco-Logical tool (*http://www.environment.fhwa.dot.gov/ecological/eco_entry.asp*).
- ***Utilize decision-support specialists*** to synthesize science findings, prepare effective communication product, and use the decision support tools to directly interact with partners to improve decision-making for all goals.

B. Utilize the Chesapeake Bay Environmental Data Enterprise for timely and effective data sharing and use between partners. EPA will lead the planning for major improvements to the data enterprise that improves information and data sharing, management, and access between partners and improves the tools and models needed for decision-making. This data enterprise will also make available the rich sources of data and information to all partners for their use.

C. Establish a Chesapeake Monitoring and Observing System that expands from current water quality monitoring to address representative fish and wildlife species, habitats, land use, climate change, socioeconomic factors, and tracking of management actions. The federal government, led by USGS and NOAA, will work with the TSS to:

- ***Coordinate with national monitoring networks*** to address needs in the Bay and its watershed (including the Integrated Ocean Observing System and the National Water Quality Monitoring Network).
- ***Establish stronger partnerships*** with ongoing federal and state monitoring programs.
- ***Design and implement a climate change monitoring component*** to ensure decision tools and models can forecast potential impacts of a changing climate.
- ***Improve monitoring to address gaps***. Improved monitoring is needed to address critical gaps in information for fish and wildlife, habitat, contaminants, land use, natural disturbances, and socioeconomic factors, and tracking of management actions.

D. Align and conduct research to understand and forecast ecosystem changes and assess effectiveness of management decisions. Better alignment of research efforts and models will improve targeting of management actions, develop forecasting capabilities of ecological and land-use conditions and outcomes of management options, explain ecosystem change and evaluate the effects of management actions, and develop the cost and value information needed as a foundation for development of ecosystem market banking and trading. The federal government, led by NOAA and USGS, and interacting with TSS, will:

- ***Align research in an adaptive management approach*** to explain changes and the effect of management actions.
- ***Prepare a federal research plan*** that identifies major gaps that need to be filled.
- ***Improve the modeling capabilities to operationally forecast ecological and human health conditions*** due to changes in land use, climate, weather, socioeconomic conditions, or different management options. Availability of trusted data provides better advance prediction of harmful algal blooms, beach closures, and other conditions, which will enhance public safety.

E. Utilize ChesapeakeStat as a comprehensive accountability tool. EPA and the Chesapeake Bay Program will launch ChesapeakeStat, which will provide access to partner implementation activities and array performance and funding data. ChesapeakeStat will be a valuable tool to determine if the partners are adequately aligning resources in priority locations that are suggested through COAST and associated decision-support tools.

Examples of Anticipated Results from Coordination of Tools and Services for Strategic Decision Making

- Prioritize the types and locations of management actions that provide the maximum benefits to improving the health of the Bay and its watershed.
- Align federal resources and technical assistance in the most cost-effective manner possible to implement restoration and conservation practices.
- Adapt actions and policies to become increasingly effective based on monitoring and assessment of environmental conditions.
- Have a consolidated suite of decision tools and analysis capabilities to increase joint decision making between federal, state, local governments, and non-governmental partners on the best management options and align resources to achieve outcomes.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

Ben Fertig, IAN Image Library

6. A Strategy for Chesapeake Communities and Resources to Adapt to Climate Change

Coordinated by the National Oceanic and Atmospheric Administration and the Department of the Interior and in cooperation with an interagency team from the Environmental Protection Agency, the U.S. Army Corps of Engineers, the Department of Defense, and the U.S. Department of Agriculture.

Vulnerability of the Chesapeake to Climate Change

Although there is still much uncertainty surrounding climate change projects and specific impacts, available information is sufficient to begin adapting to and mitigating the most likely impact scenarios and to raise awareness among policy makers and the public. Impacts to the Bay and watershed are expected as a result of sea-level rise; increases in water temperature, acidity and salinity; changing rainfall patterns and increases in rainfall intensity; and changes to freshwater flows with corresponding significant impacts to water quality and habitats. Many of the region's urban centers and significant ecosystems are in low-lying areas that are particularly vulnerable to sea-level rise and storm surge. The impacts of climate change extend to infrastructure, habitat, fish and wildlife populations, stream flow, water quality, and valued Bay landscapes and waters. Climate change threatens past restoration gains and the effectiveness of future actions to protect and restore the Chesapeake Bay and its watershed.

The Value of a Fully Coordinated Climate Adaptation Strategy

Adapting to climate change involves maintaining or enhancing the resiliency and reducing the vulnerability of the Chesapeake Bay and its watershed to the effects of climate change. The design and implementation of adaptation strategies includes careful analysis of existing decision-making processes. A clear understanding of the rates at which conditions are changing, the controlling factors and the likely consequences for water quality, habitats, living resources and communities will improve adaptation actions. The keys to a successful adaptive management approach are to provide the public and decision-makers with the most current scientific information while advancing understanding through research, monitoring and modeling.

Maryland and Virginia have already developed climate action plans, while Delaware, Washington D.C., New York, and Pennsylvania are currently developing similar plans. Although states have identified or begun to identify their needs and recommended actions, a lack of funding, existing institutional frameworks and uncertainties associated with climate change projections challenge their ability to effectively implement all of the needed actions. Because much of the region's infrastructure is tightly interwoven, regional climate adaptation planning, to protect, upgrade and adapt the region's infrastructure, is essential. Maintaining ecosystem health is also essential to the function and vitality of the region's landscape through measures such as improved shoreline management to ensure wetland migration capacity. NOAA and USGS are leading the development of the federal strategy for adapting to climate change.

Initiatives

A. Undertake a concerted effort to coordinate climate change science and adaptation throughout the watershed, which is closely linked with existing regional climate programs and centers within NOAA, USGS, and other federal agencies.

- ***Provide guidance to communities and promote implementation of climate adaptation*** by coordinating

climate change research, monitoring, technical guidance, social science research, education and outreach in the Bay watershed. To promote implementation, the federal agencies will work closely with government agencies at all levels, universities, and nonprofit and private organizations. The coordinated effort will ensure existing federal information is put into a form that improves the understanding of and adaptation to climate change in the Chesapeake watershed. Technical assistance through climate change extension agents and other regional climate assets and provision of consistent guidance to state and local communities, planners, resource managers, and regulatory agencies is a focal goal. This new effort to coordinate should be considered part of any emerging national network of regional climate services.

- ***Integrate climate change concerns into Chesapeake Bay partnership activities*** by working closely with the Decision-support Hub and integrating research and monitoring needs with other programs in the Bay watershed. Linking science with management is essential for making the decisions today about potential impacts on water quality and related plans to meet the Bay TMDL and that will increase resiliency of Bay communities and habitats to future climate change impacts.
- ***Assess vulnerability of federal assets and habitats for fish and wildlife to sea-level rise and changing conditions in the watershed*** and develop policy, guidance, and tools to maintain resilience and sustainability of lands, habitats, and water and wastewater infrastructure. Prioritize and target federal actions described in other sections of this strategy, such as living shorelines, land acquisition, and habitat restoration, to increase resiliency in vulnerable areas.
- ***Develop federally coordinated plans for supporting climate change adaptation*** including engineering design model criteria for states and localities, sediment and erosion control guidance, stormwater management plans, updated floodplain maps, and developing consistent approaches among federal agencies to meet floodplain management requirements.

B. Implement climate change adaptation on federal lands and within federal agencies and programs.

- ***Protect critical habitats and species through conservation and restoration***, including pilot projects for adaptation response plans, targeted acquisition plans, development of incentives for conservation of critical habitats and species, and targeting federal conservation and restoration.
- ***Establish adaptation guidance for federal programs***, federally managed lands and federally financed state, local, and private lands and implement actions on highly vulnerable lands. Federal agencies with restoration and protection responsibilities in the Bay region will consider climate change as they implement their responsibilities, including programs, funding, and land management activities.

Examples of Anticipated Results from a Climate Change Adaptation Strategy

- Local communities have the data to make planning decisions that reduce placing infrastructure or homes along vulnerable coasts.
- Development of regional climate change information, products, and services that are consistent and coordinated among the major federal and state partners
- Resource agencies can target appropriate conservation and restoration funds to preserve critical habitats and species in light of climate impact.
- Federal agencies and states have the information needed (and are equipped to determine whether to invest) in utility retrofits versus relocations.
- Federal land managers will possess the information and the assistance needed to develop climate adaptation strategies for federal lands (including forests, refuges, parks, military installations, and other lands).
- Federal agencies and states will have a prioritized list of research needs targeting the existing gaps in regional climate change understanding.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

7. Federal Leadership by Example

Coordinated by U.S. Department of Defense in collaboration with the Environmental Protection Agency.

Federal Lands and Programs in the Chesapeake

Federal agencies own 7.8 percent of the land in the watershed, including approximately one-third of the lands in the District of Columbia. Federal lands are both developed and undeveloped, ranging from industrial to wilderness uses, and provide important opportunities to demonstrate the stewardship, conservation, restoration, water quality, and resiliency principles presented in this strategy. The Executive Order charged the federal agencies to address storm water management on federal lands and facilities. The largest pollutant contribution per acre from federal agency lands derives from urban and suburban storm water discharges. A combination of regulations and voluntary measures currently is used to manage storm water's effects on the Chesapeake Bay. However, the lack of progress and the emergence of new techniques argue powerfully for a new and improved approach to stormwater management.

Federal Stewardship

Potential impacts to the Chesapeake Bay and its tributaries of stormwater releases from federal lands are associated with three major source categories: stormwater discharges from new development and redevelopment projects, stormwater discharges from existing facilities and developed lands, and runoff from undeveloped lands. Strengthening stormwater management at federal facilities and on federal lands will contribute to restoration goals and commit federal agencies to the protection and restoration efforts in full partnership with states and local communities. Many agencies have already implemented innovative stormwater management projects such as green roofs, permeable pavement, bioretention, shoreline and stream bank stabilization, and expansion of riparian buffers on some of their facilities.

U.S. Navy

The Department of Defense is leading the federal effort for reducing the impacts from stormwater discharges from federal lands and facilities.

Initiatives

A. Strengthen stormwater management from new development and redevelopment, existing facilities, and undeveloped federal lands.

- ***Adopt agency-specific policies*** that define the administrative and management controls needed to comply with stormwater requirements for new development and redevelopment projects in accordance with Section 438 of the Energy Independence and Security Act.
- ***Facilitate environmentally sensitive site design techniques for site selection and layout*** for new development and redevelopment projects that incorporate knowledge of soil types and hydrology into planning stormwater management practices to maintain or restore natural hydrology.
- ***Investigate opportunities for installing innovative stormwater management*** retrofits at existing facilities and on existing lands and for installing best practices to manage stormwater from existing paved roads on federal land, as funding permits.
- ***Explore authorities for use and expansion of land conservation easement*** programs, particularly those

that preserve forest land and those that would be used to install stormwater management practices.

- ***Institute practices on undeveloped lands***, including practices to prevent and control erosion from unpaved roads.
- ***Ensure accurate spatial data for federal lands and facilities*** is provided and maintained to improve the contribution and accountability of effective federal land management that contributes to Bay restoration goals.
- ***Act in priority watersheds identified in partnership with other agencies and states.*** Federal lands are located throughout the watershed and the impacts and opportunities to improve stormwater quality vary based on the existing conditions and sub-watershed location. Like other elements in this coordinated implementation strategy, the federal agencies should prioritize action within available funding for stormwater improvements where the greatest contributions to water quality goals and prevention of further degradation can be achieved.

Examples of Anticipated Results from Federal Leadership by Example

- Federal agencies achieve reductions in stormwater discharges from their facilities that will ultimately contribute to restoring the functionality of terrestrial and aquatic habitats.
- Agencies demonstrate that the use of environmentally sensitive site selection and design techniques not only result in aesthetically pleasing surroundings but sustain economic growth without harming local and regional ecosystems.
- Productive forests and wetlands are maintained and protected from future negative impact from development.
- Cooperation among federal, state, and local governments results in effective land use planning that will protect water quality and restore the recreational and economic vitality of the Chesapeake Bay watershed.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

8. Planning for Livable Communities

Coordinated by U.S. Department of Transportation in collaboration with the Environmental Protection Agency.

Because the problems for restoration and protection of the Bay and its watershed result from a range of sources, and because the watershed itself extends across state and local boundaries, decisions on programs and their implementation are often best made at the regional or local level and guided by consistent overarching principles. The federal government can support actions to better serve decision-making at the state, regional and community level in the Chesapeake Bay watershed. This will require new modes of interaction; new perspectives on the role of federal, state, and local agencies; and new responsibilities for all Bay watershed partners. The federal role in transportation funding and planning is one area where federal agencies can promote positive practices watershedwide that support planning for vibrant, livable communities. To accomplish this, the federal government will pursue the following:

A. Address stormwater impacts of transportation infrastructure.

- New federally assisted transportation infrastructure, including federal-aid highway construction and re-construction in the Bay watershed must meet current regulatory standards for stormwater runoff and will meet any strengthened standards in place as a result of rulemaking.
- DOT and EPA will work together to encourage State Departments of Transportation and Metropolitan Planning Organizations to use federal transportation program funding to retrofit existing federal-aid highways to address stormwater and other water quality issues caused by transportation, and will encourage airports to implement mitigation measures.
- DOT will work with EPA to develop strategies to enhance and broaden mitigation options for storm water and wetlands available to transportation agencies.

B. Encourage watershed planning.

- DOT will encourage a strong focus on incentives and strategies that provide mitigation on an ecological and watershed scale. DOT and partner federal agencies will promote use of this integrated mitigation approach outlined in *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* to better avoid, minimize, and mitigate impacts of transportation projects on habitat and ecosystems and will promote use of a regional ecosystem framework in the Chesapeake Bay watershed.

The Federal Highway Administation's Exemplary Ecosystems Initiative will share information on benefits and techniques of a regional ecosystem approach for infrastructure development. Where these approaches are used, permit reviews should be streamlined.

- DOT and EPA will work under the accountability program of implementation of TMDLs for the Bay watershed to ensure a watershed plan is put in place for each of the six watershed states and District of Columbia that incorporates transportation planning and mitigation opportunities that can be implemented on a watershed basis with a plan and/or incentives to preserve high-priority resources.

C. Promote livable, sustainable communities.

- Under the auspices of their sustainability initiative, DOT, EPA, and HUD will convene a series of targeted forums over the course of two years on transportation in the Chesapeake Bay watershed. The partnership will work with metropolitan partners to explore the possibility of conducting integrated transportation, land use, housing, and water infrastructure planning in a metropolitan

Frank Chan, Creative Commons

area of the watershed. The selection of pilot project locations will consider opportunities for community benefits.

