

Fiscal Year 2011 Action Plan

Executive Order 13508

*Strategy for Protecting and Restoring the
Chesapeake Bay Watershed*



Federal Leadership Committee for the Chesapeake Bay

September 30, 2010



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We treasure the Chesapeake Bay and its vast surrounding watershed; the Chesapeake region is rich in natural resources, social and economic value, history, heritage, and culture. Today, while some areas of the Chesapeake may seem to resemble what Captain John Smith encountered when he first explored the Bay 400 years ago, much of the Chesapeake Bay watershed has been dramatically changed by human impacts.

In May 2009, President Obama signed Executive Order 13508, which tasked a team of federal agencies to draft a way forward for protection and restoration of the Chesapeake watershed. This team—the Federal Leadership Committee for the Chesapeake Bay—developed the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, which was released in May 2010. That document sets out clear and aggressive goals, outcomes, and objectives to be accomplished through 2025 by the federal government, working closely with state, local, and nongovernmental partners, to protect and restore the health of the Chesapeake Bay watershed.

As directed in the Executive Order, the Federal Leadership Committee will produce annual action plans to describe in finer resolution the actions to be taken in the coming fiscal year, based on the President's annual budget request to Congress. We are pleased to present this Fiscal Year (FY) 2011 Action Plan, which represents the first year of a long-term commitment to protect and restore the Chesapeake Bay watershed. This Action Plan describes work to be undertaken from October 1, 2010, to September 30, 2011, contingent on enactment of the President's FY 2011 Budget Request. As such, the specific activities outlined in the Action Plan may be modified pending final FY 2011 appropriations. Projects and programs described in this Action Plan total \$490 million, are distributed throughout the watershed, and reflect variety in both the type and scope of efforts to be undertaken.

These actions aim to restore clean water, recover habitat, sustain fish and wildlife, and conserve land and increase public access. Upcoming work to expand citizen stewardship, develop environmental markets, respond to climate change, strengthen science, and focus on implementation and accountability is also detailed. Annual progress reports will be developed to describe accomplishments and challenges.

While an introduction to the Action Plan includes selected narrative highlights and high-level funding amounts, the details of the Action Plan are included in the spreadsheet that outlines specific agency programs and projects that will support protection and restoration of the Chesapeake Bay watershed in FY 2011. A strong federal partnership developed this Action Plan, consulting often with non-federal partners. As the detailed actions illustrate—carrying out protection and restoration of the watershed depends on active collaboration among federal, state, and local governments; nongovernmental organizations; academia; community groups; and individual citizens. Indeed, each of the 17 million Chesapeake Bay watershed residents has a role to play.

We look forward to working with you on the ground and in the water to protect and restore the Chesapeake Bay watershed. During October, we also hope you will provide us with comments to help us improve future action plans; just visit executiveorder.chesapeakebay.net.

Sincerely,
Federal Leadership Committee for the Chesapeake Bay
Senior Designees

Peter Silva, Assistant Administrator for Water, U.S. Environmental Protection Agency
Ann Mills, Deputy Under Secretary, Natural Resources and Environment, U.S. Department of Agriculture
Sally Yozell, Director of Policy, National Oceanic and Atmospheric Administration, U.S. Department of Commerce
Donald Schregardus, Deputy Assistant Secretary of the Navy, Environment, U.S. Department of Defense
Jo-Ellen Darcy, Assistant Secretary to the Army (Civil Works), U.S. Army Corps of Engineers, U.S. Department of Defense
Donald Bathurst, Chief Administrative Officer, U.S. Department of Homeland Security
Tom Strickland, Assistant Secretary for Fish and Wildlife and Parks, U.S. Department of the Interior
Kathryn B. Thomson, Counselor to the Secretary, U.S. Department of Transportation

Overview

This Fiscal Year 2011 Action Plan for the Chesapeake Bay conveys the full scope of tangible on-the-ground and in-the-water efforts the federal government will undertake between October 1, 2010, and September 30, 2011, to protect and restore the Chesapeake Bay and its 64,000-square-mile watershed. These actions and initiatives are contingent upon Congressional appropriations based on the President's Budget for Fiscal Year 2011.

On May 12, 2009, President Barack Obama issued Executive Order 13508 for the Protection and Restoration of the Chesapeake Bay, which recognized that while the Chesapeake is one of our nation's greatest treasures, the efforts of the past 25 years were not showing sufficient progress in restoring the health of the Bay and its watershed. Instead, the Chesapeake's protection and restoration will require federal agencies to initiate bold new actions and make dramatic policy changes, all in collaboration with state and local government, nongovernmental organizations, and citizens of the watershed.

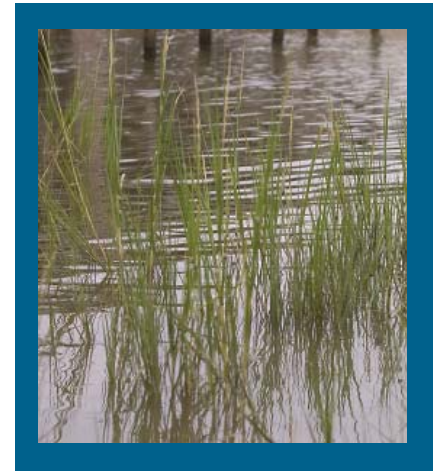
The Executive Order established a Federal Leadership Committee (FLC)—composed of representatives from the U.S. Environmental Protection Agency and the departments of Agriculture, Commerce, Defense, Homeland Security, Interior and Transportation—and charged it with developing a coordinated strategy “to 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.” Responding to that charge, the FLC developed goals and actions described in the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed* (“EO Strategy”; published on May 12, 2010, available at <http://executiveorder.chesapeakebay.net/>).

In addition, the Executive Order directed the FLC to “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.”

This first annual Action Plan identifies the specific activities that FLC agencies will undertake in FY 2011, based on funding levels proposed in the President's Budget, which are also summarized herein. Assuming the President's requested funding is appropriated by Congress, this plan represents how these funds would be used by agencies to advance protection and restoration of the Chesapeake Bay and its watershed.

Following the structure of the EO Strategy, the Action Plan is organized into four goal areas (“restore water quality,” “recover habitat,” “sustain fish and wildlife,” and “conserve land and increase public access”) and four supporting strategy sections (“expand citizen stewardship,” “develop environmental markets,” “respond to climate change,” and “strengthen science”). It also includes a brief section on implementation and accountability efforts.

Throughout each section, specific activities, lead agencies, and completion dates for each activity are identified. At the end of each goal or supporting strategy section is a summary of funding by outcome and agency, based on the President's FY 2011 Budget Request. A summary table of funding by goal or supporting strategy and agency is included at the end of this introduction.



Selected Highlights

The Action Plan underscores the significant level of federal effort and collaboration required to protect and restore the Chesapeake watershed. The broad spectrum of activities identified in the Action Plan demonstrates the federal government's deep commitment of resources and leadership in the effort to restore and protect the Chesapeake watershed. Many of the activities listed involve multiple federal partners, working together to achieve a common outcome or goal. And while the Executive Order acknowledges the federal government should assume a strong leadership role in the restoration of the Bay, it equally emphasizes the importance of a collaborative effort involving state and local governments, nongovernmental partners, the private sector, and citizens of the Chesapeake watershed. The recognition that success will depend on such a broad, collaborative effort is the reason many actions are intended to support activities at the local and state levels. As just one small example, through the Green Streets-Green Jobs initiative, the U.S. Environmental Protection Agency (EPA) is making more than \$250,000 available for local governments and nongovernmental organizations in the Anacostia River watershed to promote environmental protection, while creating green infrastructure, renewable energy use, and green jobs. The funds will be distributed through a watershed assistance partnership with the Chesapeake Bay Trust, the Maryland Department of Environment, and the Maryland Department of Natural Resources, and will help protect water resources through integrated planning, design, and construction of stormwater best management practices with towns and communities in urbanized areas.

Many national initiatives are being implemented on a regional level through activities in the FY 2011 Action Plan, highlighting the Chesapeake Bay watershed as an example for restoring ecosystems elsewhere in the country. For example, the approach to collaborative partnerships for regional ecosystem protection and restoration described in the Action Plan echoes administration priorities as advanced in the *Final Recommendations of the Interagency Ocean Policy Task Force* (see Appendix C). The America's Great Outdoors Initiative, Interagency Climate Change Adaption Task Force, Executive Order on Federal Leadership in Environmental, Energy, and Economic Performance, a memorandum on Transparency and Open Government, and the Executive Order on Environmental Justice all have applications in the Chesapeake Bay watershed and this action plan includes activities that also advance the objectives of these initiatives.

The following are examples of selected efforts planned in the Chesapeake Bay watershed for FY 2011. For the complete list, see the full Action Plan table following this introduction.

Restore Clean Water. Clean water is essential for people, fish and wildlife, and healthy habitats. But in 2009, water quality in the Bay met only 24 percent of Chesapeake Bay Program goals, and more than half of the streams in the Chesapeake watershed were rated "poor" or "very poor." Significant reductions in nutrients, sediment, and contaminants are needed to support Bay health.

To this end, EPA will continue working with state partners to establish a Bay-wide Total Maximum Daily Load (TMDL)—a "pollution diet"—to set limits on nitrogen, phosphorus, and sediment pollution sufficient to achieve water quality standards for dissolved oxygen, water clarity, and chlorophyll-a. As part of that undertaking, EPA will continue to provide technical assistance and resources directly to the Bay watershed states (Delaware, New York, Maryland, Pennsylvania, Virginia, and West Virginia) and the District of Columbia (District) as they develop their Phase II Watershed Implementation Plans, and take their allocations

Restore Clean Water Goal:
Reduce nutrients, sediment, and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity, and chlorophyll-a and other toxic contaminants



down to the county scale and individual source sectors. These Watershed Implementation Plans provide a roadmap for how the states and the District, in partnership with federal and local governments, will achieve and maintain the Bay TMDL nitrogen, phosphorus, and sediment limits necessary to meet Bay water-quality standards.

EPA will also initiate several regulatory and other actions to support the states' and District's plans to implement the TMDL. For example, by September 2011, EPA intends to propose revisions to national stormwater regulations, including specific requirements for stormwater discharges from new and redeveloped sites and additional provisions specific to the Chesapeake Bay. EPA will also work in FY 2011 to develop new agricultural feeding regulations by June 2012 to more effectively address pollutant reductions necessary to meet the TMDL.

In support of these efforts, the President's Budget for FY 2011 provides significant assistance to the states and the District to help target and improve water-quality restoration and protection efforts in the Chesapeake region. EPA will provide more than \$20 million directly to the states and the District through Chesapeake Bay Regulatory and Accountability Program and Implementation grants. This more than doubles the level of funding provided to the states and the District from just two years ago. These new funds are intended to support state work to develop and implement stronger regulatory and accountability programs to control urban, suburban, and agricultural runoff in the watershed. In addition to these grants, increases in several base national funding programs will further help augment state water quality improvement efforts, including more than \$10.37 million in Clean Water Act (CWA) Section 319 non-point source program grants; \$5.89 million in CWA Section 106 Water Pollution Control program grants; and an estimated \$169.51 million in EPA Clean Water State Revolving Fund allocations. EPA is also providing nearly \$4.7 million in grants to support state tidal monitoring programs.

The EO Strategy includes a strong compliance component. To help effectively target pollution reduction efforts in the watershed, EPA will implement a Chesapeake Bay Compliance and Enforcement Strategy for stormwater, agriculture, and wastewater. EPA will target key regulated business sectors, including wastewater treatment plants, concentrated animal feeding operations, municipal separate storm sewer systems, and others that contribute significant amounts of nutrients, sediment, and other pollutants into the Bay.

Federal agencies have also committed to applying 4 million acres of new conservation practices in high-priority watersheds, identified by the U.S. Department of Agriculture (USDA), U.S. Geological Survey (USGS), and EPA as watersheds that contribute higher-than-average amounts of nitrogen and phosphorus to the Bay. Through the Chesapeake Bay Watershed Initiative, in FY 2011, the USDA Natural Resources Conservation Service (NRCS) is targeting \$72 million in financial and technical assistance to help farmers implement voluntary conservation practices in these high-priority watersheds. Focusing conservation efforts in these areas ensures that applied conservation practices will contribute directly to reductions in nitrogen, phosphorus, and sediment losses from agricultural fields. Other USDA program such as the Environmental Quality Incentives Program, Agricultural Management Assistance Program, and Wildlife Habitat Incentive Program, as well as direct Conservation Technical Assistance, will also be used to address resource concerns across the watershed.