- DOT will promote increased use of public transportation, bicycling, and walking options to support a livable and sustainable environment.
- Sustainable development will be promoted through assistance and tools to local governments which foster safe and smart growth (such as NOAA Sea Grant, EPA Smart Growth technical assistance, Chesapeake Network for Education of Municipal Officials, USFWS Wildlife and Sport Fish grant program, Partners for Fish and Wildlife program, Coastal Program, and National Fish Passage program and planning capacity building).
- DOT will work with the DOE to explore opportunities for a project in the Chesapeake Bay watershed to support the transition to electric plug-in hybrid passenger vehicles and urban buses.

Examples of Anticipated Results from Planning for Livable Communities

- Transportation agencies will address storm water issues through projects to retrofit existing roadways.
- Mitigation related to transportation activities will be demonstrated on an ecological and watershed scale.
- Communities will have increased tools for integrated planning that will support more sustainable communities with increased transportation choices with access to affordable housing.

As described in Part 4, federal agencies are working with partners to translate desired results into outcome-based goals and measures for the final Strategy for Protecting and Restoring the Chesapeake Bay, to be released in May 2010.

Actions Agencies Will Initiate Before May 2010

The Executive Order states that "to the extent practicable and authorized under their existing authorities, agencies may begin implementing core elements of restoration and protection programs and strategies, in consultation with the Federal Leadership Committee, as soon as possible and prior to the release of a final strategy."

Following this direction, the federal agencies have identified several actions that can be initiated soon after November 9, 2009, to advance restoration and protection of the Chesapeake Bay and its watershed. These actions include:

- Initiate new rulemakings for CAFOs, stormwater and offsetting of new/increased discharges of nutrients and sediment. (EPA)
- Implement the first-ever Bay compliance and enforcement strategy to reduce discharges/emissions from key source sectors. (EPA)
- Select three watersheds and develop centerpiece projects to demonstrate the best methods to reduce nitrogen and phosphorus pollution on agricultural and forestry lands. (USDA and EPA, working with USGS)
- Measure the amount of nitrogen, phosphorus and sediment pollution at sites in the Bay watershed to provide localized information for assessing progress toward loading targets of the Chesapeake TMDL. Address the occurrence of contaminants in the Bay watershed and their impact on freshwater fisheries and wildlife. (USGS will partner with EPA, USFWS and the states)
- Work with the Atlantic Coast Joint Venture to identify important bird habitat in the Chesapeake Bay watershed and focus implementation of habitat protection and restoration projects in key aquatic and terrestrial habitats to maximize benefits to migratory and resident bird species. (USFWS)

- Fund and facilitate construction of new public access points through grants linked to the Chesapeake Bay Gateways and Watertrails Network and Captain John Smith Chesapeake National Historic Trail. (NPS)
- Begin developing a bay-wide, ecological native oyster restoration strategy and plan to establish healthy, self-sustaining native reefs in key tributaries by 2020. (NOAA, the U.S. Army Corps of Engineers and state partners)
- Fund the Smithsonian Institution's Environmental Research Center and several partner organizations to study the degradation of nearshore coastal habitats in the Chesapeake Bay. Research will be used by environmental managers and local officials to better protect and restore these estuaries over the long-term, as well as plan for sea level rise and other consequences of climate change. (NOAA)
- Identify priority areas (aquatic and terrestrial) in which to focus large-scale restoration projects that combine fish passage, wetland, and living shorelines efforts in FY10–FY11. (NOAA, FWS, USGS, USDA, and USACE)
- Support The Conservation Fund (TCF) in development of a map of projected sea level rise and storm surge impacts to the Bay region. TCF is also hosting a workshop next spring to provide training for local land planners, state managers and others on green infrastructure planning as a climate change adaptation tool. (NOAA)
- Measure the sea-level rise at Blackwater National Wildlife Refuge and adjacent area to evaluate the effectiveness of practices to maintain the elevation and integrity of wetlands in response to climate change. (USGS and FWS)
- Forecast the combined impact of land-use and climate change on nutrient and sediment loads in the watershed and their delivery to the Bay. The forecasts will be used to help assess options for implementing the Chesapeake TMDL. (USGS)
- Assess opportunities at one military (Navy) installation for installing stormwater management retrofits at existing facilities/paved roads and reducing erosion from unpaved roads/trails on both developed and undeveloped lands. (DOD)
- Conduct Low Impact Development (LID) training for Navy environmental and engineering representatives involved in planning, design, construction, and maintenance of stormwater management facilities. (DOD)
- Sign a cost-sharing agreement with non-federal sponsors in FY10 for detailed evaluation of potential actions to address the vast amount of sediments that have accumulated in the four lower dams on the Susquehanna River. (USACE)
- Issue a comprehensive watershed restoration plan for the Anacostia River that will recommend specific actions for addressing stormwater management, ecosystem restoration, trash management, and sediment reduction. (USACE)
- Report all property holdings by December 2009 and publicly available land use data by March 2010 to allow for more effective federal land management and for the bay computer model to more accurately include pollutant loadings from federal facilities and develop pollutant load allocations under the TMDL. (all FLC agencies)
- Work with states and local governments, nonprofit organizations, and private landowners to conserve valuable natural and cultural areas and working forests, farms, and ranches in the Chesapeake Bay watershed through land conservation and easement programs. (NPS, USDA, and NOAA)

Part 4

Developing a Coordinated Strategy

Chesapeake Bay Program

Part 4

Developing a Coordinated Strategy

An exceptional effort will be required to protect and restore the Chesapeake Bay and its vast watershed, particularly because of the wide spectrum of serious environmental challenges and the expansive network of stakeholders that have an impact throughout the region. To be successful, the federal government, the six states, the District of Columbia, and the Chesapeake Bay Commission must commit to unprecedented levels of coordination and to fully integrating activities and programs beyond the existing Chesapeake Bay Program. A key element of this process is the development of clear goals for environmental restoration of the Bay along with target dates for meeting these goals. This effort must encompass local government, watershed organizations, and residents. The Executive Order directs the federal government to lead the collaborative process.

Role of the Federal Leadership Committee for the Chesapeake Bay

The Executive Order established a Federal Leadership Committee for the Chesapeake Bay (FLC) chaired by the Administrator of the Environmental Protection Agency and with senior representatives of the departments of Agriculture, Commerce, Defense, Homeland Security, Interior, and Transportation. In addition, section 201 of the Executive Order states that other federal agencies may be included in the FLC "as determined by the Committee."

The Executive Order assigns the FLC responsibility to:

- Oversee development, coordination, and implementation of new federal programs and activities for Chesapeake Bay restoration.
- Consult with stakeholder groups and the general public.
- Collaborate with state partners to create a new, coordinated strategy.
- Define environmental restoration goals, indicators, milestones, and target dates for meeting goals.
- Track and report restoration activities and spending.
- Publish an annual Action Plan describing how federal funding will be used.
- Publish an annual Progress Report on environmental health and restoration efforts.
- Utilize independent evaluation to strengthen accountability.

After the Executive Order was issued on May 12, 2009, the FLC began developing recommendations for new federal programs and activities that address key challenges facing the Chesapeake Bay and its watershed. These recommendations are set forth in seven reports required by section 202 of the Executive Order and released as drafts on September 10, 2009. The remainder of this section of the draft strategy outlines the processes and tools under consideration for coordination and implementation of the new federal initiatives, as well as the other responsibilities assigned to the FLC. This process incorporates several existing elements of the Bay protection and restoration effort and represents a sound approach to the development of the coordinated strategy requested in the Executive Order. The FLC, however, is highly interested in alternative approaches to this process and encourages readers to submit comments on this section of the draft strategy.

The FLC intends to adhere to several key principles as it works to develop a coordinated, integrated implementation strategy for the Chesapeake Bay and watershed. The FLC's approach will be:

- **Collaborative**, including state and local governments as well as the public.
- **Iterative**, accounting for the dynamic nature of the Bay, its watershed, and the needs of the communities that live and work in the watershed.
- **Comprehensive**, supporting the consideration of change to all aspects of existing plans and strategies for the protection and restoration of the Bay and watershed.
- **Aggressive**, acknowledging the ecosystem's need and the public's desire for rapid improvement in the Bay and its watershed.

Consult with Stakeholder Groups and the General Public

The general public and the stakeholder groups that are directly involved with and affected by the new federal initiatives must have a strong voice on the content and implementation of this strategy. The general public and stakeholder groups have traditionally been a rich source of ideas for protecting and restoring the Bay, and the actions of individual citizens are fundamental to the success of restoration and protection of the Chesapeake Bay and its watershed. The FLC intends to use public comments to improve the initiatives to the greatest extent possible.

The FLC plans an active public involvement process for the Executive Order strategy, with a particular emphasis on integrating the new federal efforts with the work underway by states and local jurisdictions. A key part of this process will provide for development of specific goals for restoration of the Bay and target dates for meeting these goals (see discussion below). This public involvement process will include a 60-day formal written comment period beginning November 9, 2009, and outreach meetings with stakeholder groups before and after publication of the final strategy.

Collaborate with State Partners to Create a New, Coordinated Strategy

Section 204 of the Executive Order calls for extensive consultation and close collaboration with the states and the District of Columbia during development of the strategy and into the future to coordinate the restoration effort. The FLC recognizes the vital role states play in the restoration effort.

The six states in the Bay watershed and the District of Columbia currently implement a variety of programs addressing water quality, habitats, fish and wildlife, agriculture, urban and suburban stormwater, climate change, land conservation, transportation, and scientific research. Through these programs, the states and District possess a tremendous amount of authority, and expertise. In addition, all of the Bay jurisdictions have already strongly endorsed the importance of restoring the Bay through adoption of tributary strategies and other state planning processes. Therefore, close collaboration with all Bay jurisdictions is essential to create an integrated strategy that fully accounts for all actions and leverages existing and future restoration efforts. Again, a key part of this process will provide for development of specific goals for restoration of the Bay and target dates for meeting those goals.

Since issuance of the Executive Order, federal and state officials have met on numerous occasions to discuss specific proposals in the draft reports

The Chesapeake Bay Program is a regional partnership that has coordinated and conducted the restoration of the Chesapeake Bay since 1983. Federal partners include the U.S. Environmental Protection Agency, Natural Resources Conservation Service, U.S. Forest Service, National Oceanic and Atmospheric Administration, U.S. Geological Survey, National Park Service, U.S. Fish and Wildlife Service, and the Department of Defense, including the U.S. Army Corps of Engineers. Partners also include the states of Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; and advisory groups of citizens, scientists and local government officials. CBP partners define their collective actions through formal, voluntary agreements and provide general policy direction.

developed under section 202 of the Executive Order and the scope of the section 203 strategy. The states and the District have also provided detailed comments on the recommendations in the section 202 reports because of the impact and interaction the recommendations would have with state policies and programs. To ensure that state comments are incorporated in the final strategy and that state activities are interwoven with federal activities, the FLC agencies will continue to extensively consult with the states between the publication of the draft document and the final version. The FLC agencies will then work closely with the states to ensure that all restoration efforts are efficiently aligned and integrated.

Chesapeake Bay Program as Forum for Collaboration with FLC

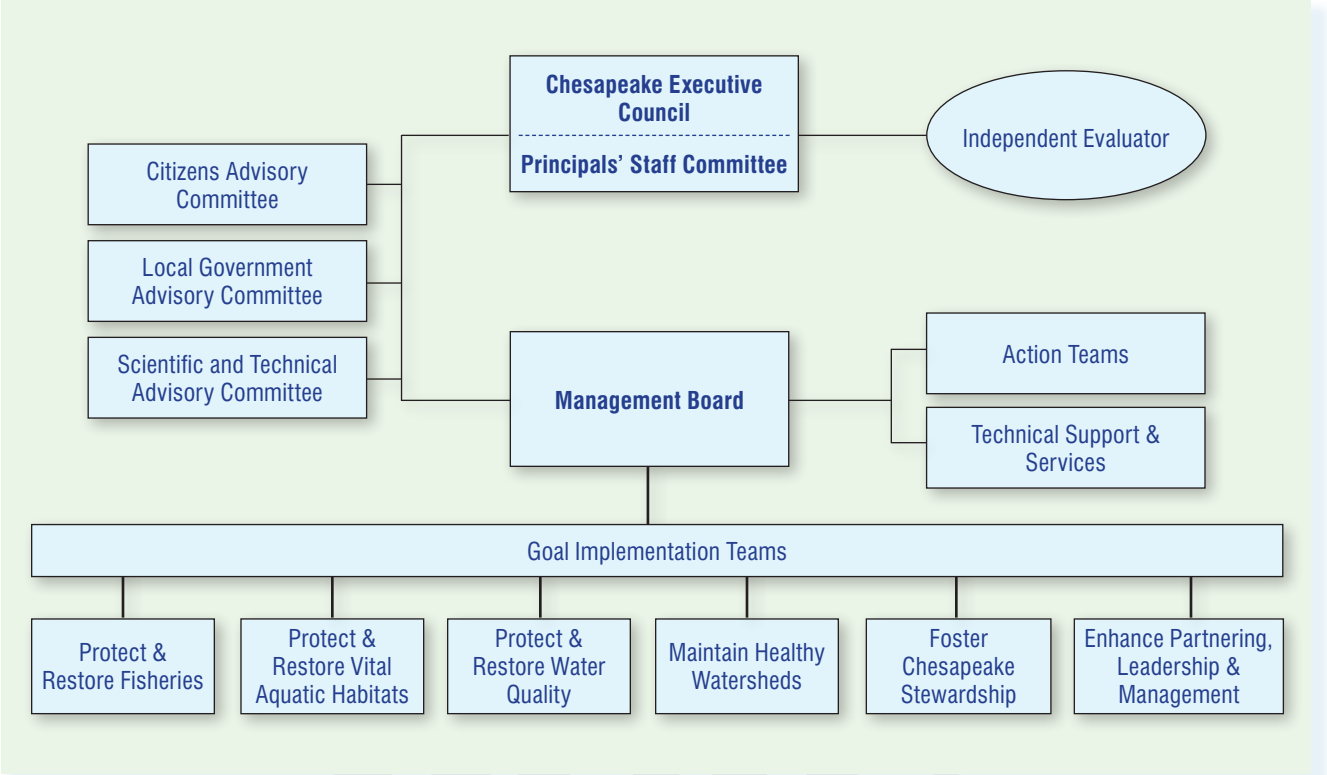
The Federal Leadership Committee for the Chesapeake Bay is evaluating the most effective and efficient processes for collaborating with states in developing and implementing this new strategy. The Chesapeake Bay Program (CBP) partnership is under consideration as the forum for collaboration because it is structured to support inter-governmental planning and development of tools that support decision-making at the regional level. CBP has years of experience with federal-state collaboration, has developed a relatively comprehensive strategic framework, and is engaged in integrating and coordinating actions to protect and restore the Bay and its watershed. The new federal initiatives proposed by the FLC will require extensive consultation with the CBP partners to develop a truly integrated strategy that reflects the wide range of activities already underway in the Bay watershed.