In addition, three water quality "Showcase Watersheds" have been established in the Chesapeake Bay Watershed: Conewago Creek Watershed (Pennsylvania), Upper Chester River Watershed (Maryland), and Smith Creek Watershed (Virginia). These watershed projects are designed to demonstrate what can be accomplished by bringing people and groups together to solve natural resources problems in targeted areas. The robust voluntary conservation stewardship activities in a showcase watershed can only be achieved by combining willing farmers, strong partnerships, sound science, and adequate funding. USGS and EPA will work with NRCS to monitor water-quality changes in these watersheds starting in winter 2011.

USGS and the U.S. Fish and Wildlife Service (FWS) will expand sampling of the effects of toxic contaminants in the Potomac basin and work with EPA and the National Oceanic and Atmospheric Administration (NOAA) to summarize existing information about how contaminants pose threats to fish and wildlife in the Bay and its watershed.

Combined funding from the FY 2011 President's Budget for this goal area totals \$383.3 million.

Recover Habitat. Many habitats within the Chesapeake Bay watershed—including wetlands, forests, fields, streams, underwater grasses, and mudflats — have been degraded and no longer provide the robust ecosystem services Bay species require. Restoration of these habitats is critical to support priority species and to afford other public benefits, including enhanced water quality, expanded recreational uses, and improved scenic value throughout the watershed.

Habitat restoration is a high priority for the federal government and Bay partners, and success stories are starting to emerge. In FY 2010, FWS and NRCS enrolled Maryland's largest-ever Wetland Reserve Program easement, working with a local forestland owner to protect, restore, and enhance more than 1,700 acres of forested wetland in the heart of prime habitat for American black duck, while abating nutrient loadings in a watershed targeted by EPA as needing improvements. The project presented an excellent "proof of concept" example of how aligning several agencies' priorities can yield multiple benefits for private landowners, water quality, and critical habitats and the species they support. Building off the success of this approach, FWS, NRCS, and Maryland sponsored the "Chesapeake Bay Summit 2010: Enhancing Partnerships for Bay Restoration and Habitat Conservation," which targeted shared priorities for implementation in FY 2011, using the same approach to significantly accelerate achievement of wetland conservation targets set in the Action Plan.

During FY 2011, FWS, NOAA, and NRCS have committed to work with state and local partners to restore fish passage to 67 miles of streams in FY 2011 for the benefit of migratory and resident fish. Federal partners have committed funding and personnel to prioritize stream reaches for restoration of passage or flow; leverage funds to remove barriers, retrofit culverts, and install passage structures; and document success of these projects through enhanced monitoring for the presence of wide-ranging indicator species such as river herring, American shad, and American eel. This work will be enhanced by planting of streamside forest buffers, which shade streams and moderate temperatures, and by restoring the natural condition of streams' channels, which provides natural flood control and helps to reduce sediments that choke local streams.

Combined funding from the FY 2011 President's Budget for this goal area totals \$18.9 million.

Sustain Fish and Wildlife. The Chesapeake Bay is home to a vibrant spectrum of fish and wildlife. Some are thriving; others face significant challenges.

For centuries, the wide diversity of fish species in the Chesapeake Bay and its rivers has provided a rich ground for commercial and recreational fisheries. Striped bass, blue crab, and menhaden are just a few of the many species that are sought out by recreational and commercial fishermen on the Bay. Expansive marshes, underwater grasses, and multiple rivers provide vital habitat where fish feed, reproduce and shelter. But loss of these habitats and poor water quality resulting from land-based activities are affecting the health and abundance of important fish and wildlife species. Management jurisdictions must holistically manage linkages between these species and habitat on a Bay-wide basis to ensure long-term sustainability.

Recover Habitat Goal:

Restore a network of land and water habitats to support priority species and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed



Sustain Fish and Wildlife Goal:

Sustain healthy populations of fish and wildlife which contribute to a resilient ecosystem and a vibrant economy



Science and collaboration underpin the ability to achieve this goal. For example, blue crab populations in the Bay appear to be rebounding as a result of science-based management decisions implemented consistently across the Bay. NOAA, FWS, and USGS will increase efforts to improve the science needed to inform sound management decisions. In FY 2011, efforts focus on strengthening fisheries science and improving understanding of fisheries status and trends to better explain the role these species play in a healthy Bay ecosystem; applying new technologies to provide benthic habitat mapping, assessment, and monitoring to support state and regional fisheries management decisions and policymaking; identifying the critical factors affecting the abundance of blue crab and if appropriate, make recommendations to the current blue crab abundance target; and continuing efforts to advance approaches to ecosystem based management.

Oysters are not faring so well, with only roughly 1 percent of their historic levels present in the Bay today. Yet there appear to be signs of progress, thanks to management actions by states to improve oyster health. In 2011, NOAA and the U.S. Army Corps of Engineers (USACE) will spend over \$7 million in close consultation with state partners in Virginia and Maryland to accelerate oyster restoration efforts. Baseline survey and habitat characterization information for priority tributaries in Maryland and Virginia, which is needed to plan and design future restoration projects, will be developed as a foundation for continuing development of the Native Oyster Restoration Master Plan as part of a broader, Bay-wide strategy. More than 60 acres of reefs will be designed for establishment in the Piankatank River, and associated applied research will be undertaken to improve oyster restoration techniques and develop clear and consistent metrics to assess the success of restoration efforts. Work accomplished in 2011 will enable implementation of large-scale restoration projects in the coming years.

FWS and USGS will work together to determine the factors affecting the health of selected freshwater species, with a focus on restoring Eastern brook trout populations. These agencies are working with a diverse group of partners, including state fish and wildlife agencies, federal resource agencies, academic institutions, and private-sector conservation organizations to conserve brook trout and their habitats. The Eastern Brook Trout Joint Venture has already produced a range-wide population assessment of brook trout; completed extensive work that identifies key threats to brook trout and their habitats; and developed conservation strategies to protect, enhance, and restore brook trout. In FY 2011, FWS will develop a database and framework to identify and prioritize site-specific brook trout conservation and restoration projects in the Chesapeake watershed. This will set the stage for increased and accelerated strategic investments in brook trout restoration by the partnership, and for consistent methods of monitoring and assessment to measure results. FWS will also develop and implement brook trout habitat restoration/enhancement projects in collaboration with the Eastern Brook Trout Joint Venture to help restore the naturally reproducing brook trout population to ten miles of stream habitat.

Combined funding from the FY 2011 President's Budget for this goal area totals \$15.2 million.

Conserve Land and Increase Public Access. Treasured landscapes across the Chesapeake region connect residents and visitors to the Bay and its rivers. These are special places for ecological, cultural, historical, economic, and recreational reasons. But many of these locations are threatened, due to development and other causes.

The EO Strategy sets out a goal of protecting an additional 2 million acres of high-priority conservation lands by 2025. The President's FY 2011 Budget and this Action Plan include some \$30 million dollars for direct land protection. As one example, USDA's Farm and Ranch Lands Protection Program will help to purchase development rights within the watershed to keep productive farm land in agricultural use. USDA provides up to 50 percent of the fair market easement value for a property with state, tribal, or local governments and nongovernmental organizations acquiring the easements and providing matching funds.

Conserve Land and Increase Public Access Goal:

Conserve landscapes treasured by citizens to maintain water quality and habitat; sustain working forests, farms, and maritime communities; and conserve lands of cultural, indigenous and community value. Expand public access to the Bay and its tributaries through existing and new local, state and federal parks, refuges, reserves, trails and partner sites



Achieving the land conservation goal set out in the EO Strategy requires a focus on conserving the most important lands. Partners in the Bay watershed would benefit from a shared understanding of what landscapes citizens value most and how agencies charged to protect and manage them can do so most effectively. This Action Plan includes a major step toward that end—developing a publicly accessible geographic information and targeting system to support sound land conservation planning, decisionmaking, and implementation throughout the watershed. The system will build on and expand existing information to incorporate full coverage of federal, state, and local community land conservation priorities, allowing strategic coordination across the watershed for multiple land conservation values—ecological, cultural, economic, recreational, and more. The President’s FY 2011 Budget Request includes funding for USGS to begin developing this system. While contingent on final FY 2011 appropriations, USGS and the National Park Service (NPS) intend to convene working sessions of federal agency partners, states, and nongovernmental organizations to develop a scope for the system and the mechanisms to put the system in place beginning in FY 2011.

Expanding and maintaining public access to the Chesapeake Bay goes hand in hand with the conservation of valuable landscapes in the Chesapeake region. But public access—especially to and from the water—remains limited. Based on this Action Plan, in fall 2010, federal, state, local, nongovernmental, and community partners will begin crafting a regional public access plan to inform and guide expansion of Chesapeake watershed public access sites. Due for completion by 2012, the plan will help focus access funding efforts. NPS is making development of public access the priority in its FY 2011 Chesapeake Bay Gateways and Watertrails Network matching grants. This program is already supporting projects along the James, Nanticoke, Rappahannock, York, and Susquehanna rivers and Onancock Creek that will increase public access sites within the Chesapeake Bay watershed. Along the James, a recent Gateways grant is helping the James River Association construct a walkway that will allow visitors to observe a previously inaccessible ecosystem of creeks and wetlands on Presquile National Wildlife Refuge. The environmentally friendly walkway, used in conjunction with James River Association-led educational programs and canoe trips on the Captain John Smith Chesapeake National Historic Trail, will provide a unique opportunity to study the ecology of the James River and to help visitors develop a greater appreciation for the need to protect the health of this beautiful and historic natural resource. The President’s FY 2011 Budget would double funding for the Gateways program from the 2010 level, expanding the ability to add public access sites.

Combined funding from the FY 2011 President’s Budget for this goal area totals \$42.6 million.

In addition to the four major goals, four supporting strategies provide cross-cutting support or are complementary to activities to achieve environmental goals. Examples of these supporting strategy actions are:

Expand Citizen Stewardship. Americans have a deep and abiding tradition of stewardship. Yet the need for increased stewardship of the Chesapeake watershed is great.

Among other actions, the EO Strategy calls for expanding Chesapeake conservation corps workforces to help fill this need. In Maryland, the Chesapeake Bay Trust is initiating a new Chesapeake Conservation Corps to place volunteers in various environment and energy-related nonprofit and other organizations throughout Maryland. Other existing conservation corps programs in the Chesapeake watershed support work on trail development, improving public access, planting trees, removing invasive species, improving stormwater systems, restoring wildlife habitat, implementing education programs, and doing park and trail maintenance—all while expanding volunteers’ skills to aid in their future employment. For example, the Virginia Department of Conservation and Recreation used a NPS matching grant to establish a Chesapeake Bay Gateways Youth Corps to improve public access

Expand Citizen Stewardship

Objective: Foster a dramatic increase in the number of citizen stewards of every age who support and carry out local conservation and restoration



along the Captain John Smith Chesapeake National Historic Trail. Some 130 volunteer youth participants lived and worked at ten Virginia state parks designated as Chesapeake Gateways, contributing well over 10,000 volunteer hours to key on-the-ground projects.

In FY 2011, NPS will convene federal, state, and nongovernmental partners to expand existing conservation corps workforces that create jobs and carry out conservation and restoration projects in priority watersheds, creating a broadened Chesapeake Conservation Corps. Partners will examine existing models and programs, especially those focusing on underserved communities; assess issues and needs; and identify mechanisms for measuring progress. A significant opportunity for Corps expansion across Department of Interior bureaus will be explored in this exercise, potentially incorporating elements of the Refuge Conservation Corps currently operating out of Chesapeake Marshlands National Wildlife Refuge Complex in the new model to be developed. NPS will coordinate development of a proposed strategy for expanding Corps programs by 2011.

Providing educational opportunities is a critical way to grow the next generation of Bay stewards. The NOAA Chesapeake Bay Watershed Education and Training Program funding supports organizations like the Annapolis Maritime Museum and its suite of environmental education programming that focuses on the Chesapeake Bay. The Maritime Museum offers six unique programs from preschool to eighth grade that connect students with the area's rich maritime heritage and environmental issues. Highlights from their programming include "Chesapeake Careers," where eighth-grade students visit the Maritime Museum and a local marina to meet professionals whose careers are influenced by the Chesapeake Bay, all the while learning about topics related to maritime heritage and the environment.

NOAA is leading the development of an Elementary and Secondary Environmental Literacy Strategy that will allow for better coordination of federal and state environmental education programs. In FY 2011, NOAA will create inventories of federal and state programs, conduct a series of planning meetings with federal, state, and local partners, and coordinate the development of a draft of the environmental literacy strategy.

Combined funding from the FY 2011 President's Budget for actions in this strategy area totals \$8.9 million.

Develop Environmental Markets. Ecosystem services are the benefits that people receive from nature. Millions of acres of private land are lost or degraded each year, and with them, the ecosystem services they provided to the public (e.g., water filtration, carbon sequestration, habitat). Considering the real-dollar value of those services and creating an "environmental marketplace" that can put these services on the balance sheet is one way to better integrate the environment in decisionmaking. While still in their infancy, environmental markets show promise for encouraging innovation and investment in conservation, improving accountability, reducing costs of restoration, and expanding opportunities for landowners. Currently, most conservation work is publicly funded. While not replacing existing conservation and regulatory programs, environmental markets create new private incentives for conservation and restoration. The basic premise of an environmental market is that an entity that needs to reduce its effects on the environment can purchase credits to offset an equivalent or greater amount of environmental improvement.

USDA has led the formation of a unique team of more than 12 different federal agencies that are working together to establish an environmental market infrastructure for the Chesapeake Bay. For example, the TMDL will serve as a clear driver of demand for future water-quality credits as pollution is capped, new sources are offset, and current sources are reduced. Restoring critical landscapes like buffers and wetlands and implementing technology to reduce nutrient loads, above and beyond what is required, can create credits for sale or trade. For agriculture and forest landowners, these markets represent an option to diversify their

Develop Environmental Markets

Objective: Working collaboratively, USA, EPA, Bay states, and other federal partners will develop environmental markets for the Chesapeake Bay, including the management infrastructure for measuring, reporting and verifying environmental performance for a suite of ecosystem services



businesses—investing in their land to produce the goods people depend on as well as to restore areas that can benefit the Bay. In addition, entities that depend on the environmental benefits of healthy watersheds will be able to more easily invest in their stewardship, thus encouraging private investment in Bay restoration. Numerous companies in the watershed have already made voluntary investments to offset their carbon or water-quality footprints.

In FY 2011, the Chesapeake Bay Environmental Markets Team will begin work to develop drivers of demand and high-quality credits; create a sound and transparent marketplace; develop consistent science-based methods to measure and verify performance; protocols that define relevant baselines; a platform for registering, reporting, and tracking measurable benefits over time; and cost-effective systems that bring together the buyers and sellers of ecosystem services.

Combined funding from the FY 2011 President's Budget for actions in this strategy area totals \$0.37 million.

Respond to Climate Change. Climate change poses significant challenges to protection and restoration of the Chesapeake and its watershed; infrastructure, habitat, fish and wildlife populations, stream flow, water quality, and landscapes and waters will be affected in a variety of ways.

In FY 2011, NOAA and USGS are working to establish mechanisms to ensure the results of federal agency climate efforts are delivered to states and communities to support implementation of adaptation work by Bay partners. For example, these agencies will synthesize, apply and share knowledge gained from climate adaptation considerations in tidal wetland restoration projects to other resource managers. Ongoing efforts at Blackwater National Wildlife Refuge, Poplar Island, and National Estuarine Research Reserves in Virginia and Maryland exemplify this effort. Specifically, to improve wetland restoration and land-use planning within the immediate vicinity of Blackwater National Wildlife Refuge to address climate change, federal agencies are collaborating to measure and predict potential effects of sea-level rise. USGS worked with FWS and NOAA to collect detailed information on tidal change and changes in marsh elevations around the Refuge. USGS scientists used the data to develop a model to predict areas that would be inundated due to sea-level rise. FWS and USACE adapted the information to modify plans for wetland restoration so the investment in restored wetlands would not be lost to sea-level rise. USGS will work with NOAA and FWS to apply this approach to assess the vulnerability of other coastal wetlands along the Bay so federal land holders (e.g., NPS, FWS, and Department of Defense) and state and local communities can improve climate adaptation strategies to protect local coastal wetlands.

In 2011, federal agencies will also focus on providing managers with updated assessments of risks from a range of potential climate effects on specific locations and resources in the Bay and watershed. These FY 2011 vulnerability assessments include a comprehensive look at coastal wetlands led by USGS and NOAA; USGS better defining the combined effects of land use and climate change on nutrients and sediment in the Bay watershed; and NOAA's work with academic partners to recommend an assessment of the effects of drought and low flow on water quality in the Susquehanna River. These efforts can assist planners and managers with targeting habitat protection and restoration efforts.

In addition to a natural resource focus, as part of a comprehensive national initiative, small demonstration projects are under way in Maryland and Virginia to help coastal communities prepare for the effects of climate change. These projects will provide communities with credible, science-based information to help them consider alternatives, make informed decisions, and ultimately develop and implement customized local solutions. Specifically, the demonstration projects will help communities develop strategies to address coastal inundation, sea-level rise, drought, more frequent and intense coastal storms, and other impacts. Extension and outreach specialists from Sea Grant universities are working with coastal communities through the demonstration projects.

Respond to Climate Change

Objective: Minimize the vulnerability of the Chesapeake Bay watershed, including its habitats, public infrastructure and human communities, to adverse impacts of climate change



Maryland Sea Grant is holding community workshops that focus on climate change mitigation and adaptation for communities on the eastern and western shores of the Chesapeake Bay. Virginia Sea Grant is delivering climate change adaptation strategies for Middle Peninsula counties, assistance to the town of Poquoson to incorporate water-level monitoring and analysis into community planning, and planning for resilience to sea-level rise in Hampton Roads.

Finally, agencies are establishing a group in FY 2011 to consistently make the best scientific knowledge and projections of climate effects easily accessible to inform decisions by states, communities, resource managers, and citizens throughout the watershed via establishment of climate coordinators. The group will include and work closely with regional efforts such as the FWS Landscape Conservation Cooperatives and development of NOAA's regional climate services to summarize science to address needs in the Chesapeake and its watershed and plan monitoring needs as part of the Chesapeake Monitoring Alliance.

Combined funding from the FY 2011 President's Budget for actions in this strategy area totals \$4.1 million.

Strengthen Science. The Chesapeake Bay is more than 200 miles long; its contributing watershed is a vast 64,000 square-mile area that stretches from Virginia to New York. Given the size, it is essential for the federal government to work with state and local partners to target the on-the-ground and in-the-water actions in locations where they provide the most benefit for water quality, habitats, fish and wildlife, and priority lands, and include monitoring and research to document and explain changes in the ecosystem.

USGS, EPA and NOAA will coordinate federal efforts to use ecosystem-based adaptive management, which will provide science to improve the efficiency and accountability of federal actions to restore water quality, habitat, fish and wildlife, and conserve lands. In FY 2011, the primary work will be to provide new results and enhance tools to improve targeting of management actions; establish a monitoring alliance to create partnerships to improve reporting of on-the-ground management actions and monitoring of progress for the EO outcomes; and begin evaluation of which actions and policies will enable the most improvement in conditions of the Bay and its watershed. To increase the science capacity needed to apply the new adaptive-management approach, the current Chesapeake Bay Program science activities, which are focused on water quality, will be transformed to better address EO goals through coordination of the federal science capabilities of NOAA, USGS, FWS, NPS, U.S. Forest Service (FS), and USACE.

Based on the President's Requested FY 2011 Budget, new information and tools will be developed to better target actions in the Bay and its watershed. These actions include:

- To improve water quality, new research will be conducted by USGS on the distribution of sediment and nutrients in the watershed to help the states more strategically focus their actions to meet the Bay TMDL, and help NRCS to target conservation practices on 4 million acres in the Bay watershed.
- To improve targeting of habitat restoration, NOAA will complete habitat characterization surveys in Maryland and Virginia tributaries to help target priority locations for oyster restoration. NOAA and USACE will organize existing habitat characterization data to identify candidate tributaries for new oyster habitat. NOAA will also evaluate its Digital Coast system as a tool to disseminate this information to partners. FWS and NOAA will use information on stream quality and other factors important for successful fish passage to prioritize a list of fish barrier projects in Maryland and begin to work with Virginia and Pennsylvania to develop a similar list for their states. FS and USGS will release a land-cover mapping tool to identify areas to focus restoration of riparian forest buffers and use proposed new funds to work with partners to apply the tool in Bay watershed.

Strengthen Science Objective:
Strengthen science to support ecosystem-based adaptive management, to more effectively prioritize, implement, monitor and evaluate the actions and policies needed, and to identify new threats to the health of the Chesapeake Bay and its watershed



- To better manage fish and wildlife, USGS and FWS will expand a study in the freshwater portion of the Potomac basin to determine the extent and reasons for fish kills and intersex conditions. The expanded effort will include defining the extent of the poor fish-health conditions, determine the causes the fish kills, and identify the primary contaminants related to intersex conditions in fish. USGS and FWS will work with EPA and NOAA to use results from the Potomac study and examine existing information to identify the priority contaminants that need new strategies to reduce their impacts on the Bay and its watershed. NOAA will increase science efforts to implement multispecies management to benefit crabs, striped bass, and other key species in the Bay.
- To identify priority lands, NPS and USGS will kick off development of a targeting system to identify priority lands for conservation. The resulting tool will allow users to weight the value of different elements (including water quality, habitat, recreation) so they can work together to align funds to prioritize lands for conservation. The federal partners will also work to have integrated decision systems, including ChesapeakeStat and the Chesapeake Online Adaptive Support Tool-kit, to provide improved access to these tools and results for federal, state, and local partners.

The President's FY 2011 Requested Budget also calls for improving monitoring to document improvements of conditions toward EO outcomes and so agencies can evaluate the effectiveness of their management actions. To improve monitoring, NOAA will enhance its Chesapeake Bay Interpretive Buoy System, which features robust, near-real-time water-quality monitoring sensors to assess the health of the Bay and the success of restoration efforts. USGS will establish monitoring in small watersheds to help NRCS determine the success of conservation practices and help EPA determine more effective storm-water controls in urban areas. NRCS, EPA, and USGS will work together to improve the reporting of agricultural conservation practices to improve the Bay watershed water-quality model and explanation of nutrient and sediment trends. FWS and NOAA will establish a monitoring program to evaluate the success of fish-passage projects, and FWS will begin a program to improve monitoring of brook trout.

Combined funding from the FY 2011 President's Budget for actions in this strategy area totals \$13.1 million.

Implementation and Accountability. As the chair of the Federal Leadership Committee, and as directed by Section 117 of the Clean Water Act, EPA has unique responsibilities to coordinate and facilitate partnerships to restore and protect the Chesapeake Bay. As such, EPA will take the lead on the actions called for in the EO Strategy's Implementation and Accountability chapter. These action include aligning the FLC and Chesapeake Bay Program Executive Committee functions, ensuring independent evaluation, developing annual action plans and progress reports, and developing two-year milestones. EPA's responsibility to the partnerships also calls for EPA to maintain advisory committees for science and technology, citizens, and local governments, as well as multijurisdictional goal implementation teams, and convene periodic meetings of state and federal agency principals, including those from Washington, D.C., and the Chesapeake Bay Commission. Finally, EPA maintains a program office for the partnership. Although only EPA's funding associated with management of the Chesapeake Bay Program has been allocated specifically to the Implementation and Accountability section of the EO Strategy, each agency has and will continue to contribute significantly to these activities.

Annual costs associated with this are approximately \$4.0 million.