The CBP may be able to serve as the ongoing forum for regional coordination in the future, but this would likely require revision of CBP's strategic framework to support the FLC's efforts. CBP partners will also engage with the governance structure proposed by the Interagency Ocean Policy Task Force established under President Obama's memorandum of June 12, 2009 (*http://www.whitehouse.gov/assets/documents/2009ocean_mem_rel.pdf*). This engagement will further strengthen integration of federal efforts in the Chesapeake Bay with regional and national priorities.

In spring 2009, the CBP structure and strategic framework were reorganized to better coordinate the activities of all partners and to accelerate the rate of progress on protection and restoration of the Bay and its watershed. The current CBP organizational structure for the program, depicted in Figure 5, may need to be reconsidered in light of the need to incorporate the full participation of the Federal Leadership Committee and its member agencies. If the CBP were designated as the forum for regional cooperation under the Executive Order, the program's organizational elements might relate to the FLC's efforts as discussed below.

Executive Council: The Chesapeake Executive Council (CEC) includes the Administrator of the EPA; the governors of Maryland, Pennsylvania, and Virginia; the mayor of the District of Columbia; and the chairperson of the Chesapeake Bay Commission. Although not recognized by CWA section 117 as CEC members, key participants in the CEC process include Delaware, New York, West Virginia, and USDA. This group of executive level officials sets the policy agenda for the CBP and directs their agencies' actions to restore and protect the Chesapeake Bay and watershed. Participation by the EPA Administrator and USDA also results in a productive overlap with

Figure 5 – Organization of the Chesapeake Bay Program



the FLC, which the EPA Administrator chairs. The CEC could provide a platform for coordination and integration of Bay efforts at the highest levels of government. Realignment of the CEC to include or most effectively coordinate with the Federal Leadership Committee may be considered in the near future.

Management Board: The CBP Management Board, charged with providing strategic planning, priority setting, and operational guidance to the program, provides a forum through which federal and state coordination can take place at the planning level. The Management Board already brings together high-level representatives of the Bay watershed states and five of the seven FLC agencies. The remaining FLC agencies, as well as others that may identify a role for themselves in the Bay protection and restoration effort, could be added to the CBP Management Board to ensure appropriate cooperation and collaboration.

Goal Implementation Teams: CBP has established staff-level teams, called Goal Implementation Teams (GITs), to design and implement programs and projects in the Bay and its watershed, including development of TMDL allocations. These teams include representatives of federal and state agencies, non-governmental organizations, educational institutions and other CBP partners. The GITs are intended to leverage the partnership's expertise on specific goal areas to identify and implement activities for achieving the program goal. The GITs also recommend milestones and indicators for their goal areas. A Technical Services and Support team (TSS) works with the GITs to provide the technical information needed to better implement and assess the effects of management actions to improve the health of the Bay and its watershed. Federal and state coordination at the GIT level may generate efficiencies and improvements related to the new federal actions, including revisions to CBP's strategic framework.

Figure 6 – Current Jurisdictional Framework

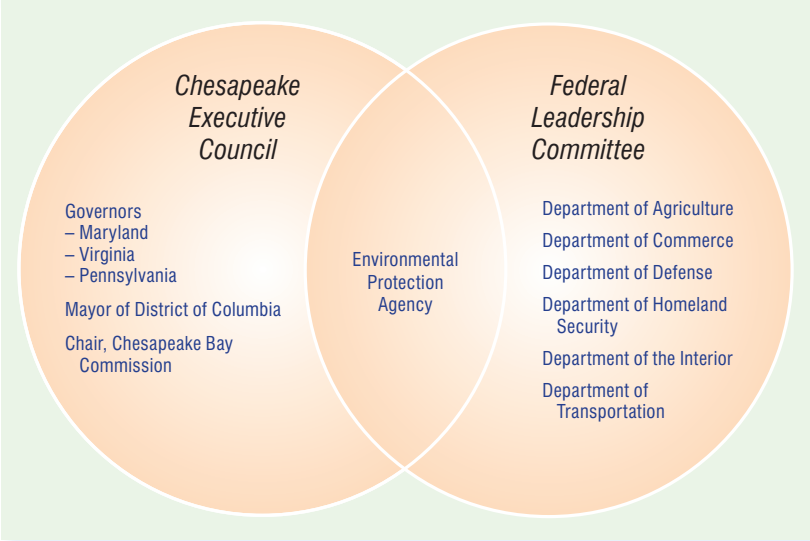


Figure 7 – Potential Jurisdictional Framework

Advisory Committees: CBP's Citizen Advisory Committee, Local Government Advisory Committee, and Scientific and Technical Advisory Committee play essential roles in assuring that the decisions about protection and restoration of the Bay and its watershed are informed by the interests and concerns of all stakeholders. A fully integrated approach to protection and restoration of the Chesapeake Bay must include participation and support from the public at large, local governments, and the scientific community. These advisory committees are poised to inform and enhance the process of integrating the actions recommended by the FLC with the CBP partnership.

Role of Federal Leadership Committee in Chesapeake Bay Program

When the final coordinated strategy under E.O. 13508 is released in May 2010, it will be necessary to define the long-term relationship of the FLC and CBP in order to facilitate optimal federal-state collaboration. One option for facilitating this relationship is to seat FLC members on the CEC. The EPA Administrator is already on the CEC and the Secretary of Agriculture participates on the CEC; senior level officials from the other federal agencies could be added. This would:

- Ensure close collaboration with states
- Ensure integration of federal efforts with state activities
- Assist with tracking and reporting federal efforts
- Help reduce bureaucracy by merging two senior-level groups both focused on directing the restoration effort

Define Environmental Goals, Indicators, and Milestones

Section 203 of the Executive Order requires a strategy that defines environmental goals, identifies indicators of environmental condition, and describes milestones for making progress toward attainment of the goals. The CBP has defined environmental goals (see Appendix C, Strategic Framework), identified indicators and indices of environmental condition (see Figure 8 and Appendix E, *Bay Barometer*, Chapter 1), and established milestones for making progress (see Appendix C, Strategic Framework and Appendix E, *Bay Barometer*, Chapter 3).

Assuming that the FLC and CBP decide to work closely together, they would need to align the new federal actions under the Executive Order with CBP's goal, indicators, and milestones so that the two bodies maximize their coordination, expand the involvement of all CBP partners, and capitalize on the strengths of all federal and state agencies involved in protecting and restoring the Chesapeake Bay and its watershed. This effort would need to include:

- An interagency process, including states, to develop clear environmental goals and indicators of program performance, including target dates and interim milestones for program performance.
- Public review and comment on the goals and program performance indicators, target dates, and milestones in early 2010 to inform the final version of this strategy to be released in May.

Environmental Goals and Indicators

Section 203 of the Executive Order provides that the foundation of this strategy be the clear definition of environmental goals that articulate in measureable terms the environmental conditions that constitute a restored and healthy Bay.

This draft strategy defines a goal with respect to restoration of water quality: the attainment and maintenance of water quality standards throughout the Bay watershed, including the reduction of pollution levels in individual watershed as needed to comply with the TMDL to be developed by EPA. EPA and Bay states have agreed to a programmatic goal of implementing the pollution control measures needed to accomplish these pollution reductions by 2025. No target date by which waterbodies are expected to exhibit water quality that meets these goals has been determined.

The FLC has not established measureable goals for restoration of other aspects of environmental conditions in the Bay. The FLC is considering adapting the existing goals of the Chesapeake Bay Program. These goals are:

- Manage fisheries sustainably
- Restore water quality
- Restore and protect habitats
- Maintain healthy watersheds
- Foster stewardship of the Bay and its watershed

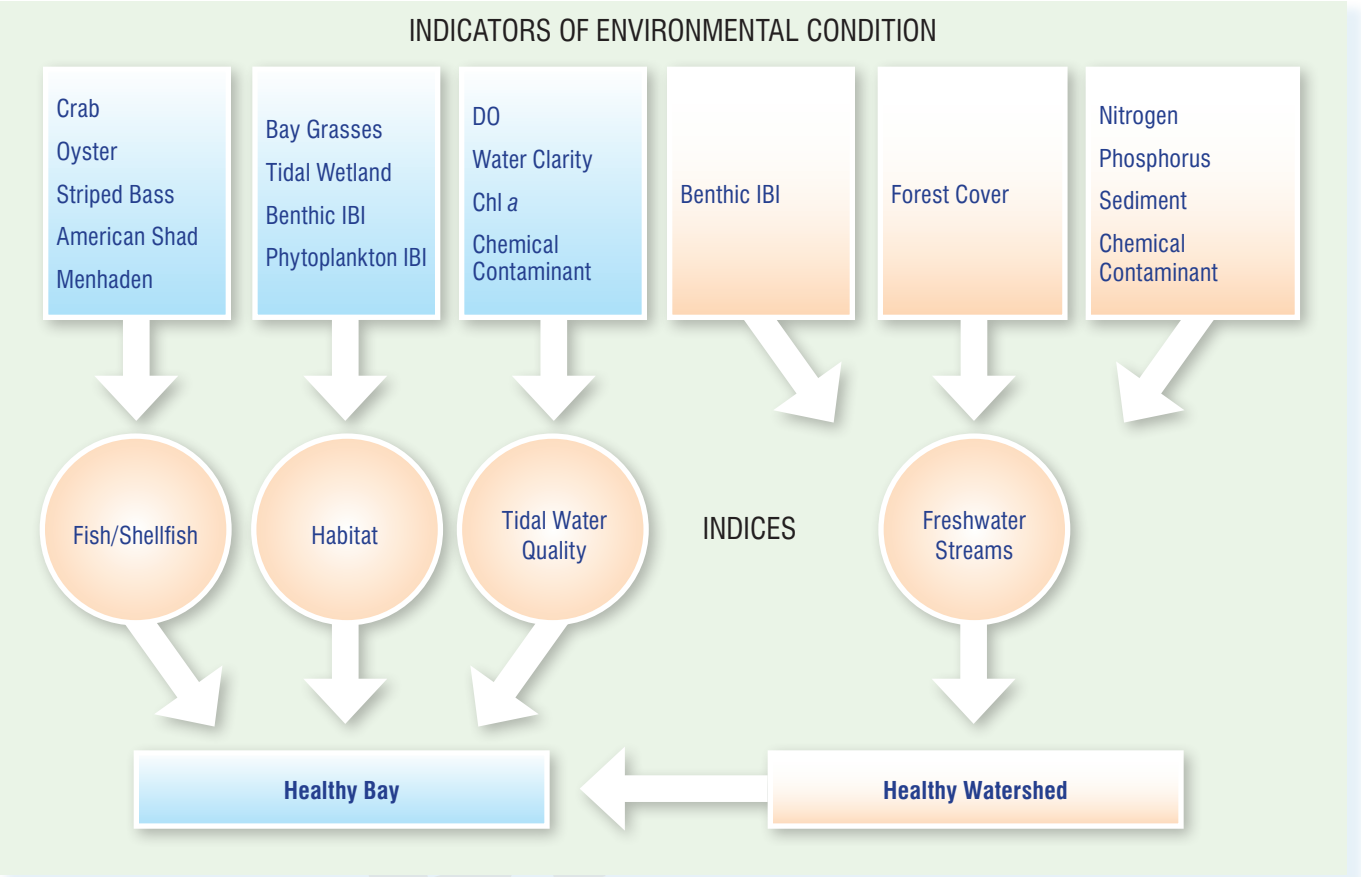
The progress made by CBP partners in achieving the program's goals are measured through a series of indicators. In addition, the *Bay Barometer*, released during the first quarter of each calendar year, uses indicators to provide a comprehensive description of the state of the Chesapeake Bay and its watershed, and provides an assessment of restoration efforts implemented. The 2008 *Bay Barometer* is included as an appendix to this strategy.

Restoration indicators measure progress directly related to a particular desired result for an implementation goal. Health indicators measure the environmental conditions of the Bay and watershed, which are long-term measures of the restoration actions taken. This framework of indicators could be used as a starting point for the key measurable indicators of environmental condition called for in the Executive Order.

As a science-based organization committed to adapting itself based on the needs of the Chesapeake Bay ecosystem, however, the CBP partners have recognized in the past year that the existing strategic framework of indicators and goals may need modification.

Moreover, the Executive Order section 202 reports include some recommendations that would drive revision of CBP's strategic goals and indicators. For example, the ecosystem-based adaptive management approach in the 202(f) report would add a socioeconomic element to the program's goals to address basic goods and services needed by watershed citizens. The climate change recommendation in the 202(d) report and the landscape conservation recommendations in the 202(e) report are also notable new initiatives that would require revision of the CBP's goals and indicators.

Figure 8 – CBP Indicators



The FLC will work with Bay partners to examine how the current CBP goals and indicators can be revised to integrate federal initiatives arising from the Executive Order. The FLC, perhaps in direct collaboration with the CBP, anticipates publishing a draft set of environmental goals and program performance indicators, target dates, and milestones for public consideration prior to publication of the final strategy.

Moving forward, CBP goals and indicators will continue to evolve as a result of public dialogue, new scientific understanding about the Bay and its watershed, and new programs undertaken in the region. This ability to respond quickly to new conditions is a strength of adaptive management.

Interim Milestones to Demonstrate Progress Toward Environmental Goals

The federal agencies and Bay watershed jurisdictions have entered into previous agreements to implement a shared vision for the Chesapeake Bay, including in 1983, 1987, and 2000, when the *Chesapeake 2000* agreement was signed. Most of these past agreements focused on long-term goals and did not include strong accountability mechanisms. Therefore, in 2009, CBP's state partners agreed that short-term milestones are necessary to ensure consistent progress toward the long-term goals and to create more accountability for progress. More specifically, in May 2009, the states and the District of Columbia committed to have all measures needed to restore water quality in place by 2025 and to set two-year milestones to show progress toward this goal.

The FLC agencies will join the states in this commitment to establishing two-year milestones, but expand the scope to include all restoration measures, such as restoring water quality, habitats, and fish and shellfish, as well as conserving land and improving science. Federal efforts will also be designed to directly support the states and District in meeting their milestones.

The FLC agencies will establish their first set of two-year milestones in May 2011, covering calendar years 2012 and 2013. This timing is intended to put the federal agencies on the same schedule as the states, which will set their second set of two-year milestones in May 2011. For the interim period (May 2010 to May 2011), the federal agencies will establish their first round of actions and commitments in the annual action plan required under section 205 of the Executive Order. The FLC agencies will consult with the Bay jurisdictions during the interim period in the development of the new federal milestones.

The FLC agencies will strive to establish programmatic goals to implement restoration and protection measures no later than 2025. While measures needed for a restored Chesapeake Bay and watershed would be in place by 2025, the year is not an endpoint for action. Environmental stewardship is a never-ending process and new challenges and choices will certainly arise in the decades ahead.

Financial Resources

Financial resources are a significant consideration when considering meeting two-year milestones and meeting target dates for accomplishing other environmental goals. FLC agencies are working to define the federal resources needed for implementation of this strategy and have initiated discussion with the watershed states and District of Columbia and the White House Office of Management and Budget. The FLC agencies will describe the budget implications of its actions under the Executive Order in the May 2010 final strategy. Beginning in 2010, the FLC will publish an annual Chesapeake Bay Action Plan that describes how federal funding will be spent on Bay restoration in the coming year.

A proposed approach to align the annual Action Plan with the resources identified by states and other partners is described in more detail below. This proposed coordinated mechanism to bring together different funding sources and fiscal year timelines is important to streamline planning, joint targeting of funds and resources on highest priorities, and to provide the state partners with timely information on available federal resources and funding gaps. The FLC acknowledges that other approaches and mechanisms might be available to accomplish these goals, and welcomes public comment on this matter.

Track and Report Data on Restoration Activities and Spending

Better alignment and integration of federal and state actions in the Bay watershed will require tools for coordination, decision-making and accountability. Section 203(d) of the Executive Order requires the FLC to "identify the mechanism that will assure that governmental and other activities, including data collection and distribution, are coordinated and effective, relying on existing mechanism where appropriate."

Section 204 of the E.O. further directs federal agencies to ensure that "Federal actions to protect and restore the Chesapeake Bay are closely coordinated with actions by State and local agencies in the watershed and the resources, authorities, and expertise of Federal, State, and local agencies are used as efficiently as possible."

To meet these mandates, the FLC is considering several existing and new tools used by the Chesapeake Bay Program. These tools are viewed as having the potential to improve information management, increase the agencies' ability to evaluate their progress, incorporate a wide range of data sources into useable system for the public and other stakeholders, and form the basis of an effective accountability system. In addition,

providing reporting tools is consistent with President Obama's January 2009 memorandum that stated that government should be transparent, participatory and collaborative. Through the E.O. section 202(f) report, the FLC has proposed integration of these tools in a decision-support hub that will include experts who coordinate and improve tools such as those described below.

To improve accountability and track and report progress, the FLC is considering use of two tools: the Chesapeake Registry and ChesapeakeStat.

Chesapeake Registry

A key element in accountability is the ability to understand the activities in which all members of a group are engaged, and determine whether those activities contribute to the goals of the group and whether the resources dedicated to a specific activity will support the success of the activity.

The FLC will consider an existing tool, the Chesapeake Registry (previously referred to as CBP's Activity Integration Plan), to serve as the mechanism by which information on federal, state and local activities and resource allocations are collected and analyzed to ensure coordination and efficient use of all resources.

Since 2007, the Bay partners have contributed to the development of the Chesapeake Registry, a comprehensive database of the actions each partner is implementing to protect and restore the Chesapeake Bay and its watershed. The information is organized according to CBP's strategic framework to provide an accurate depiction of restoration activities, progress and results as a whole.

The Chesapeake Registry currently includes information on restoration activities by 10 federal agencies, six states, the District of Columbia, and two local partners. The reported activities now in the Chesapeake Registry represent a total of $2.6 billion of effort during 2007, 2008, and 2009. The Registry will be populated with more recent information from a larger number of participants in 2010.

The Federal Leadership Committee expects that all federal agencies responsible for actions under the Executive Order as well as all CBP partners will participate fully in the Chesapeake Registry data collection effort planned for 2010 and beyond. The Chesapeake Registry will be accessible by all interested parties by visiting a dedicated website.

ChesapeakeStat

ChesapeakeStat, which is now being developed by CBP partners, will be a web-based decision-support and accountability tool designed to present and provide access to all available performance data and information in a format that allows a range of audiences to understand the work being done in the Bay watershed. ChesapeakeStat is modeled after the State of Maryland's BayStat. This tool will provide access to data and analysis that will inform decisions and facilitate adaptive management of efforts to protect and restore the Bay and its watershed.

Visitors to the ChesapeakeStat website will have the ability to view information about specific restoration activities, spending, and the progress toward goals and milestones. Data will be displayed in easily understood graphs and charts and will be linked geographically to the Bay watershed where that information exists and is accessible. If users want more information about a specific data point, they will be able to click on the graph or chart to obtain the underlying data. A significant element of ChesapeakeStat is that Bay program managers and the general public will be using the same tool drawn from the same datasets to understand more about efforts to protect and restore the Bay. This supports the public's expectations and the President's directive regarding improved transparency and openness in government. ChesapeakeStat will be available to all users by visiting a dedicated website.

Figure 9 – ChesapeakeStat Screenshot

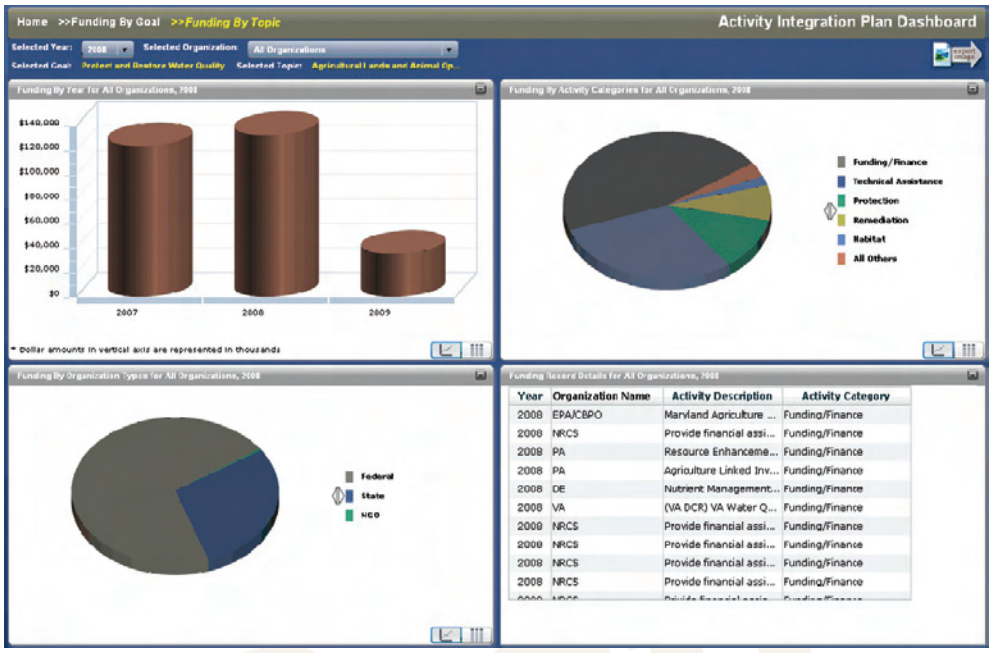
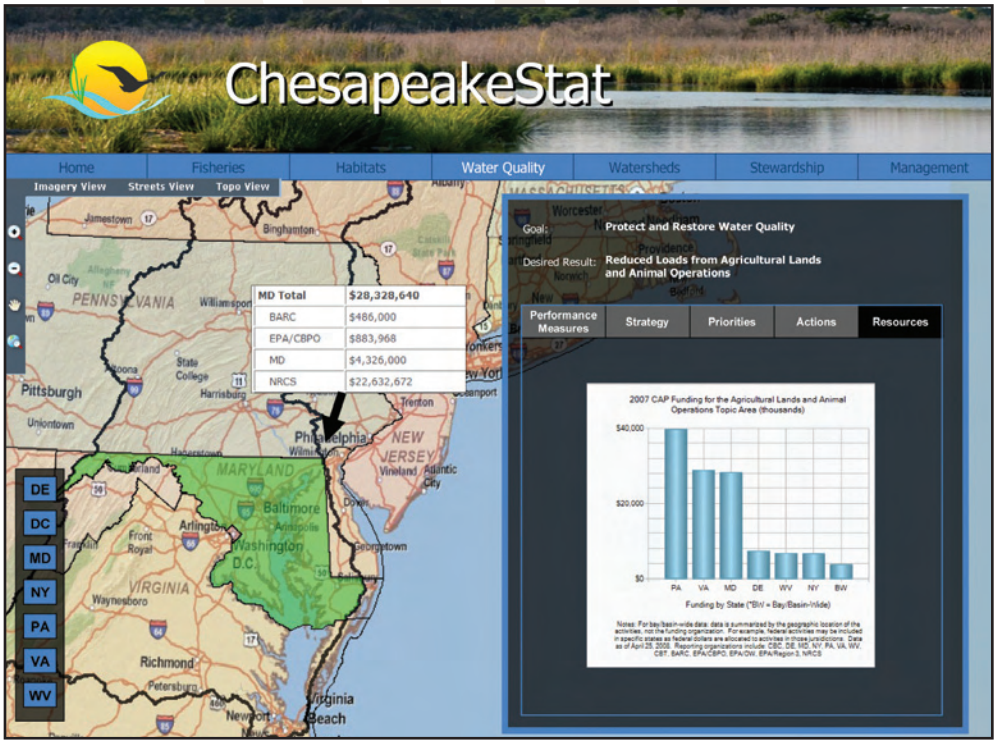


Figure 10 – ChesapeakeStat Screenshot



Publish an Annual Action Plan

Section 205 of the Executive Order states that the FLC "shall publish an annual Chesapeake Bay Action Plan describing how federal funding proposed in the President's Budget will be used to protect and restore the Chesapeake Bay during the upcoming fiscal year." The first Action Plan is required to be published in 2010.

The FLC expects that the Action Plan will include a full accounting and explanation of the funding in the President's Budget allocated to protection and restoration of the Chesapeake Bay and its watershed. The FLC also intends to work with the states to assess the feasibility of incorporating their Bay-related funding into the Action Plan to provide a comprehensive description of the resources being dedicated to the Bay protection and restoration effort. The Chesapeake Registry could be an essential tool in assembling and analyzing this information in a coordinated and timely manner.

Publish an Annual Progress Report

Section 205 of the Executive Order states that the FLC will publish "an Annual Progress Report reviewing indicators of environmental conditions in the Chesapeake Bay, assessing implementation of the Action Plan during the preceding fiscal year, and recommending steps to improve progress in restoring and protecting the Chesapeake Bay." The FLC is considering complying with this requirement through the publication in 2011 of an enhanced version of CBP's annual health and restoration report, the *Bay Barometer.*

The FLC believes that the format and content of the *Bay Barometer* may be appropriate for fulfilling most of the Executive Order's requirements for an annual progress report. The publication, however, would need to be revised and reoriented in some sections to report fully on the new federal actions being undertaken as a result of the Executive Order and to make more specific recommendations for improving progress in Chesapeake Bay protection and restoration. Similarly, if some CBP indicators are revised, added or omitted as a result of the revision process described above, the *Bay Barometer* will need to reflect those changes.

Executive Order Website

Section 206 of the Executive Order states that the FLC "shall ensure that all program evaluation reports including data on practice or system implementation and maintenance funded through agency programs, as appropriate, are made available to the public by posting on a website maintained by the Chair of the Committee." The FLC agencies developing new actions and strategies for the Chesapeake Bay and its watershed have contributed to the development and maintenance of a website tracking all activities related to the Executive Order. This tool, accessible at *http://executiveorder.chesapeakebay.net*, allows interested parties to access the key documents related to the Executive Order, including draft section 202 reports, the draft section 203 strategy, and press releases. The website allows visitors to leave feedback that other visitors can read. This function promotes dialogue across the watershed.

The website also invites visitors to view the Facebook pages established for the Executive Order effort and to sign up for Twitter updates. Working with new media and modes of communication is essential for overcoming the geographic, demographic and technological barriers inherent in attempting to orient 17 million people across 64,000 square miles toward a common cause. Federal agencies will continue to utilize the website after the completion of a strategy to report on implementation.

Utilize Independent Evaluation to Strengthen Accountability

Section 206 of the Executive Order states that "the Committee, in collaboration with State agencies, shall ensure that an independent evaluator periodically reports to the Committee on progress toward meeting the goals of this order. The Committee shall ensure that all program evaluation reports,

Figure 11 – E.O. 13508 Website

including data on practice or system implementation and maintenance funded through agency programs, as appropriate, are made available to the public by posting on a website maintained by the Chair of the Committee."

In its October 2005 report on the Chesapeake Bay Program, the U.S. Government Accountability Office (GAO) recommended that the Bay Program establish an independent and objective reporting process. In order to begin meeting GAO's recommendation, and the public expectation that CBP will make every effort to evaluate its work, CBP has established a contract under which the National Academies of Science (NAS) will provide a fully independent review of the water quality aspects of the Bay program. CBP expects this evaluation will improve its strategic and specific implementation efforts to meet water quality goals. The NAS panel includes nine nationally recognized experts in environment, ecology, agriculture and technical services. This review will be completed no later than April 2011.

For more information about the NAS review, visit *http://www.nationalacademies.org/cp/projectview.aspx?key=49141.*

The Federal Leadership Committee understands that significant additional effort is required to fully comply with the expectations of the Executive Order with regard to independent evaluation. The FLC expects to establish a fully independent evaluation process that covers all aspects of the Executive Order as required in section 206. Details of this broader independent evaluation effort will be included in the final strategy to be published in May 2010.

Establish a Process for Practicing Adaptive Management

The Executive Order requires the FLC to "describe a process for the implementation of adaptive management principles, including a periodic evaluation of protection and restoration activities." Several other evaluations of the Chesapeake Bay Program have recommended that implementation of adaptive management is essential to this effort. The FLC is considering an adaptive management approach under development by the Bay program partners.

The CBP's proposed system would include the partnership's endorsement of the definition of adaptive management stated in the Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management (*Federal Register* 65, no. 202, October 18, 2000, p. 62571), which states that adaptive management is "a type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices."

The Chesapeake Bay Program partners are in an advantageous position to begin using such a process, given the ready availability of scientific knowledge, monitoring data and defensible measures for the Bay and its watershed. These sources of knowledge allow program managers to choose the best-alternative actions, understand whether their efforts are succeeding, and to evaluate new approaches designed to accelerate progress. The adaptive management process being implemented by the program partners establishes a repeating cycle of program and ecosystem management that includes time frames for setting goals, planning operations, executing strategy, monitoring performance and refining strategies.

The performance aspects of the Chesapeake Adaptive Management Process requires the partnership's Management Board to meet regularly with the multi-agency Goal Implementation Teams (GITs) responsible for implementing strategies to meet the goals established for the Bay and its watershed (see Figure 12). The goal is to provide for frequent exchange among the GITs and the Management Board so that roadblocks to completing planned actions can be addressed in a timely manner.

Next Steps

As described throughout this draft strategy document, the protection and restoration of the Chesapeake Bay and its watershed is a massive effort that must be accelerated now. President Obama's Executive Order obliges the federal government to act with appropriate haste to improve environmental conditions in the Bay and watershed.