Funding Summary

The 2011 Action Plan provides a breakdown of how FY 2011 funding proposed in the President's Budget would be used by FLC agencies to advance protection and restoration of the Chesapeake Bay and its watershed. In total, more than \$490 million is targeted in FY 2011 toward meeting the outcomes and goals set forth in the EO Strategy, contingent upon appropriations by Congress. Funding is summarized in the following table by goal and supporting strategy and agency. Funding amounts are also broken out by 12 specific outcomes and science support for each of the four goals in the full action plan that follows.

Allocations are based on funding proposed in the President's Budget that is directly attributable to implementing the EO Strategy by the FLC agencies. This includes:

- direct budget lines for specific agencies for Chesapeake Bay activities;
- allocations of agency base funding towards the EO Strategy; and
- shares of national programs that can be reasonably and directly attributed to supporting the EO Strategy in the Chesapeake watershed.

In a few cases, it is not feasible to project all federal/state partnership programs that will support implementation, due to the structure of the programs. For example, in FY 2010, the coastal states of Virginia, Maryland, Delaware, and Pennsylvania were awarded grants totaling roughly \$8.5 million under the national Coastal Zone Management Program. While the FY 2011 grant proposals from the states and associated activities for these funds have not yet been developed, ultimately FY 2011 funds will represent an additional federal investment, some of which will contribute to achieving the goals and outcomes of the EO Strategy. Similarly, some Department of Transportation programs including Transportation Enhancement, Recreational Trails, Scenic Byways, Transit, and Surface Transportation Environment and Planning research funding do not include funding estimates.

This Action Plan does not reflect the sum total of all activities that may be supported through federal funding in the Chesapeake Bay watershed. Rather, it is focused specifically on the funding that aligns directly with the actions and outcomes identified in the EO Strategy. Therefore, the allocations do not include substantial other federal funding occurring within the watershed that does not directly support the specific EO Strategy actions.

The funding levels outlined in this action plan are not comparable with prior estimates of federal expenditures toward the Chesapeake Bay. This represents the first time funding projections have been made based on an explicit strategy and set of actions jointly adopted by all participating agencies and a President's Budget request.

Department Agency	Water Quality Goal	Habitat Goal	Fish & Wildlife Goal	Land Conservation & Public Access Goal	Citizen Stewardship	Environmental Markets	Climate Change	Science	Total
USDA Total	\$131,775,000	\$8,745,000	\$205,000	\$10,470,000	\$1,340,000	\$220,000	\$553,000	\$270,000	\$153,578,000
FS	\$435,000	\$745,000	\$205,000	\$120,000	\$1,340,000	\$20,000	\$553,000	\$270,000	\$3,688,000
NRCS	\$131,340,000	\$8,000,000	0	\$10,350,000	0	\$50,000	0	0	\$149,740,000
OEM	0	0	0	0	0	\$150,000	0	0	\$150,000
USDOC/NOAA	\$2,255,000	\$1,995,000	\$6,885,250	\$15,000	\$450,000	0	\$1,252,000	\$6,494,000	\$19,346,250
USDOD Total	\$6,733,062	\$501,013	\$5,200,000	\$4,700,000	0	0	\$300,000	0	\$17,434,075
Services	\$6,723,062	0	0	\$4,700,000	0	0	0	0	\$11,423,062
USACE	\$10,000	\$501,013	\$5,200,000	0	0	0	\$300,000	0	\$6,011,013
USDOI Total	\$5,061,250	\$7,600,087	\$2,907,892	\$18,612,298	\$5,087,791	0	\$1,924,561	\$1,623,339	\$42,817,218
FWS	\$482,264	\$7,115,363	\$2,282,171	\$2,390,292	\$2,891,184	0	0	0	\$15,161,274
NPS	0	\$298,700	\$120,369	\$15,822,006	\$2,196,607	0	\$290,958	\$441,000	\$19,169,640
USGS	\$4,578,986	\$186,024	\$505,352	\$400,000	0	0	\$1,633,603	\$1,182,339	\$8,486,304
USDOT	\$175,000	\$95,000	0	\$8,231,000	0	0	0	0	\$8,501,000
USEPA	\$237,295,566	0	0	\$565,920	\$2,105,000	\$150,000	\$75,000	\$4,689,866	\$248,873,881
TOTAL	\$383,294,878	\$18,936,100	\$15,198,142	\$42,594,218	\$8,952,791	\$370,000	\$4,104,561	\$13,077,205	\$490,550,424¹
1 This total figure includes \$3,992,000 of EPA funds dedicated to actions associated with the EO Strategy's Implementation and Accountability chapter and Chesapeake Bay Program support as described in the text in this section.									

While the Department of Homeland Security (DHS) is not listed in the table above, DHS is also involved in Chesapeake Bay protection and restoration activities primarily through law enforcement by the U.S. Coast Guard in such areas as search and rescue, maritime safety, and marine environmental protection, as well as ports, waterways, and coastal security. DHS also trains law enforcement officers for many of the agencies that are members of the Federal Leadership Committee. However, DHS does not provide federal assistance for environmental or natural resource protection and restoration. Funding that may be used for compliance with environmental protection requirements in the Chesapeake Bay watershed is part of larger facility maintenance budgets that are directed for nationwide maintenance of DHS facilities.

Development of the Annual Action Plan

The Executive Order directed the FLC to “consult with stakeholders (including relevant state agencies) and members of the public in developing the Action Plan and Annual Progress Report.” The lead agency for each goal area or supporting strategy took responsibility for carrying out overall consultation with states and other key stakeholders during the development of the action plan. Consultations took place from July through September 2010. Agencies provided briefings and received feedback from numerous state agencies and organizations including:

- The Chesapeake Bay Program Management Board (including state secretaries)
- Chesapeake Bay Program advisory committees: Citizens' Advisory Committee, Local Government Advisory Committee, and Scientific and Technical Advisory Committee
- Chesapeake Bay Goal Implementation Teams for Water Quality, Sustainable Fisheries, and Habitat
- Chesapeake Treasured Landscape Initiative Partners meetings
- Broad-based, regional partnership organizations such as the Atlantic Coast Joint Venture, Black Duck Joint Venture, and the Eastern Brook Trout Joint Venture
- Direct consultations with states and partners on individual actions

The FLC plans to develop and release future annual action plans based on the most effective alignment with key information such as the release of the President's Budget; these action plans will be available to the general public on line.

Progress Reports

The Executive Order directs the FLC to 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." These progress reports will help assess the success of the FLC agencies' efforts in implementing the actions identified in annual action plans and provide the agencies with a regular opportunity to adjust their implementation efforts to maximize success. The FLC is also working with the states to consider how to best align the FLC's annual progress report with the Chesapeake Bay Program's annual *Bay Barometer* for subsequent progress reports.

Because the FY 2011 is the first full implementation year for the EO Strategy, the FLC plans to release the first annual progress report early in 2012. The Executive Order also directs the FLC to provide opportunities for the states, the District, the Chesapeake Bay Commission, key stakeholders, and the public to review and comment on drafts of the Annual Progress Report.

Public Comment

The FLC welcomes public comment on this Action Plan. Please submit your ideas and suggestions anytime in the 30 days following the September 30, 2010, release of this document via <http://executiveorder.chesapeakebay.net/>. The Federal Leadership Committee is particularly interested in comments that will help improve the development of future Action Plans, including the level of detail needed, format, quantity of information included, timing of Action Plans, as well as how to involve the Bay watershed community in development of future plans. These comments will be used to influence development of the FY 2012 Action Plan.

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Fiscal Year 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

Restore Clean Water

WQ.1 Implement the Chesapeake Bay TMDL, a rigorous accountability framework for reducing pollution to ensure that all practices needed to reduce pollution to meet Bay water quality standards are in place by 2025

#	Action Name	Lead	Due
1	Complete final Bay TMDL including responding to comments	EPA	
2	Continue to provide the states with support in their development of the Phase 2 WIPs, as the states take their allocations down to the county scale and individual source sectors. Review Phase II WIPs. Modify/Public Notice TMDL as necessary	EPA	Sep 2011
3	Continued development (early FY11) and then application (throughout FY11) of the Scenario Builder to support the states completion of their Phase I WIPs (due November 2010) and development of their Phase 2 WIPs (due November 2011).	EPA	Nov 2011
4	Advance studies to evaluate the management of sediments behind Conowingo Dam and from within the watershed.	USACE	Sep 2011

WQ.1.a Federal agencies will contribute to Watershed Implementation Plans

#	Action Name	Lead	Due
1	Each Federal agency will provide spatial property boundary data for their respective facilities and lands to EPA to determine baseline pollutant load estimates through modified version of Phase 5.3 watershed model	EPA	Oct 2011
2	Include federal facilities load allocations in the appropriate State Phase II WIPs or develop Federal Implementation Plan (FIP) that meets load allocations proposed by State or District	EPA	Nov 2011
3	Identify pollution reductions from point and non-point sources associated with Federal lands, and commit to actions, programs, policies and resources necessary to reduce N, P, and sediment by specific dates	EPA	Nov 2011

Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

WQ.1.b	Create a system for tracking and reporting for TMDL pollution reduction commitments and two-year milestone commitments.
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#	Action Name	Lead	Due
1	Develop and implement a Bay Tracking and Accounting System (Bay TAS)	EPA	Jan 2011
2	Completing work on setting up the NEIEN (National Environmental Information Exchange Network) system for the Bay watershed for receipt of implementation tracking data from the states from a wider array of sources in a consistent format for input into the Scenario Builder, critical to supporting states work on their Phase 2 WIPs and getting the Bay Tracking and Accounting System (Bay TAS) operational post-December 2010.	EPA	Mar 2011
3	Initiate the development of 2 year milestones to begin CY 2012	EPA	Sep 2011

WQ.1.c	Improve mechanisms for tracking and forecasting land-use and land cover changes associated with water quality degradation.
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#	Action Name	Lead	Due
1	USGS will improve its initial urban landuse change analysis and incorprote into USGS land-change model to improve forecasting of land use change in urban and agricultural areas and work with EPA to forecast changes using the CBP watershed model. Additional improvement will be made in later years.	USGS	Dec 2010
2	See actions related to WQ1b (Bay Tracking and Accounting System and the National Environmental Information Exchange Network) and WQ7 (tracking and reporting systems for agricultural conservation practices).	EPA	Nov 2011
3	Statistically align forested areas as defined by on-the-ground monitoring (by forest researchers), and satellite-derived forest (vs. tree cover) as used in CBP LU/LC maps and track avoided deforestation.	FS	Sep 2011

WQ.2	Take regulatory and other actions to support state and District plans to implement the TMDL.
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#	Action Name	Lead	Due
1	Providing contractual support to Region 3 in early FY11 for preparing responses to anticipated thousands of comments on the draft Bay TMDL following the end of the 45 day public comment period.	EPA	FY11

WQ.2.a	Implement current regulations for concentrated animal feeding operations (CAFOs) and propose new regulations to more effectively achieve pollutant reductions necessary to meet the Chesapeake Bay TMDL.
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#	Action Name	Lead	Due
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Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

	1	Complete Technical Standards review and engage states in necessary revisions to meet TMDL goals in CAFO Permits. Seek corporate/trade group partnerships to go beyond compliance requirements and work with growers. Conduct a review of each state's CAFO program by 12/30/2010.	EPA	Sep 2011
	2	Complete CAFO designation strategy and field test	EPA	Sep 2011
	3	EPA will work in FY11 to develop new CAFO regulations by June 2012 to more effectiely address pollutant reductions necessary to meet the Chesapeake Bay TMDL. (Final rule to be adopted by 2014).	EPA	Jun 2012
WQ.2.b	Implement improvements to the current stormwater program and initiate new national stormwater rulemaking with Chesapeake Bay watershed provisions.			
	#	Action Name	Lead	Due
	1	Initiate review all MS4 and Stormwater Construction Permits in the Bay Watershed for TMDL conformance and implementation Urban Stormwater Guidance Issued 7/31/2010 in review of stormwater permits. Provide Training to states and permittee on MS4 requirements.	EPA	Sep 2011
	2	EPA intends to propose revisions by September 2011 to the national stormwater regulations, including establishing specific requirements for stormwater discharges from new and redeveloped sites. EPA intends to propose additional provisions specific to the Chesapeake Bay.	EPA	Sep 2011
	3	Develop Stormwater Designation strategy for high priority sources and implement. Update requirements for EPA's Construction General Permit and Multisector Stormwater General Permit to be consistent with Bay TMDL	EPA	Sep 2011
WQ.2.c	Launch the Chesapeake Bay/ Anacostia Green Streets-Green Jobs Initiative			
	#	Action Name	Lead	Due
	1	Design and Implementation of strategy, training and outreach and management of interagency partnership	EPA	Sep 2011
	2	Organize and hold Green Streets-Green Jobs training forums	EPA	FY11
	3	Collaborate with Chesapeake Bay Trust, Maryland DNR and others on a green design competition funded through a competitive grants.	EPA	FY11

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

WQ.2.d	Engage in early dialogue with Bay states and the District regarding how EPA will determine if state programs achieve TMDL pollution reduction goals and meet minimum federal program elements for stormwater and Concentrated Animal Feeding Operations.
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#	Action Name	Lead	Due
1	Conduct field effectiveness studies of state non-CAFO programs to assess compliance rate with state regulations and effectiveness of controls in priority states.	EPA	Sep 2011
2	Conduct Review of Headwater State Stormwater Programs to assess the effectiveness of the state programs		Sep 2011

WQ.2.e	Reduce pollution from wastewater dischargers.
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#	Action Name	Lead	Due
1	Initiate review of all proposed new or reissued NPDES permits for significant point source discharges of nitrogen, phosphorous, and sediment for TMDL consistency	EPA	Sep 2011
2	Monitor implementation of compliance schedules in any NPDES permits or enforcement orders for significant municipal and industrial wastewater dischargers and conduct annual reviews to ensure sources are in compliance with TMDL based limits	EPA	Sep 2011
3	Review all significant permits to insure that TMDL wasteload allocations have been incorporated.	EPA	Sep 2011

WQ.2.f	Reduce pollution from septic systems.
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#	Action Name	Lead	Due
1	Develop outline of model state program for internal EPA review	EPA	Sep 2011
2	Develop first draft of model state program for review by EPA and other federal agency representatives	EPA	Sep 2011

WQ.2.g	Reduce pollution from atmospheric deposition.
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#	Action Name	Lead	Due
1	Propose NOxSOx secondary national ambient air quality standards by July 11, 2011. (\$438,000)	EPA	Jul 2011
2	Finalize Transport Rule by summer 2011.	EPA	Jul 2011

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

	3	Conduct evaluations of large NOx-emitting sources in NSR priority sectors in Bay airshed and pursue enforcement. Perform modeling to substantiate endangerment to the Bay from nitrogen deposition of broiler house ammonia emissions.	EPA	FY11
WQ.2.h	Reduce costs and provide flexibility through trading and development of protocols and programs for offsetting new and expanded discharges of nutrients and sediment.			
	#	Action Name	Lead	Due
	1	Develop a state trading and offset program review program to ensure that goals of program are being met. To be implemented in FY'12	EPA	FY11-12
	2	Establish Trading mechanism for existing discharges of N and P to meet load and wasteload allocations established in Bay TMDL	EPA	FY11
WQ.2.i	Reduce pollution through enforcement and compliance efforts.			
	#	Action Name	Lead	Due
	1	Implement Bay Enforcement Strategy for Stormwater, Agriculture, and Wastewater. Conduct inspections/pursue enforcement at non-compliant stormwater point sources within geographic areas critical to restoration of Bay. Take enforcement action in accordance with serious of violations. Address significant non-compliance at significant WWTPs.	EPA	Sep 2011
	2	Conduct enhanced SRF and State SNC oversight with emphasis on Bay Dischargers. Prioritize Bay Stormwater, CSO and SSO facilities in Bay Watershed for action	EPA	Sep 2011
WQ.2.j	EPA will coordinate with the Clean Water State Revolving Fund managers to build cooperation and partnership in using resources to better protect the Chesapeake Bay.			
	#	Action Name	Lead	Due
	1	Engage Region 3's State SRF programs to discuss near and long term SRF plans to integrate Bay protection/restoration goals w/ other SRF program priorities. Initiate opportunities to implement SRF plans identified.	EPA	Sep 2011
	2	As a pilot project, EPA will provide technical assistance to MDE for proposed changes that will encourage use of Clean Water SRF to fund projects that promote sustainable communities	EPA	Sep 2011
WQ.2.k	Provide states with additional grants for regulatory and accountability programs.			
	#	Action Name	Lead	Due

Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

	1	Provide support to states through Chesapeake Bay Regulatory and Accountability Program grants.	EPA	Sep 2011
	2	Target other CWA funds, such as Chesapeake Bay Implementation Grants, to better protect the Bay and its tributaries.	EPA	Sep 2011
	3	Use other national CWA base programs such as the nonpoint source grant program established in Section 319, Clean Water State Revolving Fund allocations or the state planning grants under Section 106 for Chesapeake Bay watershed implementation activities	EPA	Sep 2011
WQ.2.1	Pursue funding of stream restoration grants.			
	#	Action Name	Lead	Due
	1	Complete an assessment of options to direct existing funds to support increased funding for stream restoration	EPA	Dec 2010
WQ.3	Ensure the federal government leads by example in reducing pollution from federal lands and facilities.			
	#	Action Name	Lead	Due
	1	Work with states to ensure Federal Facilities achieve and maintain compliance with regulatory requirements through a federal compliance workgroup	EPA	Sep 2011
	3	Pursue Federal Facilities Compliance Agreements where appropriate	EPA	Sep 2011
WQ.3.a	Implement the Energy Independence and Security Act, Section 438.			
	#	Action Name	Lead	Due
	1	Develop agency-wide policy to ensure implementation of EISA Section 438 stormwater requirements	EPA	Dec 2010
WQ.3.b	Implement sustainable land management practices and programs into all federal capital improvements, public works management and energy management projects.			
	#	Action Name	Lead	Due
	1	Work with Federal Agencies with 10 or more acres in the Chesapeake Bay watershed to initiate implementation of Section 502 Guidance	EPA	Sep 2011
	2	Federal Agencies will incorporate Section 502 Guidance considerations as part of their load reductions strategies in the state Phase II WIPs	EPA as facilitator	Sep 2011

Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

WQ.3.c	Ensure that stormwater impacts are minimized as part of environmental review of federal-aid highway projects and other federally-assisted transportation projects.		
	# Action Name	Lead	Due
	1 DOT will provide technical assistance to state DOTs as requested and continue encouragement of using federal transportation funds eligible under environmental restoration for projects to address stormwater management problems.	DOT	Sept 2011
WQ.4	Focus resources on priority watersheds and practices for agriculture to assist states in implementing their Watershed Implementation Plans (WIPs)		
	# Action Name	Lead	Due
	1 See tasks under WQ 4 a-b		
WQ.4.a	Target efforts at watersheds that contribute the most nitrogen, phosphorus, and sediment.		
	# Action Name	Lead	Due
	1 Obtain and evaluate new datasets (such as USGS SPARROW sediment and high resolution N and P results, vulnerable soils, priority fish and wildlife habitat layers) that will inform review of priority watershed locations. Review FY 2010 priority watershed locations and update as needed for FY 2011. Work with USGS and other partners to further focus conservation practices to the highest N, P, and sediment yielding areas within priority areas (see related action WQ 10 a).	USDA NRCS	Dec 2010
	2 Align targeted watershed efforts with state watershed implementation plans	USDA NRCS	Sep 2011
	3 Strive to obligate 100% of FY 2011 Chesapeake Bay Watershed Initiative funds in targeted priority watersheds. Use other USDA programs (EQIP, AMA, WHIP, CTA) as appropriate to plan and implement additional conservation practices in the Watershed.	USDA NRCS	Sep 2011
	4 Scope and coordinate studies to reduce sediment behind Conowingo Dam. Advance low impact development projects using prioritized watersheds identified in the Anacostia watershed restoration plan.	USACE	Sep 2011
WQ.4.b	Identify the most effective conservation practices.		
	# Action Name	Lead	Due

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

	1	Review FY 2010 priority practices in light of USDA Conservation Effects Assessment Project results, USGS SPARROW data and other new data to determine effects of these practices. Begin process of quantifying reductions in N, P, and sediment associated with particular conservation practices. Explore implications of SPARROW models and watershed properties on conservation practices.	USDA NRCS	September 2011
	2	Work with States to ensure that where possible, State priority practices are included in the Federal priority practice list	USDA NRCS	Dec 2010
	3	Provide assistance to state and local governments as needed to review and recommend agricultural conservation practices that most effectively reduce N, P, and sediment loads to the Bay for watershed implementation plans.	USDA NRCS	May 2011
	4	Advance low impact development projects using prioritized watersheds identified in the Anacostia watershed restoration plan.		
WQ.5	Accelerate conservation adoption by working with partners to leverage conservation funding and simplify program participation.			
	#	Action Name	Lead	Due
	1	See tasks under WQ 5 a-e.		
WQ.5.a	Leverage funding for conservation in the Chesapeake Bay watershed.			
	#	Action Name	Lead	Due
	1	Publish FY 2011 CCPI request for proposals. NRCS anticipates up to \$5,000,000 may be available in potential CCPI grants in FY 2011.	USDA NRCS	Dec 2010
	2	FWS PFW program will partner with NRCS and others to identify projects that benefit federal trust species and improve water quality and to promote citizen-centered conservation.	FWS	Sep 2011
WQ.5.b	Utilize EPA funding for agriculture challenges.			
	#	Action Name	Lead	Due
	1	EPA will fund projects to address key agricultural challenges in the Chesapeake Bay through the Innovative Nutrient and Sediment Reduction Program, CWA S117 and other grant programs.	EPA	Sep 2011
WQ.5.c	Establish showcase projects in small watersheds.			
	#	Action Name	Lead	Due

Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

	1	Prepare annual work plans for FY11 for Showcase Watershed projects. One key task in FY 2011 will be development and implementation of monitoring strategies (see related actions in WQ 5 d and WQ 13).	USDA NRCS	Dec 2010
	2	Conduct outreach to farmers in showcase watersheds. The outreach goal for the Upper Chester and Conewago Watersheds is to contact 90% of identified farmers. The outreach goal for the Smith Creek Watershed is to contact the 100 largest landowners in the watershed.	USDA NRCS	Sep 2011
WQ.5.d	Monitor the results of showcase projects.			
	#	Action Name	Lead	Due
	1	USGS will work with NRCS to plan monitoring and assessment in 3 showcase watersheds and implement monitoring and assessment in the 3 showcase watersheds. NRCS will provide conservation practice data and USGS will institute water-quality monitoring in FY2011 in all three watersheds. USGS and NRCS will collaborate to initiate the evaluation of changes in water quality. Initial project will be a study plan among collaborators. USGS funds shown in WQ13.	USGS	Mar 2011
	2	FS will provide contextual setting of the showcase projects, analyzing existing data in the CBP watershed framework to describe how the showcase projects are similar and different from the surrounding landscape.	FS	Sep 2011
WQ.5.e	Simplify conservation planning for producers.			
	#	Action Name	Lead	Due
	1	Limited production release of the CDSI Financial Assistance Desktop Version 1.0 (to selected states across the country). The Conservation Delivery Streamlining Initiative is a national project designed to streamline conservation planning and contracting for NRCS staff and cooperators.	USDA NRCS	Jan 2011
	2	Limited production release of the CDSI Client Gateway Version 1.0 (to selected states across the country). The Conservation Delivery Streamlining Initiative is a national project designed to streamline conservation planning and contracting for NRCS staff and cooperators.	USDA NRCS	Jan 2011
	3	Develop and release a revised resource concern and planning criteria list to support CDSI tools. The Conservation Delivery Streamlining Initiative is a national project designed to streamline conservation planning and contracting for NRCS staff and cooperators.	USDA NRCS	Dec 2011
WQ.6	Accelerate development of new conservation technologies.			
	#	Action Name	Lead	Due
	1	See tasks under WQ 6 a-b.		