The initiatives described in part 3 of this strategy represent the federal government's initial identification of important actions that, when coordinated among partner agencies and with the efforts being implemented by states and local governments, will improve the environmental health of the Chesapeake Bay and watershed. A number of these actions will require significant time for planning and implementation, but the strategy also identifies a number of initiatives that will begin immediately. The FLC agencies have proposed both short- and long-term actions with the explicit understanding that their thoughts and ideas will be improved by the public comments received in response to the publication of this draft strategy. Close consultation with the states and D.C. will also refine the initiatives and the process for coordinating federal and state activities.

The Federal Leadership Committee for the Chesapeake Bay understands the urgency that stakeholders and the public feel for restoring creeks,

Figure 12 – Proposed Chesapeake Adaptive Management Process

Process Step	Purpose	Key Questions	Information/Data	Outcomes
Management System Review	Comprehensive review of plans and data to determine strategy and resource allocations.	Did we do what we planned to do? How well did the actions taken achieve the desired results? What external events have or will impact priorities and strategies? What strategic shifts are needed for the near- and long terms? Are changes to goals needed? Are indicators appropriate and valid? Are resource shifts needed to ensure planned actions will be achieved? Is the management system suitable, adequate, and effective? Are priorities clear? What external events may impact achievement? Are responsibilities clear?	Bay health indicators Implementation progress Analysis of trends in ecosystem response Cost-Benefit/Valuation data External evaluations Performance dashboards Chesapeake Registry activity and resource data Advisory committee recommendations Results from research Mission, Vision, Values Strengths and Opportunities Weaknesses and Threats	Clear guidance on expectations, including shifts, for strategy and resource allocations.
Interim Management Board Meetings	Detailed Technical Discussions Resolution of Specific Issues	Key questions are specific to issues discussed	Issue papers Results of alternatives analysis strategies	Issue-specific guidance and program decisions
Strategy and Action Plan Review	Review and finalize strategies and action plans following decisions made during the annual system review.	Have partners developed clear milestones, action plans, and responsibilities? Are adequate resources available to achieve planned actions? Are valid indicators identified for measuring impacts and performance? Are strategies and action plans allowing continual improvement and promoting innovation?	Summary of annual system review Geographic prioritization Organization resource analyses Modeling and scenario testing Targeting analyses Proposed strategies and annual action plans Alternatives relative to Cost-Benefit/Valuation data	Annual Chesapeake Bay Action Plan
Quarterly Progress Reviews	Review partner progress and identify options for overcoming barriers to achievement of planned actions. Adapt short term strategy and resource allocation.	Is the program on track to achieve the commitments made in its Action Plan? Have roadblocks been resolved or are plans made to investigate roadblocks? Are strategic shifts involving cancelling or modifying planned actions needed?	Progress reports and performance dashboards Discussion papers on issues and challenges related to high priority actions New or revised monitoring data	Decisions on short-term adaptation of the Chesapeake Bay Action Plan

streams, rivers and the Bay. The FLC is eager to engage stakeholders and the public in a vital dialogue about the immediate next steps that should be taken to comply with the Executive Order and to improve on 25 years of intensive effort to protect and restore the Bay and its watershed. This discussion will include:

- A 60-day public comment period beginning on November 9, 2009 and concluding January 8, 2009
- A series of public meetings to be held throughout the watershed before and after the publication of the final strategy
- The release of a draft set of environmental and program performance goals for public consideration in spring 2010

The FLC is eager to receive comments and new ideas on several topics that must be addressed for the final strategy, including but not limited to:

- Coordination with Bay state governments on all aspects of the strategy
- Refinement of the actions proposed in this strategy and in the individual reports developed under section 202 of the Executive Order
- Consideration of the most appropriate organizational structure for future federal-state coordination on protecting and restoring the Bay
- Evaluation of the existing tools for Bay partner coordination, including the Chesapeake Registry, ChesapeakeStat, and the proposed Chesapeake Adaptive Management System to determine how they might be used to support efforts under the Executive Order
- Identification of an independent evaluation mechanism for the Chesapeake Bay restoration effort

After considering the input of stakeholders and the public on these decisions, the FLC will identify the best path for meetings its responsibilities under the Executive Order. This path will be described in detail in the final strategy to be released in May 2010. The FLC is confident that the final strategy will be a significant step forward and enable the federal government to meet the President's order "to protect and restore the health, heritage, natural resources, and social and economic value of the nation's largest estuarine ecosystem and the natural sustainability of its watershed."

Appendix A

Executive Order 13508

Federal Register

Friday,
May 15, 2009

Part IV

The President

Executive Order 13508—Chesapeake Bay Protection and Restoration

Federal Register
Vol. 74, No. 93
Friday, May 15, 2009

Presidential Documents

Title 3—

The President

Executive Order 13508 of May 12, 2009

Chesapeake Bay Protection and Restoration

By the authority vested in me as President by the Constitution and the laws of the United States of America and in furtherance of the purposes of the Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*), and other laws, and to protect and restore the health, heritage, natural resources, and social and economic value of the Nation's largest estuarine ecosystem and the natural sustainability of its watershed, it is hereby ordered as follows:

PART 1—PREAMBLE

The Chesapeake Bay is a national treasure constituting the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world. The Federal Government has nationally significant assets in the Chesapeake Bay and its watershed in the form of public lands, facilities, military installations, parks, forests, wildlife refuges, monuments, and museums.

Despite significant efforts by Federal, State, and local governments and other interested parties, water pollution in the Chesapeake Bay prevents the attainment of existing State water quality standards and the ''fishable and swimmable'' goals of the Clean Water Act. At the current level and scope of pollution control within the Chesapeake Bay's watershed, restoration of the Chesapeake Bay is not expected for many years. The pollutants that are largely responsible for pollution of the Chesapeake Bay are nutrients, in the form of nitrogen and phosphorus, and sediment. These pollutants come from many sources, including sewage treatment plants, city streets, development sites, agricultural operations, and deposition from the air onto the waters of the Chesapeake Bay and the lands of the watershed.

Restoration of the health of the Chesapeake Bay will require a renewed commitment to controlling pollution from all sources as well as protecting and restoring habitat and living resources, conserving lands, and improving management of natural resources, all of which contribute to improved water quality and ecosystem health. The Federal Government should lead this effort. Executive departments and agencies (agencies), working in collaboration, can use their expertise and resources to contribute significantly to improving the health of the Chesapeake Bay. Progress in restoring the Chesapeake Bay also will depend on the support of State and local governments, the enterprise of the private sector, and the stewardship provided to the Chesapeake Bay by all the people who make this region their home.

PART 2—SHARED FEDERAL LEADERSHIP, PLANNING, AND ACCOUNTABILITY

Sec. 201. *Federal Leadership Committee.* In order to begin a new era of shared Federal leadership with respect to the protection and restoration of the Chesapeake Bay, a Federal Leadership Committee (Committee) for the Chesapeake Bay is established to oversee the development and coordination of programs and activities, including data management and reporting, of agencies participating in protection and restoration of the Chesapeake Bay. The Committee shall manage the development of strategies and program plans for the watershed and ecosystem of the Chesapeake Bay and oversee their implementation. The Committee shall be chaired by the Administrator of the Environmental Protection Agency (EPA), or the Administrator's designee, and include senior representatives of the Departments of Agriculture

(USDA), Commerce (DOC), Defense (DOD), Homeland Security (DHS), the Interior (DOI), Transportation (DOT), and such other agencies as determined by the Committee. Representatives serving on the Committee shall be officers of the United States.

Sec. 202. *Reports on Key Challenges to Protecting and Restoring the Chesapeake Bay.* Within 120 days from the date of this order, the agencies identified in this section as the lead agencies shall prepare and submit draft reports to the Committee making recommendations for accomplishing the following steps to protect and restore the Chesapeake Bay:

(a) define the next generation of tools and actions to restore water quality in the Chesapeake Bay and describe the changes to be made to regulations, programs, and policies to implement these actions;

(b) target resources to better protect the Chesapeake Bay and its tributary waters, including resources under the Food Security Act of 1985 as amended, the Clean Water Act, and other laws;

(c) strengthen storm water management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed and develop storm water best practices guidance;

(d) assess the impacts of a changing climate on the Chesapeake Bay and develop a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed;

(e) expand public access to waters and open spaces of the Chesapeake Bay and its tributaries from Federal lands and conserve landscapes and ecosystems of the Chesapeake Bay watershed;

(f) strengthen scientific support for decisionmaking to restore the Chesapeake Bay and its watershed, including expanded environmental research and monitoring and observing systems; and

(g) develop focused and coordinated habitat and research activities that protect and restore living resources and water quality of the Chesapeake Bay and its watershed.

The EPA shall be the lead agency for subsection (a) of this section and the development of the storm water best practices guide under subsection (c). The USDA shall be the lead agency for subsection (b). The DOD shall lead on storm water management practices at Federal facilities and on Federal lands under subsection (c). The DOI and the DOC shall share the lead on subsections (d), (f), and (g), and the DOI shall be lead on subsection (e). The lead agencies shall provide final reports to the Committee within 180 days of the date of this order.

Sec. 203. *Strategy for Protecting and Restoring the Chesapeake Bay.* The Committee shall prepare and publish a strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore the Chesapeake Bay. The strategy shall, to the extent permitted by law:

(a) define environmental goals for the Chesapeake Bay and describe milestones for making progress toward attainment of these goals;

(b) identify key measureable indicators of environmental condition and changes that are critical to effective Federal leadership;

(c) describe the specific programs and strategies to be implemented, including the programs and strategies described in draft reports developed under section 202 of this order;

(d) identify the mechanisms that will assure that governmental and other activities, including data collection and distribution, are coordinated and effective, relying on existing mechanisms where appropriate; and

(e) describe a process for the implementation of adaptive management principles, including a periodic evaluation of protection and restoration activities.

The Committee shall review the draft reports submitted by lead agencies under section 202 of this order and, in consultation with relevant State agencies, suggest appropriate revisions to the agency that provided the draft report. It shall then integrate these reports into a coordinated strategy for restoration and protection of the Chesapeake Bay consistent with the requirements of this order. Together with the final reports prepared by the lead agencies, the draft strategy shall be published for public review and comment within 180 days of the date of this order and a final strategy shall be published within 1 year. To the extent practicable and authorized under their existing authorities, agencies may begin implementing core elements of restoration and protection programs and strategies, in consultation with the Committee, as soon as possible and prior to release of a final strategy.

Sec. 204. *Collaboration with State Partners.* In preparing the reports under section 202 and the strategy under section 203, the lead agencies and the Committee shall consult extensively with the States of Virginia, Maryland, Pennsylvania, West Virginia, New York, and Delaware and the District of Columbia. The goal of this consultation is to ensure that Federal actions to protect and restore the Chesapeake Bay are closely coordinated with actions by State and local agencies in the watershed and that the resources, authorities, and expertise of Federal, State, and local agencies are used as efficiently as possible for the benefit of the Chesapeake Bay's water quality and ecosystem and habitat health and viability.

Sec. 205. *Annual Action Plan and Progress Report.* Beginning in 2010, the Committee shall publish an annual Chesapeake Bay Action Plan (Action Plan) describing how Federal funding proposed in the President's Budget will be used to protect and restore the Chesapeake Bay during the upcoming fiscal year. This plan will be accompanied by an Annual Progress Report reviewing indicators of environmental conditions in the Chesapeake Bay, assessing implementation of the Action Plan during the preceding fiscal year, and recommending steps to improve progress in restoring and protecting the Chesapeake Bay. The Committee shall consult with stakeholders (including relevant State agencies) and members of the public in developing the Action Plan and Annual Progress Report.

Sec. 206. *Strengthen Accountability.* The Committee, in collaboration with State agencies, shall ensure that an independent evaluator periodically reports to the Committee on progress toward meeting the goals of this order. The Committee shall ensure that all program evaluation reports, including data on practice or system implementation and maintenance funded through agency programs, as appropriate, are made available to the public by posting on a website maintained by the Chair of the Committee.

PART 3—RESTORE CHESAPEAKE BAY WATER QUALITY

Sec. 301. *Water Pollution Control Strategies.* In preparing the report required by subsection 202(a) of this order, the Administrator of the EPA (Administrator) shall, after consulting with appropriate State agencies, examine how to make full use of its authorities under the Clean Water Act to protect and restore the Chesapeake Bay and its tributary waters and, as appropriate, shall consider revising any guidance and regulations. The Administrator shall identify pollution control strategies and actions authorized by the EPA's existing authorities to restore the Chesapeake Bay that:

(a) establish a clear path to meeting, as expeditiously as practicable, water quality and environmental restoration goals for the Chesapeake Bay;

(b) are based on sound science and reflect adaptive management principles;

(c) are performance oriented and publicly accountable;

(d) apply innovative and cost-effective pollution control measures;

(e) can be replicated in efforts to protect other bodies of water, where appropriate; and

(f) build on the strengths and expertise of Federal, State, and local governments, the private sector, and citizen organizations.

Sec. 302. *Elements of EPA Reports.* The strategies and actions identified by the Administrator of the EPA in preparing the report under subsection 202(a) shall include, to the extent permitted by law:

(a) using Clean Water Act tools, including strengthening existing permit programs and extending coverage where appropriate;

(b) establishing new, minimum standards of performance where appropriate, including:

(i) establishing a schedule for the implementation of key actions in cooperation with States, local governments, and others;

(ii) constructing watershed-based frameworks that assign pollution reduction responsibilities to pollution sources and maximize the reliability and cost-effectiveness of pollution reduction programs; and

(iii) implementing a compliance and enforcement strategy.

PART 4—AGRICULTURAL PRACTICES TO PROTECT THE CHESAPEAKE BAY

Sec. 401. In developing recommendations for focusing resources to protect the Chesapeake Bay in the report required by subsection 202(b) of this order, the Secretary of Agriculture shall, as appropriate, concentrate the USDA's working lands and land retirement programs within priority watersheds in counties in the Chesapeake Bay watershed. These programs should apply priority conservation practices that most efficiently reduce nutrient and sediment loads to the Chesapeake Bay, as identified by USDA and EPA data and scientific analysis. The Secretary of Agriculture shall work with State agriculture and conservation agencies in developing the report.

PART 5—REDUCE WATER POLLUTION FROM FEDERAL LANDS AND FACILITIES

Sec. 501. Agencies with land, facilities, or installation management responsibilities affecting ten or more acres within the watershed of the Chesapeake Bay shall, as expeditiously as practicable and to the extent permitted by law, implement land management practices to protect the Chesapeake Bay and its tributary waters consistent with the report required by section 202 of this order and as described in guidance published by the EPA under section 502.

Sec. 502. The Administrator of the EPA shall, within 1 year of the date of this order and after consulting with the Committee and providing for public review and comment, publish guidance for Federal land management in the Chesapeake Bay watershed describing proven, cost-effective tools and practices that reduce water pollution, including practices that are available for use by Federal agencies.