Chesapeake Bay Watershed FY 2011 Action Plan

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

WQ.6.a	Fund research and development of conservation technology.		
	# Action Name	Lead	Due
	1 Release Conservation Innovation Grants Chesapeake Bay request for proposals. NRCS anticipates up to \$5,000,000 may be available for potential CIG grants.	USDA NRCS	Nov 2010
	2 Evaluate priority funding needs for conservation technology to ensure that funding resources are effectively allocated.	USDA NRCS	Sep 2011
WQ.6.b	Evaluate effectiveness of next generation conservation tools.		
	# Action Name	Lead	Due
	1 Hold workshop on opportunities for enhancing agricultural conservation to meet 2025 goaline.	EPA	Oct 2010
	2 Use Conservation Effects Assessment Project results, GoalLine 2025 workshop information, and other data to begin the process of developing a method to assess the effectiveness of new conservation tools and practices in reducing nitrogen, phosphorus, and sediment losses.	USDA NRCS	Sep 2011
WQ.7	Develop a system of accountability for tracking and reporting conservation practices.		
	# Action Name	Lead	Due
	1 Meet with state and local partners to expand existing tracking and reporting systems for agricultural conservation practices. (see also tasks under WQ 1b and 1c).	EPA	Sep 2011
WQ.7.a	Expand existing tracking and reporting sytems for conservation practices, best management practices, and treatment technologies.		
	# Action Name	Lead	Due
	1 Review and finalize NEIEN protocols to facilitate data exchange and incorporate state data into the Bay model.	EPA	Sep 2011
	2 Implement data sharing agreements with USGS to effectively transfer USDA conservation practice data into the Bay model.	USDA NRCS	Sep 2011
	3 NRCS and EPA will continue to review and evaluate CEAP and Bay model results to determine the most appropriate way to model agricultural practices in the Bay model	USDA NRCS	Sep 2011
	4 USGS will work with FSA and NRCS to store information on agricultural BMPs and provide to EPA for the watershed model. USGS will work to get up initial database in FY2011.	USGS	Sep. 2011

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WQ.7.b	Develop and implement a method for tracking and reporting voluntary conservation practices on agricultural land		
	# Action Name	Lead	Due
	1 Begin developing protocols for reporting voluntary conservation practices that were applied without federal or state financial assistance. NEIEN data transfer standards will be used. The protocol should include a procedure for assessing these practices and determining if they are 1) functioning and 2) meet technical standards. The protocol should indicate where landowners can go to report their data (e.g., a website, a local NRCS or FSA office, the county extension agent, etc.). This work is being funded through an agreement with NACD.	USDA NRCS	Sep 2011
WQ.8	EPA, DOI, and NOAA will work with state and local governments and stakeholders to expand understanding of the extent and seriousness of the toxic contaminant problem in the Bay and its watershed and to develop contaminant reduction goals by 2013		
	# Action Name	Lead	Due
	1 Implement Toxics workplan; EPA, USGS, FWS, & NOAA workgroup will meet with federal and state managers to discuss critical information needed to develop specific toxic outcomes for the Toxics report.	EPA	Sep 2011
	2 USGS working with USFWS will conduct sampling of selected fish and wildlife species in the Potomac watershed. The sampling will focus on endocrine-disrupting chemicals in fish, wildlife, water, and sediment. The sampling design will address potential sources of the compounds including waste-water treatment plants and confined feeding operations. The USGS will also summarize recent sampling results from the Potomac watershed on fish health condition and endocrine-disrupting compounds.	USGS	Sep 2011
WQ.9	EPA will work with DOI, states, and stakeholders to develop toxic contaminant strategies by 2015		
	# Action Name	Lead	Due
	1 Work with EPA to reconcile implementation of FWS SmaRxt Disposal and USEPA pharmaceutical takeback programs	FWS	Sep 2011
	2 Review and modify workplan to ensure effectiveness of activities in priority areas to inform strategy development; EPA will work with partners to begin development of a prioritization process that will help identify the most likely regulatory and voluntary controls that can be used to reduce toxic contaminants.	EPA	Sep 2011

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	3	EPA will work with partners to begin development of a prioritization process that will help identify the most likely regulatory and voluntary controls that can be used to reduce toxic contaminants. The initial findings would be part of the 2012 report (see above) that includes an assessment of progress toward management actions take for the Chesapeake Bay Toxics Reduction and Prevention Strategy	EPA	
WQ.10	Improve computer models used to guide restoration activities.			
	#	Action Name	Lead	Due
	1	USGS will work with EPA to improve models to guide water-quality restoration. In 2011, USGS will improve SPARROW nutrient models for Chesapeake Bay and models to estimate changes in water-quality trends and work with EPA to provide results to states for watershed implementaiton plans (see QW10a) and to NRCS for priority watersheds (see QW 10a and WQ4a). USGS will also improve its land-change model. (see WQ 1c.).	USGS	Sep 2011
WQ.10.a	Use results from watershed models to prioritize locations of actions.			
	#	Action Name	Lead	Due
	1	USGS and EPA will work together to provide seledced results from the CBP watershed model and new SPARROW sediment and existing nutrients models to help states develop the Phase 2 watershed implementation plans. USGS will also collaborate with NRCS to use results to focus conservation practices in agrictural priority watersheds. Selected results will be put into the USGS COAST decision tool for improved access to model results. USGS will establish a decision-support specialist to closely interact with the states and NRCS to apply the results. [USGS funds reflected under WQ10].	USGS	Dec 2010
	2	Provide results from updated CBP watershed model to help agencies and states focus water quality actions in areas of highest nutrient and sediment loads in the Bay.	EPA	Sep 2011
WQ.10.b	Develop groundwater models.			
	#	Action Name	Lead	Due
	1	USGS will release a ground-water model of the MD eastern shore. The results wil be used to help determine direct ground-water discharge of nitrogen to the Bay.	USGS	Sep 2011
WQ.10.c	Ensure availability of Bay forecasts and modeling results.			
	#	Action Name	Lead	Due

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	1 Engage with stakeholders (via workshop) to: (1) identify potential forecast models and define models, outputs, users and paths to operational status; (2) Support activities leading to pre-operational and operational implementation of ready models and forecasts; and (3) distribute pre-operational models for evaluation. This work will include coordination with partners to identify data-inputs. For example, USGS will provide results of loads to the Bay from River-input stations to help improve ecological forecasting.	NOAA	Sep 2011
	2 Specific examples of outputs for FY 2011 include: (1) NOAA will complete and validate habitat model for harmful algal bloom (HAB) species in the Bay (complete for one species, validate for 2 additional species.) (also supported by prior year appropriations); (2) NOAA will continue its research on how best to link freshwater inputs and models to estuary modeling capabilities to create Coast Estuary River Information Service (CERIS) for the Chesapeake Bay.	NOAA	Sep 2011
	3 NOAA will support research to implement a coupled Regional Ocean Modeling System-Water Quality hydrodynamic model for use in ecological forecasting. This research will expand hypoxia forecasting efforts for Chesapeake Bay to consider interactions between nutrient management trends and variable climatic conditions, and to determine the exposure of economically and ecologically important species to hypoxia (and co-occurring low pH) in the field.	NOAA	Sep 2011
WQ 11	Improve water-quality monitoring in the watershed		
	# Action Name	Lead	Due
	1 USGS will work with the EPA and the states to maintain the CBP nontidal network. Sites will be added out the outlets of up to 5 small watersheds to improve monitoring in agricultural and urban land use areas (related to item WQ 13).	USGS	Sep 2011
	2 Support state monitoring programs with grant funds.	EPA	Dec 2010
WQ 12	Improve tracking of management actions and land use activities.		
	# Action Name	Lead	Due
	1 See actions related to WQ1b (Bay Tracking and Accounting System and the National Environmental Information Exchange Network) and WQ7 (tracking and reporting systems for agricultural conservation practices).	EPA	Sep 2011
WQ 13	Monitor and assess restoration activities in small urban and agricultural watersheds.		
	# Action Name	Lead	Due

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	1	USGS and EPA will work together in 5 small watershed to plan and implement monitoring and assessment of water quality change (the 3 NRCS showcase watersheds and two urban watersheds). The USGS will enhance research of processes affecting nutrients and sediment in a subset of these watersheds. NRCS will provide improved reporting of BMP information in the showcase watershed and work with USGS to explain water quality change. USGS will also work to synthesize selected results existing small watershed studies (see SS 15).	USGS	Mar 2011
	2	Support state monitoring programs with grant funds. (*also see WQ14)	EPA	Sep 2011
	3	Baltimore Ecosystem Study (BES) will monitor and evaluate urban restoration activities in the Baltimore ecoregion, adopting an integrated research approach that utilizes ecological, social and economic data. Baltimore is one of two urban Long Term Ecological Research (LTER) projects in the US. The LTER boasts decades of research and should be one of the urban watersheds monitored for the EO.	FS	Sep 2011
WQ 14	Improve monitoring and assessment of stream conditions.			
	#	Action Name	Lead	Due
	1	Support state monitoring programs with grant funds.	EPA	Sep 2011
WQ 15	Improve monitoring of tidal waters.			
	#	Action Name	Lead	Due
	1	NOAA, through the CoastWatch East Coast Node, will distribute satellite remote sensing data products that provide information about chlorophyll a concentrations, temperature, and turbidity for the Chesapeake Bay.	NOAA	Jun 2011
	2	NOAA will coordinate with MD DNR to provide data to support improved detection of harmful algal blooms of the genus <i>Microcystis</i> .	NOAA	Dec 2010
	3	Support state monitoring programs with grant funds.	EPA	Sep 2011
WQ 16	Expand NOAA buoy system to improve water-quality monitoring and assess new sensors for monitoring emerging contaminants.			
	#	Action Name	Lead	Due
	1	NOAA will continue to operate and maintain Chesapeake Bay Interpretive Buoy System (CBIBS). In addition, and in cooperation with MD DNR, NOAA will begin to support water quality monitoring.	NOAA	Sep 2010

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WQ 17	Evaluate water-quality changes and progress to adjust management actions.		
	# Action Name	Lead	Due
	1 USGS, collaborating with EPA, will start a regional explanation of water-quality patterns on the Potomac basin in FY11. Additional watersheds will be assessed in 2012-2016.	USGS	Sep 2011
WQ 18	Ensure TMDL allocations account for climate change impacts.		
	# Action Name	Lead	Due
	1 Determine the climatological changes (temperature, wind, rainfall) likely to occur with climate change and, thru the use of the bay models, determine the changes that will occur in water quality at Bay TMDL loads and other scenarios		Sep 2011
	2 USGS will be conducting an initial analysis of changes in streamflow and nutrient loads under different climate change scenarios (funding and more information under CC11.	USGS	Sep, 2011

Funding Summary

Stream Restoration & Water Quality Outcome

Department	DOD
Agency	Total Funding
DOD (All Services except USACE)	\$6,723,062
DOD-USACE	\$10,000
Department Total	\$6,733,062
Department	DOI
Agency	Total Funding
FWS	\$442,264
USGS	\$1,078,000
Department Total	\$1,520,264
Department	DOT
Agency	Total Funding
DOT	\$175,000
Department Total	\$175,000
Department	EPA
Agency	Total Funding

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EPA	\$227,005,634
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Department Total	\$227,005,634
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Department	USDA
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Agency	Total Funding
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USDA FS	\$75,000
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USDA NRCS	\$100,000
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Department Total	\$175,000
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Outcome Total	\$235,608,960
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Agriculture Conservation Outcome

Department	DOI
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Agency	Total Funding
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FWS	\$40,000
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USGS	\$170,000
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Department Total	\$210,000
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Department	EPA
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Agency	Total Funding
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EPA	\$3,075,000
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Department Total	\$3,075,000
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Department	USDA
Agency	Total Funding
USDA FS	\$240,000
USDA NRCS	\$131,240,000

Department Total \$131,480,000

Outcome Total \$134,765,000

Science Supporting Water Quality Goal

Department	DOC
Agency	Total Funding
NOAA	\$2,255,000

Department Total \$2,255,000

Department	DOI
Agency	Total Funding
USGS	\$3,330,986

Department Total \$3,330,986

Department	EPA
Agency	Total Funding
EPA	\$7,214,932

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Department Total		\$7,214,932
Department	USDA	
	Agency	Total Funding
	USDA FS	\$120,000
Department Total		\$120,000
Outcome Total		\$12,920,918
Goal Total		\$383,294,878

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Recover Habitat

RH.1. Restore and protect priority Chesapeake marshes.