PART 6—PROTECT CHESAPEAKE BAY AS THE CLIMATE CHANGES

Sec. 601. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, organize and conduct research and scientific assessments to support development of the strategy to adapt to climate change impacts on the Chesapeake Bay watershed as required in section 202 of this order and to evaluate the impacts of climate change on the Chesapeake Bay in future years. Such research should include assessment of:

(a) the impact of sea level rise on the aquatic ecosystem of the Chesapeake Bay, including nutrient and sediment load contributions from stream banks and shorelines;

(b) the impacts of increasing temperature, acidity, and salinity levels of waters in the Chesapeake Bay;

(c) the impacts of changing rainfall levels and changes in rainfall intensity on water quality and aquatic life;

(d) potential impacts of climate change on fish, wildlife, and their habitats in the Chesapeake Bay and its watershed; and

(e) potential impacts of more severe storms on Chesapeake Bay resources.

PART 7—EXPAND PUBLIC ACCESS TO THE CHESAPEAKE BAY AND CONSERVE LANDSCAPES AND ECOSYSTEMS

Sec. 701. (a) Agencies participating in the Committee shall assist the Secretary of the Interior in development of the report addressing expanded public access to the waters of the Chesapeake Bay and conservation of landscapes and ecosystems required in subsection 202(e) of this order by providing to the Secretary:

(i) a list and description of existing sites on agency lands and facilities where public access to the Chesapeake Bay or its tributary waters is offered;

(ii) a description of options for expanding public access at these agency sites;

(iii) a description of agency sites where new opportunities for public access might be provided;

(iv) a description of safety and national security issues related to expanded public access to Department of Defense installations;

(v) a description of landscapes and ecosystems in the Chesapeake Bay watershed that merit recognition for their historical, cultural, ecological, or scientific values; and

(vi) options for conserving these landscapes and ecosystems.

(b) In developing the report addressing expanded public access on agency lands to the waters of the Chesapeake Bay and options for conserving landscapes and ecosystems in the Chesapeake Bay, as required in subsection 202(e) of this order, the Secretary of the Interior shall coordinate any recommendations with State and local agencies in the watershed and programs such as the Captain John Smith Chesapeake National Historic Trail, the Chesapeake Bay Gateways and Watertrails Network, and the Star-Spangled Banner National Historic Trail.

PART 8—MONITORING AND DECISION SUPPORT FOR ECOSYSTEM MANAGEMENT

Sec. 801. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, organize and conduct their monitoring, research, and scientific assessments to support decisionmaking for the Chesapeake Bay ecosystem and to develop the report addressing strengthening environmental monitoring of the Chesapeake Bay and its watershed required in section 202 of this order. This report will assess existing monitoring programs and gaps in data collection, and shall also include the following topics:

(a) the health of fish and wildlife in the Chesapeake Bay watershed;

(b) factors affecting changes in water quality and habitat conditions; and

(c) using adaptive management to plan, monitor, evaluate, and adjust environmental management actions.

PART 9—LIVING RESOURCES PROTECTION AND RESTORATION

Sec. 901. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, identify and prioritize critical living resources of the Chesapeake Bay and its watershed, conduct collaborative research and habitat protection activities that address expected outcomes for these species, and develop a report addressing these topics as required in section 202 of this order. The Secretaries of Commerce and the Interior shall coordinate agency activities related to living resources in estuarine waters to ensure maximum benefit to the Chesapeake Bay resources.

PART 10—EXCEPTIONS

Sec. 1001. The heads of agencies may authorize exceptions to this order, in the following circumstances:

(a) during time of war or national emergency;

(b) when necessary for reasons of national security;

(c) during emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution; or

(d) in any case that constitutes a danger to human life or a real threat to vessels, aircraft, platforms, or other man-made structures at sea, such as cases of *force majeure* caused by stress of weather or other act of God.

PART 11—GENERAL PROVISIONS

Sec. 1101. (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) authority granted by law to a department, agency, or the head thereof; or

(ii) functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity, by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

THE WHITE HOUSE,
May 12, 2009.

[FR Doc. E9–11547
Filed 5–14–09; 8:45 am]
Billing code 3195–W9–P

Appendix B

FLC Membership

Appendix B

Federal Leadership Committee for the Chesapeake Bay

Chair

Lisa P. Jackson
Administrator, U.S. Environmental Protection Agency

Members

Tom Vilsack
Secretary, U.S. Department of Agriculture

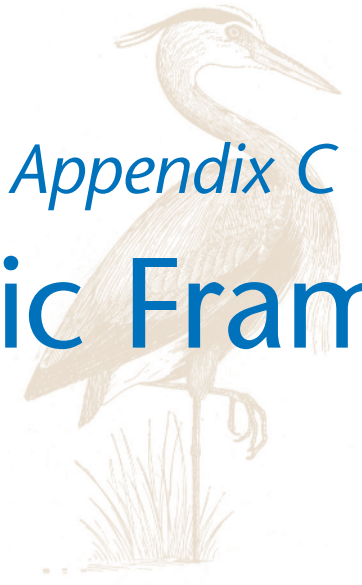
Gary Locke
Secretary, U.S. Department of Commerce

Robert M. Gates
Secretary, U.S. Department of Defense

Janet Napolitano
Secretary, U.S. Department of Homeland Security

Ken Salazar
Secretary, U.S. Department of the Interior

Ray LaHood
Secretary, U.S. Department of Transportation



Appendix C

Strategic Framework

Figure C-1 – New Federal Actions Support CBP Environmental Goals

202 Report	Key Recommendations	Manage Fisheries Sustainably	Restore Water Quality	Restore & Protect Habitat	Maintain Healthy Whater-sheds	Foster Stewardship	Enhance Partnering Leadership, Management	Technical Support & Services
a	**New accountability for Bay restoration:** EPA establish a Total Maximum Daily Load, issue new guidance for states to develop detailed implementation plans with clear milestones to reduce pollution in major Bay watersheds as needed to meet water quality goals. EPA would impose tailored consequences if states do not take sufficient actions to reduce pollution to the Bay and its tributaries.		x			x	x	
a	**Strengthen pollution control regulations:** EPA initiate rulemaking under the Clean Water Act to reduce nutrient and sediment pollution in the Chesapeake Bay watershed from Concentrated Animal Feeding Operations (CAFOs).		x		x			
a	**Compliance and enforcement strategy:** EPA implement a compliance and enforcement strategy focusing on key sectors.		x					
a	**Partnership with agriculture:** EPA and USDA implement a "Healthy Bay—Thriving Agriculture Initiative."		x	x	x	x		
b	**Focus public funding on the highest priority watersheds:** Identify high priority watersheds and critical acres for immediate conservation action to better protect the Bay and its tributary waters.		x	x	x	x	x	x
b	**Focus and integrate federal and state programs:** Focus conservation programs on priority practices, enhance USDA/EPA coordination and ensure effective program delivery through coordinated outreach, marketing and technical assistance.		x	x	x	x	x	
b	**Accelerate conservation adoption:** Coordinate programs to increase financial assistance, simplify program participation and encourage private sector investment in conservation actions to restore the health of the Bay.		x	x	x	x	x	
b	**Accelerate development of new conservation technologies:** Increase public/private research partnerships and focus federal funding to foster innovation in conservation tools and technologies.		x	x	x	x	x	x
b	**Implement a sound accountability system:** Establish environmental outcome measures; track, monitor and assess the conservation effects; and scientifically evaluate priority landscapes and conservation needs to protect and restore the Chesapeake Bay watershed.		x	x	x	x	x	x
c	**Implement EISA Section 438:** Federal agencies should adopt agency specific policy that defines the administrative and management controls needed to comply with the storm water requirements for development and redevelopment projects in Section 438 of the Energy Independence and Security Act.		x					
c	**Employ Environmentally Sensitive Design techniques for site selection and layout:** Federal agencies should incorporate knowledge of soil types and hydrology when planning new development and redevelopment projects to facilitate the use of storm water management practices that maintain or restore natural hydrology.		x					
c	**Upgrade existing storm water management practices and install new practices on existing developed facilities:** Federal agencies should install urban storm water retrofit practices that reduce runoff volume and improve storm water quality from existing development where technically and economically feasible.		x		x			

Figure C-1 – New Federal Actions Support CBP Environmental Goals *(continued)*

202 Report	Key Recommendations	Manage Fisheries Sustainably	Restore Water Quality	Restore & Protect Habitat	Maintain Healthy Whater-sheds	Foster Stewardship	Enhance Partnering Leadership, Management	Technical Support & Services
c	**Install best management practices to control storm water runoff from paved roads:** Federal landholders should identify high priority areas to install retrofit best management practices to manage storm water from existing paved roads.		x				x	
c	**Institute practices to prevent and control erosion from unpaved roads:** Federal agencies that own large tracts of undeveloped lands should implement erosion control practices on unpaved roads, trails and associated drainage ditches to prevent soil loss into nearby receiving streams.		x					
c	**Expand use of land conservation easement programs:** Federal agencies should expand existing conservation easement programs to preserve forest land and serve to install storm water management practices offsite where it is not technically or economically feasible to install retrofits on-site.		x	x	x			
c	**Improve GIS data on federal land ownership and land use:** Federal agencies should report all of their real estate holdings and publicly available land use data on federal lands to allow for more effective management of federal lands within the context of the Bay program and aid in implementation of the Bay TMDL.		x	x	x		x	x
c	**Guidance on proven, cost-effective tools:** Publish guidance that describes proven, cost-effective practices that reduce water pollution and applies to agencies managing 10 or more acres in the watershed.		x	x			x	
d	**Center for climate science research and assessment:** Consider establishing a center for climate science research and assessment, which would be a regional Chesapeake Bay component of national-scale efforts to address climate change.	x	x	x		x	x	x
d	**Climate change integration:** Integrate climate change concerns into Chesapeake Bay partnership activities and strengthen legislative authority to ensure restoration programs and goals consider climate change implications.	x	x	x	x	x	x	
d	**New and enhanced tools:** Enhance existing and/or develop new technical information and decision support tools to better understand, project and respond to climate change and its impacts (e.g., modeling, observation stations, remote sensing, etc.).	x					x	x
d	**Adaptation guidance for managing federal programs:** Establish adaptation guidance for managing federal programs, federally-managed lands and federally financed state, local and private lands.			x			x	
d	**Climate change outreach and education:** Develop a coordinated strategy for climate change outreach and education to provide the public and decision-makers with consistent and current information regarding climate change and its impacts.	x	x	x	x	x	x	x
e	**Chesapeake Treasured Landscape Initiative:** Provide coordinated and targeted federal funding for landscape conservation and public access.			x	x	x	x	
e	**New federal management units and expand existing units:** Consider new and expanded management units including expanded National Wildlife Refuges, a new or expanded unit of the National Park System, a new National Forest and marine or aquatic sanctuaries.			x	x	x	x	

Figure C-1 – New Federal Actions Support CBP Environmental Goals *(continued)*

202 Report	Key Recommendations	Manage Fisheries Sustainably	Restore Water Quality	Restore & Protect Habitat	Maintain Healthy Whater-sheds	Foster Stewardship	Enhance Partnering Leadership, Management	Technical Support & Services
e	**Incentives for conservation and public access:** The federal government should continue to play a role in providing incentives through tax policy, funding and market-based programs.			x	x	x	x	
e	**Landscape conservation assistance and capacity building:** Provide assistance and capacity building by supporting a conservation capacity-building program focused on land trusts, coordinating the network of technical assistance providers, and integrating and supporting local, state, regional and landscape scale conservation planning.			x	x	x	x	
e	**Coordinate regulatory tools:** Coordinate regulatory tools by integrating federal mitigation requirements and focus them through "ecosystem banking" and directly linking water quality regulations to landscape conservation planning.		x		x	x	x	
f	**Promote sustainability and ecosystem-based management**: Focus on sustainability and adopt an ecosystem-based, adaptive management approach to improve and sustain the Bay and its watershed. This will require revision of existing Bay partner restoration goals and inclusion of a broader group of partners whose capabilities can help achieve sustainability.	x	x	x	x	x	x	x
f	**Integrate interagency support to improve decision-making:** Bring together subject matter experts, decision-support tools, key science elements and the information technology structure needed for more timely and integrated decision making.	x		x	x		x	x
f	**Expand Chesapeake Monitoring and Observation System:** Expand partner efforts for a Chesapeake Monitoring and Observation System to provide integrated monitoring of upland watershed, estuaries and the coastal ocean using common criteria and standards.				x			x
f	**Align federal research:** Align federal research efforts in a new Chesapeake Bay Research Plan.	x					x	
f	**Improve communications:** Improve communication products, technical assistance and social marketing campaigns to more effectively translate scientific findings into management options and recommendations for the public, local governments, resource managers and elected officials.	x			x	x	x	x
g	**Unified Watershed-wide spatial map:** Develop a unified watershed-wide spatial map to drive integrated and proactive planning.			x	x	x	x	x
g	**Outcomes for priority species:** Identify outcomes for priority species to guide placement of habitat projects.	x		x				
g	**Integrated Ecosystem Management:** Conduct an integrated ecosystem assessment including socioeconomic analysis.	x		x			x	x
g	**Aquatic Protected Areas:** Consider establishing aquatic protected areas and networking these areas with land-based preserves.	x		x	x		x	
g	**Targeting funding and technical assistance:** Consider targeting federal funding and technical assistance to maximize benefit for priority species.	x		x	x		x	x
g	**Permit compliance:** Enforce permit compliance to protect habitat functions and improve regulatory predictability.			x			x	

Figure C-1 – New Federal Actions Support CBP Environmental Goals *(continued)*

202 Report	Key Recommendations	Manage Fisheries Sustainably	Restore Water Quality	Restore & Protect Habitat	Maintain Healthy Whater-sheds	Foster Stewardship	Enhance Partnering Leadership, Management	Technical Support & Services
g	**National Fish Habitat Action Plan:** Support and implement the National Fish Habitat Action Plan.	x		x			x	
g	**Interjurisdictional fisheries management:** Consider establishment of an inter-jurisdictional regulatory body to manage fisheries Bay-wide.	x					x	
g	**Target oyster restoration:** Target oyster restoration through a new Bay-wide ecological strategy.	x		x			x	
g	**Long-term, multi-species monitoring:** Support long-term, multi-species monitoring framework to inform decision-making for priority species and habitats.	x		x			x	x

Appendix D

Goal Structure

Figure D-1 – CBP Strategic Framework

Implementation Goals	Desired Results	Measures
Protect and Restore Fisheries		
1. **Protect and Restore Fisheries** Restore, enhance, and protect the finfish, shellfish, and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem.	1a. Increased Oyster Population	Native oysters annual restoration effort
	1b. Increased Blue Crab Population	
	1c. Increased Rockfish (Striped Bass) Population	
	1d. Increased Alosines Population	
	1e. Increased Menhaden Population	
	1f. Effective Fisheries Ecosystem-Based Planning and Management (EBFM)	Fisheries management effort
Protect and Restore Vital Aquatic Habitats		
2. **Protect and Restore Vital Aquatic Habitats** Restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the Bay and its rivers.	2a. Healthy and abundant migratory fish habitat	Number of miles reopened to fish
	2b. Healthy and abundant submerged aquatic vegetation	Number of bay grasses planted (acres)
	2c. Healthy and abundant wetlands	Acres of wetlands restored
	2d. Restore stream health	
Protect and Restore Water Quality		
3. **Protect and Restore Water Quality** Achieve and maintain water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.	3a. Reduced Loads from Municipal, Industrial and Onsite Wastewater	Water pollution controls (% achieved)
	3b. Reduced Loads from Agricultural Lands & Animal Operations	Agricultural pollution controls (% achieved)
	3c. Reduced Loads from Developed Lands	Urban-suburban pollution controls (% achieved)
	3d. Reduced Loads from Onsite and Septic Systems	
	3e. Reduced Loads from Streamside and Tidal Shoreline Riparian Areas	Forest buffers planted (miles)
	3f. Reduced Loads from Air Emissions	Air pollution (% achieved)
	3g. Reduced Sediment Loads from Streambanks & Tidal Shorelines	
	3h. Reduced Acid Mine Drainage (AMD) Impacts on Streams	
	3i. Reduced Priority Chemical Contaminants	
Maintain Healthy Watersheds		
4. **Maintain Healthy Watersheds** Develop, promote and achieve sound land use practices which protect watershed resources to maintain reduced pollutant loadings for the Bay and its tributaries, and restore and preserve aquatic living resources	4a. Preserved Valuable Resource Lands	Watershed Land Preservation
	4b. Minimized conversion of forests, wetlands, and working farms	Developing watershed management plans
	4c. Minimized Impacts to pre-development hydrology	

Figure D-1 – CBP Strategic Framework *(continued)*

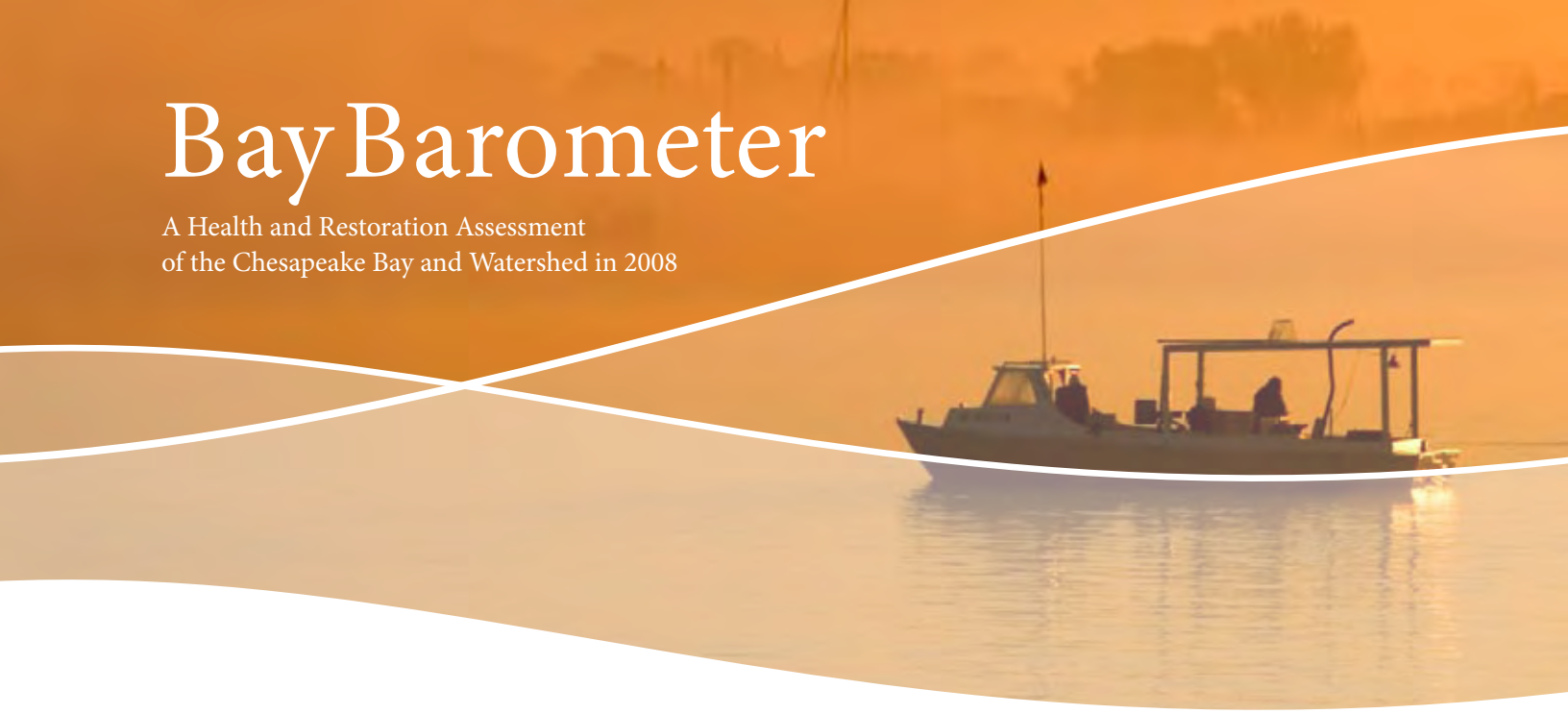
Implementation Goals	Desired Results	Measures
Foster Chesapeake Stewardship		
5. **Foster Chesapeake Stewardship** Promote individual stewardship and assist individuals, community-based organizations, businesses, local governments, and schools in undertaking initiatives to achieve bay restoration goals and take ownership of a shared vision.	5a. Enhanced Public Access	Public Access Index
	5b. High Quality Bay Watershed Education	Index for Education and Interpretation
	5c. High-quality Interpretation of the Watershed and its values	
	5d. Increased Citizen and community engagement	Index for Citizen and Community Action
Enhance Partnering, Leadership & Management		
6. **Enhance Partnering Leadership and Management**	6a. Effective Infrastructure Systems	
	6b. Responsive and Effective Organizational Management	
	6c. Effective Coordination, Accountability, and Evaluation	
	6d. Effective Reporting on Health and Restoration Progress and Results	
	6e. Effective Grants, Contracts, and Interagency Agreements Management	

Appendix E

Bay Barometer Executive Summary

Bay Barometer

A Health and Restoration Assessment
of the Chesapeake Bay and Watershed in 2008



EXECUTIVE SUMMARY

The Chesapeake Bay is one of the most extraordinary places in America. The unique estuary and its 64,000-square-mile watershed have tremendous ecological, historic, cultural, economic and recreational value to the region and the entire country.

For more than 25 years, the partners of the Chesapeake Bay Program have worked to protect and restore the Bay and its watershed. Goals are set for the health of the Bay and the restoration measures needed to return the ecosystem to a healthy state. *Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008* is the annual review of the partnership's progress.

The Chesapeake Bay and its tributaries are unhealthy primarily because of pollution from excess nitrogen, phosphorus and sediment entering the water. The main sources of these pollutants are agriculture, urban and suburban runoff, wastewater, and airborne contaminants.

Despite small successes in certain parts of the ecosystem and specific geographic areas, the overall health of the Chesapeake Bay did not improve in 2008. The Bay continues to have poor water quality, degraded habitats and low populations of many species of fish and shellfish. Based on these three areas, the overall health averaged 38 percent, with 100 percent representing a fully restored ecosystem.

New restoration programs and projects were put in place in 2008, but resulted in only incremental gains toward goals. The indicators for restoration averaged 61 percent, with 100 percent meaning that all measures needed for a restored Bay have been implemented.

One of the greatest challenges to restoration is continued population growth and development, which destroys forests, wetlands and other natural areas. The impact of human activity is overwhelming nature and offsetting cleanup efforts.

Because the watershed's 17 million residents have a tremendous impact on its health, a section called "How You Can Help" was added to this report. It shows simple actions that people can take to help protect nature and reduce pollution. The Chesapeake Bay will only be restored through this type of collective effort.

HEALTH 38%

RESTORATION 61%

Chesapeake Bay Program
A Watershed Partnership

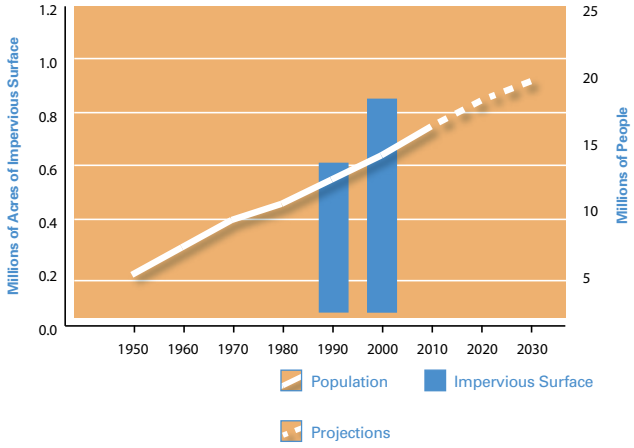
Full report available at **www.chesapeakebay.net**

FACTORS IMPACTING THE BAY AND WATERSHED

LAND USE

The decline of the Chesapeake Bay is directly linked to the rise in population of the watershed – since 1950 the number of residents has doubled. Projections through 2030 show continued population growth, loss of natural areas and increases in urban development. People are moving into sprawling suburbs and living in bigger houses on larger lots, causing forests, farms and other valuable lands to be transformed into subdivisions, shopping centers and parking lots. Impervious surfaces such as roads and rooftops do not allow water to filter into the ground. Instead rainfall runs off, picking up pollution and quickly carrying it into waterways.

Population and Impervious Surface



RIVER FLOW AND POLLUTANT LOADS

Annual rain and snowfall affect how much water flows in rivers. The levels of pollution entering the Bay each year generally correspond with the volume of water that flows from its tributaries.

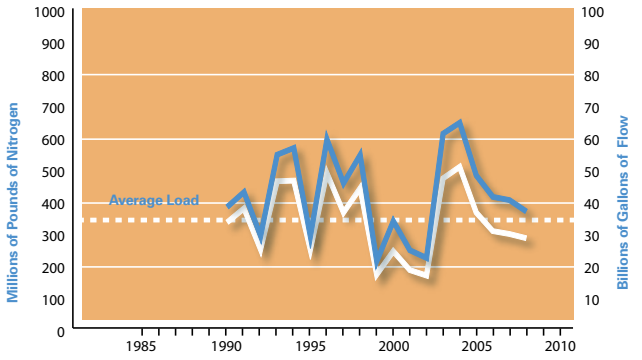
River Flow: Total river flow to the Bay during the 2008 water year (October 2007-September 2008) was 37.5 billion gallons per day (BGD). This is 3.5 BGD less than 2007 and 10 BGD less than the 47.2 BGD average flow from 1938-2008.

Nitrogen: Preliminary estimates indicate that 291 million pounds of nitrogen reached the Bay during 2008. This is 13 million pounds less than 2007 and 54 million pounds less than the 345 million pound average load from 1990-2008.

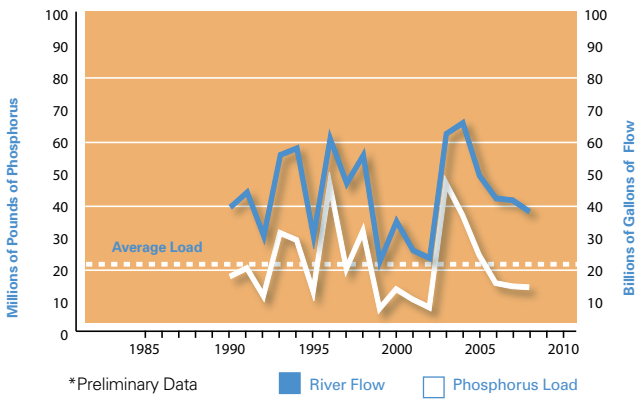
Phosphorus: Preliminary estimates indicate that 13.8 million pounds of phosphorus reached the Bay during 2008. This is similar to 2007 and 7.5 million pounds less than the 21.3 million pound average load from 1990-2008.

Sediment: Preliminary estimates indicate that 3.3 million tons of sediment reached the Bay during 2008. This is 700,000 tons more than 2007 and 800,000 tons less than the 4.1 million ton average load from 1990-2008.

Nitrogen Loads Reaching Chesapeake Bay*



Phosphorus Loads Reaching Chesapeake Bay*

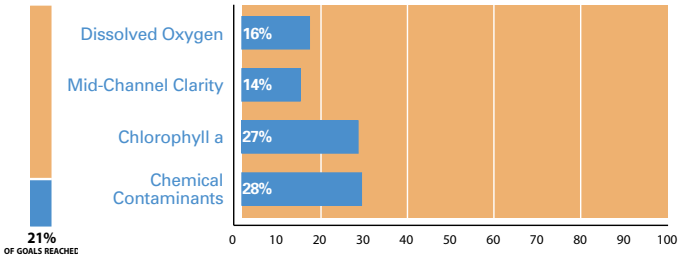


HEALTH – 38 PERCENT

The Chesapeake Bay ecosystem remains severely degraded. The Bay's health is measured by studying water quality, habitats, the lower food web and fish and shellfish. When all the goals for these areas are reached, it should mean a restored Bay. In 2008, the Chesapeake Bay was only at 38 percent of the desired health, which was the same as 2007. An increase in tidal tributary segments impaired due to chemical contaminants and a drop in the blue crab population were primary reasons for a lower score.

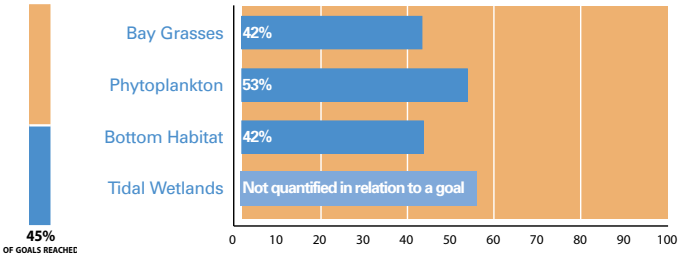
Water Quality – 21 percent

Water quality is the most important measure of the Chesapeake Bay's health. In 2008, water quality was again very poor, meeting only 21 percent of the goals, the same as 2007. Pollution led to murky water and algae blooms, which blocked sunlight from reaching bay grasses and created low levels of oxygen for aquatic life. Chemical contaminants impaired more water in 2008, resulting in a 6 percent decrease in that goal area.