#	Action Name	Lead	Due
1	In FY11 Restore and protect 300 acres of priority Chesapeake Bay marshes for the American black duck and other wetland birds.	FWS	Sep 2011
2	Work with USGS and LCCs to determine how many acres of wetlands need to be restored, enhanced and protected to see gains in fish and wildlife habitat and water quality.	FWS	Sep 2011
3	Work with partners to develop detailed soil maps for the watershed where they don't exist (SSURGO).	FWS	Sep 2011

RH.2. Increase incentives for wetland restoration and enhancement on private land.

#	Action Name	Lead	Due
1	Restore/enhance 1,200 acres in priority watersheds, including Maryland's Lower Eastern Shore	FWS	Sep 2011
2	Implement at least 5 new PFW agreements per state to restore wetlands on private lands	FWS	Sep 2011
3	In cooperation with the States, apply for NAWCA small grant and Coastal grant to combat the invasive weed Phragmites on 500 acres of Chesapeake Bay wetlands	FWS	Sep 2011
4	Use the USDA Wetlands Reserve Program to restore, protect, and enhance wetlands on private lands in the Chesapeake Bay Watershed.	USDA NRCS	Sep 2011

RH.3. Strengthen federal coordination on permits that impact wetlands.

#	Action Name	Lead	Due
1	FWS will work with SRBC Water Quality Monitoring Network on minimum base flow for groundwater recharge in the Susquehanna to sustain floodplain connectivity	FWS	April 2011

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	2	NOAA's Northeast Regional Office will work to further coordination with other regulatory agencies by: (1) initiating discussions on the benefits of programmatic consultations; (2) recommending an approach to facilitate such programmatic consultations; (3) renewing its Memorandum of Agreement with the USACE to provide enhanced authority for protecting priority habitats used by NOAA's trust resources; and (4) keeping staff from USACE districts, Coast Guard and other regulatory agencies updated on stewardship requirements of applicable laws/regulations (e.g., Magnuson-Stevens Fishery Conservation and Management Act, Fish and Wildlife Coordination Act). In addition, NOAA will retain an up to date tabulation of the amount of Endangered Species Act critical habitat placed under threat and the amount of habitat saved.	NOAA	Sep 2011
	3	Provide outreach opportunities designed to educate the public on various aspects of the USACE Regulatory program including jurisdictional authorities over waters of the United States and their adjacent wetlands.	USACE	Sep 2011
RH.4.	Accelerate application of Conservation Reserve Enhancement Program (CREP) to achieve state goals for riparian forest buffer adoption.			
	#	Action Name	Lead	Due
	1	Develop and distribute outreach materials for CREP/forest buffers (e.g., videos, posters, etc.)	FS	
	2	Hold educational meetings with TSP's and partners in each state to discuss the relevance of CREP/forest buffers to Bay and state goals.	FS	Sep 2011
RH.5.	Restore forest buffers in priority watersheds.			
	#	Action Name	Lead	Due
	1	Develop and overlay forest buffer priority map with CBWI priority watersheds map.	FS	Sep 2011
	2	Develop, test, and distribute criteria for determining which riparian areas are the highest priority for restoration.	FS	Sep 2011
	3	Restore 35 acres of riparian forest at Eastern Neck NWR to improve water quality and create additional high quality habitat for migratory birds and other wildlife	FWS	Sep 2011
RH.6.	Explore alternative payment mechanisms for incentivizing the installation of targeted riparian forest buffers.			
	#	Action Name	Lead	Due
	1	Meet with experts to discuss how criteria for placing highly-effective buffers on private land could be used in various agency programs.	FS	May 2011

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	2	Produce option paper on payment mechanisms, including how to minimize the costs associated with buffer restoration while maximizing the pounds of pollutants removed.	FS	March 2011
RH.7.	Enhance technical capacity for riparian buffer restoration.			
	#	Action Name	Lead	Due
	1	Increase technical assistance in watersheds with species-of-interest (e.g., Upper James where rare, freshwater mussels will be protected by buffer restoration).	FWS	July 2011
	2	Assess impact of current partnership initiative that provides additional direct landowner assistance in MD.	FS	Sep 2011
	3	Build and support collaborative partnership to provide additional forestry technical assistance to landowners in targeted landscapes.	FS	Sep 2011
RH.8.	Remove stream barriers and provide fish passage.			
	#	Action Name	Lead	Due
	1	Working in partnership, NOAA, FWS, NRCS, and the States of MD, VA, and PA will open 67 miles for fish passage to benefit anadromous and resident fish species.	NOAA FWS	Sep 2011
	2	Complete MD Fish Passage Prioritization (deliverable - prioritized list of MD fish barrier projects).	NOAA and FWS	Oct 2010
	3	Begin VA and PA Fish Passage Prioritization (deliverable - prioritized list of VA fish barrier removal projects milestone will be addressed in 2012 Action Plan; PA in 2012/2013 action plan).	NOAA and FWS	
	4	Carryout environmental clearance for providing upstream passage for American Eel at Potomac River dams 4 & 5 along the C&O Canal NHP.	NPS	Sep 2011
RH.9.	Document return of fish and mussels to opened stream reaches.			
	#	Action Name	Lead	Due
	1	Conduct fish and freshwater mussel surveys above sites where barriers have been removed in the past 5 years	FWS	Sep 2011
	2	Monitor effectiveness of fish passage structures that have been installed in the last 5 years	FWS	Sep 2011
	3	Develop standard sampling techniques to assess juvenile recruitment from newly accessible diadromous fish spawning and rearing habitat	FWS	Sep 2011

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RH.10.	Combat invasive species that threaten habitat.		
#	Action Name	Lead	Due
1	Implement actions in the snakehead management plan, including salinity and temperature tolerance studies, and collaborate with NPS to reduce spread of snakehead through the Chesapeake & Ohio Canal (Fisheries). With the Aquatic Nuisance Species Task Force/Mid-Atlantic Panel, develop and deploy strike team for early detection/rapid response on 11 national wildlife refuges and surrounding private lands (Refuges). Continue eradication of nutria (Ecological Services base funding) and work with USGS to monitor wetland recovery. Work with partners to address C. ariakensis concern (Fisheries). Restore/enhance 50 acres in WV through Potomac Highlands Cooperative Weed Pest Management Initiative.	FWS	Sep 2011
2	NOAA, Sea Grant, state representatives from Chesapeake Bay watershed states, the Mid Atlantic ANS Panel and others will identify and initiate research together to identify ways to assess and interdict the live bait pathway of invasion in the mid-Atlantic area. Conduct research prioritization and research project selection. (also supported by prior year appropriations)	NOAA	Sep 2011
3	Actively manage invasive species on flood risk management/reservoir projects.	USACE	Sep 2011
4	Carry-out invasive species eradication efforts at National Parks and map new invasive species occurrences.	NPS	Sep 2011
RH.11.	Restore forest habitat in priority areas.		
#	Action Name	Lead	Due
1	Convene interested parties to discuss targeted forest restoration and begin to prepare Strategy.	FS	April 2011
2	Identify and map targeted areas for restoration. Example: FWS will develop and implement priority projects to meet habitat needs of various migratory birds; restore/enhance 1600 forest acres in VA/MD/DE, including 31 acres at Eastern Neck NWR.	FS USGS FWS	Sep 2011
3	Target a portion of an existing cooperative grant program to reforest large private lots currently managed as lawn.	FS	Sep 2011
RH.12.	Restore living shorelines.		
#	Action Name	Lead	Due

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	1	Provide technical expertise on specific engineering designs for living shoreline projects and complete funded living shoreline projects (e.g., Jamestown r-H Phase 2 (200 linear feet/.25 acres), Haven Creek (800 LF, .9 acres, 500 feet in VA by FWS).	NOAA and FWS	Sep 2011
	2	Complete living shoreline ecological monitoring (deliverable - report comparing results of living shoreline techniques).	NOAA	Sep 2011
	3	Begin VA Living Shoreline prioritization (deliverable - prioritized list of VA living shoreline projects on public property and protocol for prioritizing projects and begin to apply the protocol to public property in VA). In MD, USACE will finalize and coordinate with local communities to expand the use of the "Chesapeake Bay Shoreline Erosion in Maryland: A Management Guide."	NOAA USACE	Dec 2011
RH.13.	Restore island habitats in the Bay.			
	#	Action Name	Lead	Due
	1	Continue Island design and construction through Poplar Island Expansion and initiate design for Mid-Bay Island	USACE	Sep 2011
	2	Host and Facilitate monthly educational field trips to Poplar Island.	USACE	Sep 2011
	3	Restore tidal wetlands. USGS and FWS will assess relative value of poplar island restoration to migratory birds in support of restoration of island habitats.	USGS FWS	Sep 2011
RH.14.	Mitigate impacts of highway projects on habitat.			
	#	Action Name	Lead	Due
	1	Number of plans initiated. DOT and Eco-Logical partner agencies will continue encouragement of the Eco-Logical approach.	DOT	Sep 2011
	2	FWS will continue to provide consultation on habitat mitigation for DOT and SHA partners within base funds	FWS	Sep 2011
RH.15.	Improve forest buffer and wetland habitat mapping.			
	#	Action Name	Lead	Due
	1	Convene federal partners to assess current wetland and stream mapping technical capabilities, related efforts and stakeholder needs and develop an implementation work plan for FY '12.	FS	May 2011
	2	Establish wetland geospatial specialist and technician positions and purchase hardware and software necessary to implement FY '12 work plan.	?	Sep 2011

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	3	Collect and analyze baseline in situ and remotely sensed data to train staff and bolster the calibration and initial validation of map products.	FS	Sep 2011
RH.16.	Provide forest mapping tool to watershed groups and local governments.			
	#	Action Name	Lead	Due
	1	Load fully-functional tool to web.	FS	Feb 2011
	2	USGS will provide a land cover mapping tool for forest and impervious surface and will hold a series of workshops to demonstrate use of the tool.	USGS	July 2011
RH.17.	Improve tools for streams and fish passage.			
	#	Action Name	Lead	Due
	1	Develop a stream assessment tool that identifies critical functions of streams and thresholds of fluvial geomorphologic stability and biological health	FWS	Sep 2011
	2	Develop a drainage-wide decision support system to help prioritize habitat restoration and AMD mitigation in the upper watershed	FWS	Sep 2011
	3	Conduct vulnerability assessment for brook trout drainages in upper Susquehanna River watershed (PA and NY)	FWS	Sep 2011
RH 18.	Integrate watershed planning for key tributaries.			
	#	Action Name	Lead	Due
	1	Advance watershed plans for the Anacostia, Lynnhaven and Upper Rappahannock.	USACE	Sep 2011
	2	Establish an internal team to work as a community of practice on IWRM issues in Chesapeake Bay.	USACE	Sep 2011
	3	Establish wetland geospatial specialist and technician positions and purchase hardware and software necessary to implement FY '12 work plan.		
	4	Commence watershed feasibility in Southern PA to assist in meeting sediment TMDLs		
RH.19.	Improve monitoring of habitats.			
	#	Action Name	Lead	Due