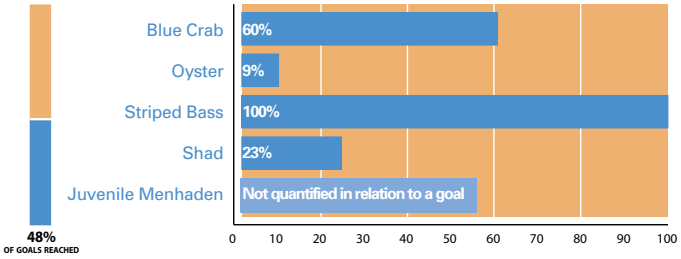
Habitats and Lower Food Web – 45 percent

Overall, the vital habitats and lower food web that support life in the Chesapeake Bay continued to be in bad shape in 2008, meeting 45 percent of the goals, the same as 2007. The positive news is that there was a 7 percent gain toward the goal for underwater bay grasses. On the negative side, goal achievement for algae fell 3 percent.



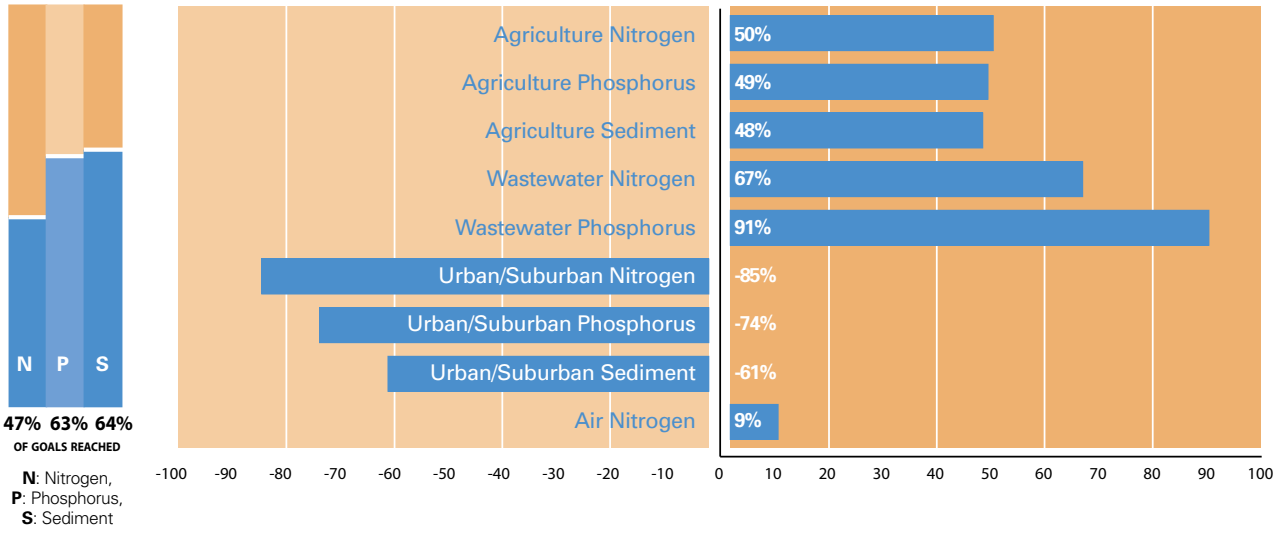
Fish and Shellfish – 48 percent

Most fish and shellfish populations in the Bay remain far below desired levels, and 2008 brought a 2 percent decrease in this goal area. This setback was driven by a drop of 23 million in the population of spawning-age blue crabs, which lowered progress toward the species goal by 11 percent. Oyster and shad populations remained at low levels.



RESTORATION – 61 PERCENT

To restore the Chesapeake Bay and its watershed, many measures must be put in place to reduce pollution, restore habitats, manage fisheries, protect watersheds and foster stewardship. Progress toward putting restoration measures in place continued in 2008, with a 4 percent gain, bringing the partnership to 61 percent of its goals. Population growth and development continue to hamper pollution-reduction efforts and remain the only source of pollution that is increasing. Steady progress was seen in several areas, and the goal for land preservation has been met.

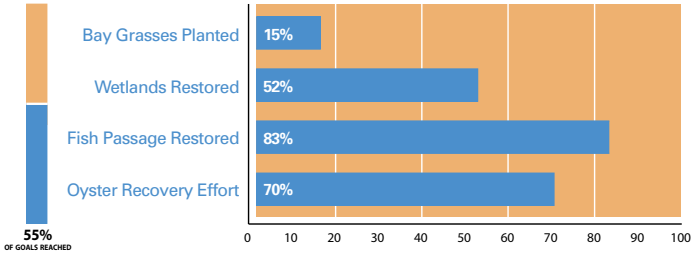


Reducing Pollution – 58 percent

Chesapeake Bay Program partners are focused on reducing pollution from the four primary sources: agriculture, wastewater, urban and suburban runoff, and air pollution. Based on available data, scientists project that 58 percent of the pollution reduction efforts needed to achieve the goals have been implemented since 1985, which is a 1 percent increase from 2007.

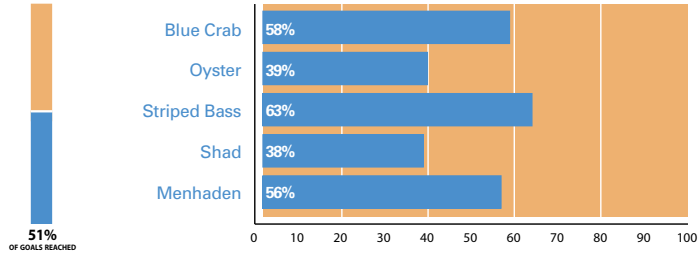
Restoring Habitats – 55 percent

Efforts to restore habitats throughout the watershed achieved modest gains in 2008, with progress toward the overall goal at 55 percent, an 11 percent increase from 2007. There were incremental gains in bay grasses planted, wetlands restored and fish passage restored. A goal was set for oyster recovery work, and achievement is at 70 percent.



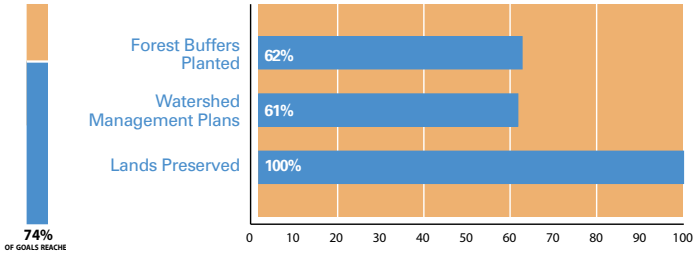
Managing Fisheries – 51 percent

Overall work to develop ecosystem-based fisheries management plans for blue crabs, oysters, striped bass, Atlantic menhaden and American shad stands at 51 percent, just a minimal gain from 2007. The score was increased by new restrictions on harvesting blue crabs and advancements in oyster research and aquaculture.



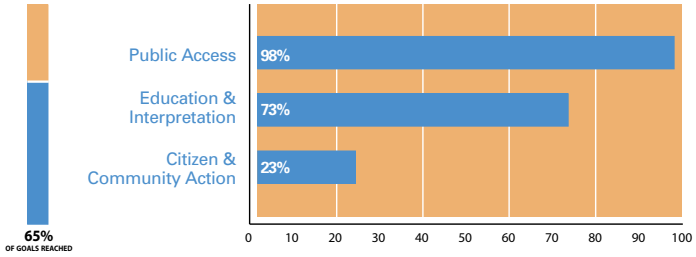
Protecting Watersheds – 74 percent

Progress was made toward protecting the thousands of smaller watersheds in the region during 2008, with a 3 percent gain toward the overall goal. Last year, the partnership met its goal for preserving 7 million acres of land. Work to plant forest buffers and develop watershed management plans also increased the score.



Fostering Stewardship – 65 percent

Programs to foster the public's stewardship of the Chesapeake Bay and its watershed resulted in a score of 65 percent. A 13 percent gain toward the goal for education contributed to the overall increase. To gauge citizen action, an effort was launched to measure volunteerism throughout the watershed.



HOW YOU CAN HELP

The effort to restore and protect the Chesapeake Bay will never be successful without the active involvement of the watershed's nearly 17 million residents. The citizens of the region all live within a short distance of a creek, stream, river or the Bay, and everything they do on land has an impact on the nearby waterways. By taking these small actions at home, at work and in the community, people can help create clean water and a healthy Chesapeake Bay.

For more details and more ways to help, visit us online at **www.chesapeakebay.net/helpthebay.aspx.**

1 Pick up after your pet.

It's a dirty job, but picking up after your pet makes a big difference in keeping our local waterways clean. Pet waste contains nitrogen, phosphorus and bacteria, which are harmful to our streams, rivers and the Bay. So make sure to always pick up after your pet, whether you're at the park, on a sidewalk or in your backyard.

2 Volunteer for a watershed group.

Watershed groups work to restore and protect the streams, creeks and rivers that flow to the Bay. These groups perform much of the on-the-ground restoration that takes place around the Bay region, but they rely on volunteers to make their efforts successful. To find your local watershed group, visit www.chesapeakebay.net/findabaygroup.aspx.

3 Don't fertilize your lawn.

We all want a green, healthy lawn for our kids to play on and our neighbors to envy. But chemical fertilizers used to achieve that lush look are a major source of pollution in local streams, rivers and the Bay. When rain washes fertilizers off thousands of suburban lawns across the region, the Bay receives more nitrogen and phosphorus than it can handle.

4 Install a rain barrel and rain garden.

Rain barrels attach to downspouts and collect rainwater that would otherwise flow onto your lawn, driveway or street and carry pollutants. The rainwater can then be used to water your garden and houseplants, saving money on water bills. For more benefits, add a rain garden – a depression with many plants that collects, absorbs and filters runoff. Check out rain garden designs at www.lowimpactdevelopment.org/raingarden_design.

5 Use a phosphorus-free dishwasher detergent.

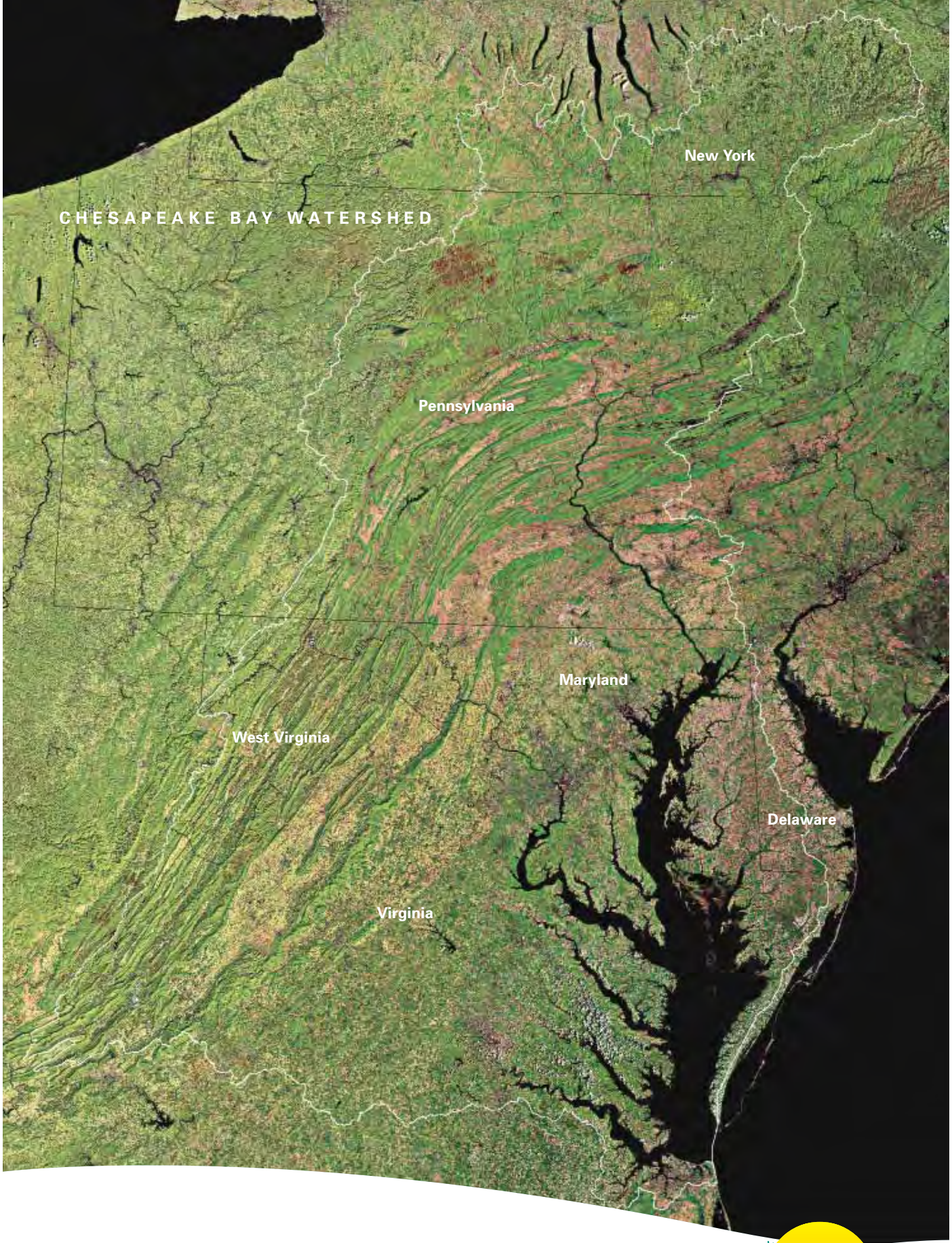
Check the label on your dishwasher detergent – most contain phosphorus, a type of nutrient that pollutes the Bay. Switching to a phosphorus-free dishwasher detergent is a simple, effective way to help reduce the amount of pollution that enters local waterways and the Bay.

6 Drive your car less.

Yes, we're all attached to our cars to get to work, school and stores. But emissions from all those vehicles are a significant source of nitrogen pollution in our local waterways and the Bay. If all of us reduced our driving, we'd see positive changes in the health of the Bay.

7 Plant native trees and shrubs.

Trees and shrubs planted around the edges of your property absorb runoff, filtering out pollutants that would otherwise flow to the nearest stream or storm drain. Trees and shrubs also help prevent erosion, absorb airborne pollutants, buffer noise, and provide food and habitat for wildlife. Choose native plants at www.nps.gov/plants/pubs/Chesapeake/toc.htm.



The Chesapeake Bay Program is a unique regional partnership that has coordinated and conducted the restoration of the Chesapeake Bay since 1983. Partners of the Chesapeake Bay Program include the states of Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia; the District of Columbia; the Chesapeake Bay Commission, a tristate legislative body; the Environmental Protection Agency, representing the federal government; the U.S. Department of Agriculture; and advisory groups of citizens, scientists and local government officials.

Contact Us: *Chesapeake Bay Program*
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Chesapeake Bay Program
A Watershed Partnership

www.chesapeakebay.net