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	1	FWS will develop an improved rapid method to monitor stream restoration projects; NOAA will assess its programs to determine the best approaches to improve monitoring for habitats, and will provide information on those programs and their capabilities to the Chesapeake Monitoring Alliance.	FWS NOAA	Sep 2011
	2	NOAA will establish monitoring programs to assess changes in vegetative communities, focusing on programs in the VA and MD National Estuarine Research Reserves (see action CC-7, regarding the estuarine monitoring network).	NOAA	Sep 2011
	3	Work with the Susquehanna River Basin Commission and/or other watershed commissions or agencies to improve monitoring of the Susquehanna River, Potomac River, and Annacostia River, and other Chesapeake Bay tributaries (for example, by deploying real-time water quality monitoring stations, etc.).	USACE	Sep 2011
	4	Complete five year monitoring of Heritage Island wetland restoration project at National Capital Parks East.	NPS	Sep 2011
RH.20.	Improve tracking of wetland restoration.			
	#	Action Name	Lead	Due
	1	Collect and analyze baseline in situ and remotely sensed data to train staff and bolster the calibration and initial validation of map products.	EPA	
RH 21.	Improve baseline data for wetlands.			
	#	Action Name	Lead	Due
	1	Update the Chesapeake Bay watershed NWI maps to the National Wetlands Mapping Standard, beginning with targeted watersheds	FWS	Sep 2011
RH 22.	Predict impacts of stressors at the land-water interface.			
	#	Action Name	Lead	Due
	1	Complete year 1 field sampling effort (sub-estuarine field sites for Submerged Aquatic Vegetation, Phragmites, macrofauna). Note: sampling started in FY 2010, first year of project. (also supported by prior year appropriations)	NOAA	Dec 2010
	2	Share the information derived from the year one sampling effort with natural resource management representatives and other interested stakeholders, to gain input regarding the development of appropriate research products.(also supported by prior year appropriations)	NOAA	April 2011

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	3	USGS will work with NOAA and SERC to assess factors affecting shallow water habitats. USGS focus is on habitat for waterbirds.	USGS	Sep 2011
RH 23.	Evaluate use of Coastal and Marine Spatial Planning in the Bay.			
	#	Action Name	Lead	Due
	1	Complete evaluation of potential to support Coastal and Marine Spatial Planning in the Chesapeake Bay with State partners, and consult with other federal agencies as appropriate.	NOAA	March 2011
	2	Determine the appropriate type and level of support NOAA (and other federal agencies) could provide to States to support Coastal and Marine Spatial Planning in the Chesapeake Bay.	NOAA	Jun 2011
RH 24.	Evaluate impacts of river flow and sediment build-up on habitat.			
	#	Action Name	Lead	Due
	1	Work with SRBC and ICPRB to advance low flow studies	USACE	Sep 2011
	2	Advance evaluation of sediment behind the Conowingo Dam.	USACE	Sep 2011
	3	USGS will provide results from a project on the potential changes to sediment in the Susquehanna basin due to climate change and land-use change in the Bay watershed(see CC11).	USGS	Sept 2011

Funding Summary

Wetland Outcome

Department	DOC	
Agency		Total Funding
NOAA		\$82,500
Department Total		\$82,500
Department	DOD	
Agency		Total Funding
DOD-USACE		\$10,000
Department Total		\$10,000
Department	DOI	
Agency		Total Funding
FWS		\$2,434,289
Department Total		\$2,434,289
Department	USDA	
Agency		Total Funding
USDA NRCS		\$7,525,000

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Department Total \$7,525,000

Outcome Total \$10,051,789

Forest Buffers Outcome

Department	DOI	
	Agency	Total Funding
	FWS	\$569,472

Department Total \$569,472

Department	USDA	
	Agency	Total Funding
	USDA FS	\$260,000
	USDA NRCS	\$325,000

Department Total \$585,000

Outcome Total \$1,154,472

Fish Passage Outcome

Department	DOC	
	Agency	Total Funding
	NOAA	\$262,500

Department Total \$262,500

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Department	DOI
Agency	Total Funding
FWS	\$555,404
NPS	\$50,000

Department Total	\$605,404
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Department	USDA
Agency	Total Funding
USDA NRCS	\$100,000

Department Total	\$100,000
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Outcome Total	\$967,904
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Additional Habitat Actions

Department	DOC
Agency	Total Funding
NOAA	\$390,000

Department Total	\$390,000
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Department	DOD
Agency	Total Funding
DOD-USACE	\$48,013

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Department Total	\$48,013
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Department	DOI
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Agency	Total Funding
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FWS	\$2,678,231
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NPS	\$230,900
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USGS	\$154,024
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Department Total	\$3,063,155
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Department	DOT
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Agency	Total Funding
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DOT	\$95,000
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Department Total	\$95,000
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Department	USDA
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Agency	Total Funding
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USDA FS	\$180,000
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USDA NRCS	\$50,000
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Department Total	\$230,000
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Outcome Total	\$3,826,168
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Science Supporting Recover Habitat Goal

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Department	DOC
Agency	Total Funding
NOAA	\$1,260,000

Department Total	\$1,260,000
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Department	DOD
Agency	Total Funding
DOD-USACE	\$443,000

Department Total	\$443,000
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Department	DOI
Agency	Total Funding
FWS	\$877,967
NPS	\$17,800
USGS	\$32,000

Department Total	\$927,767
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Department	USDA
Agency	Total Funding
USDA FS	\$305,000

Department Total	\$305,000
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Outcome Total	\$2,935,767
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Goal Total	\$18,936,100
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Sustain Fish and Wildlife

FW.1.	Launch a Bay-wide oyster strategy using scientific support for decision making.		
	# Action Name	Lead	Due
	1 Convene Sustainable Fisheries Goal Implementation Team to provide coordination and oversight for bay-wide oyster restoration activities (e.g., USACE master plan, MD spatial plans, VA restoration plans). Establish subject-specific workgroups/technical committees to coordinate subtasks (e.g., identify prime restoration sites, common restoration goals/metrics/monitoring, acquiring substrate, hatchery capacity).	NOAA USACE	Mar 2011
	2 Establish oyster coordinator to lead NOAA's engagement on Bay-wide oyster issues.	NOAA	Dec 2010
	3 Continue efforts to develop and finalize the Native Oyster Restoration Master Plan	USACE	FY 2012
FW.2.	Restore priority tributaries and support enforcement.		
	# Action Name	Lead	Due
	1 Complete seafloor mapping in MD and VA tributaries, consisting of pre-restoration habitat characterization surveys and analyses for three tributaries. Administer FY 10 awards for restoration in MA and VA tributaries.	NOAA	Sep 2011
	2 Deploy additional reef ball materials at MD and VA sites for habitat benefit and harvest protection. (also supported by prior year appropriations)	NOAA	Jun 2011
	3 Advance planning and Decision Document for Phase V for Piankatank, and substrate construction contract, likely in the Choptank River system.	USACE	Sep 2011
FW.3.	Expand commercial aquaculture.		
	# Action Name	Lead	Due
	1 Identify opportunities and constraints for use of NOAA and other Federal financial assistance programs	NOAA	Sep 2011
	2 Draft priority topics for competitive grant programs	NOAA	Sep 2011
	3 Identify potential science support from NOAA science centers	NOAA	Sep 2011

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FW.4.	Support continued inter-jurisdictional blue crab management.		
#	Action Name	Lead	Due
1	Evaluate and revise (if applicable) the current blue crab abundance target.	NOAA	Aug 2011
2	Using revised blue crab abundance target, work with States and Potomac River Fisheries Commission to update fisheries regulations as necessary (developing coordinated interjurisdictional agreements).	NOAA	Sep 2011
3	Identify the critical factors affecting the abundance of blue crab in the Bay to support ecosystem-based decision making and fisheries management (index of ecosystem-based fisheries management).	NOAA	
FW.5.	Revise blue crab population rebuilding target.		
#	Action Name	Lead	Due
1	Note - for FY 2011 Action Plan, NOAA actions for FW4 and FW5 are combined; see FW 4 for FY 2011 actions.		
FW.6.	Restore stream habitat through partnerships.		
#	Action Name	Lead	Due
1	Develop and implement high priority stream passage and barrier removal projects throughout the watershed, focusing on brook trout habitat. Restore/enhance 10 miles brook trout habitat; consistent with the goals and objectives of the Eastern Brook Trout Joint Venture.	FWS	Sep 2011
2	Develop and implement habitat restoration projects, focusing on improving water quality (e.g., pH) and restoring natural stream structure and function in 4-8 subwatersheds.	FWS	Sep 2011
3	USACE to continue advance partnerships with River Basin Commissions, states, counties and nonprofits in support of stream habitat restoration.		
FW.7.	Consider climate change in prioritizing sub-watersheds for restoration.		
#	Action Name	Lead	Due
1	develop a database and framework to identify and prioritize site specific brook trout restoration and conservation projects	FWS	Sep 2011

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FW.8.	Restore black duck habitat.		
#	Action Name	Lead	Due
1	Lead cooperative effort to translate black duck population goal into energetic capacity goal (determine how much habitat needed to support population)	FWS	Dec 2012
2	See RH1, Action 1		
FW.9.	Increase nutrient sources on refuge lands.		
#	Action Name	Lead	Due
1	Convene workshop among federal, state and NGO partners concerned with black duck population recovery to ensure coordination and cooperation in research, monitoring, and conservation delivery of this priority species	FWS	Sep 2011
2	Initiate research project to determine energetic carrying capacity of Chesapeake basin habitats necessary to restore wintering black duck population	FWS	Sep 2011
3	Restore and stabilize emergent wetlands at the Barbados Island portion of Blackwater NWR, and expand and create new high quality moist soil impoundments at Blackwater and Eastern Neck NWRs	FWS	Sep 2011
FW.10.	Facilitate interjurisdictional, ecosystem-based fisheries management.		
#	Action Name	Lead	Due
1	Formalize use of the Sustainable Fisheries Goal Implementation Team as a forum to support interjurisdictional coordination on issues related to the management of Bay fisheries.	NOAA	Jun 2011
2	Identify and support Bay-wide fisheries science (monitoring, assessment, and research) priorities needed to improve management.	NOAA	Mar 2011
3	Strengthen coordination of regional efforts with national policies and programs (e.g., participation in Atlantic States Marine Fisheries Commission process).	NOAA	Sep 2011
FW.11.	Consider alternative fisheries management approaches.		
#	Action Name	Lead	Due
1	Identify and evaluate current management strategies in the Bay and use Sustainable Fisheries Goal Implementation Team to determine alternative approaches that can be applied in the Bay.	NOAA	Sep 2011

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	2	Identify alternative management strategies being proposed and/or implemented in other regions. Develop process for evaluating and providing recommendations for application of appropriate alternative management approaches in the Bay.	NOAA	Sep 2011
FW.12.	Support the Atlantic Coastal Fish Habitat Partnership (ACFHP)			
	#	Action Name	Lead	Due
	1	Identify and fund habitat restoration projects with objectives that overlap those of FWS Fisheries, NOAA fisheries, and Atlantic Coast Joint Venture	FWS	Sep 2011
	2	Develop a coastal decision support (prioritization) framework focused on habitat restoration for diadromous species	FWS	Sep 2011
	3	Brief the ACFHP Steering Committee on the Strategy for Protecting and Restoring the Chesapeake Bay Watershed.	NOAA	Mar 2011
FW.13.	Collect and organize information to help identify and prioritize areas to restore oyster habitat and populations.			
	#	Action Name	Lead	Due
	1	Organize existing habitat characterization and utilization data for candidate tributaries to inform the planning of future restoration projects. Note the link to SS13.	NOAA and USACE	June 2011
	2	Initiate the planning and design component of approximately 60 acres of reefs in the Piankatank River, VA; and targeted construction of approximately 10-20 acres of hard substrate at a site in Maryland.	USACE	Sep 2011
	3	Note - for FY 2011 Action Plan, NOAA-specific actions to support FW13 are included in both FW 15 and FW 18.	NOAA	
FW.14.	Improve scientific information on selected freshwater species.			
	#	Action Name	Lead	Due
	1	USGS will work with FWS to assess impacts of pathogens, parasites, toxic contaminants, intersex conditions, and adverse effects in fish and wildlife in the Potomac Basin. Additional assessments of the Susquehanna including potential impacts of Marcellus Shale activities will begin in 2012.	USGS	
	2	Conduct drainage-level assessments of genetic differentiation (shad, brook trout, freshwater mussels) to help identify appropriate management units, which in turn guide restoration strategies in terms of location and scale	FWS	Sep 2011

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	3	Assess the vulnerability of sensitive karst habitats containing rare, threatened or endangered groundwater species (in 2011 in C&O Canal NHP).	NPS		
FW.15.	Improve scientific information to support Bay-wide restoration efforts.				
	#	Action Name	Lead		Due
	1	Identify research and monitoring needs in Chesapeake Bay to effectively manage and restore living marine resources.	NOAA		Sep 2011
	2	Develop and implement fisheries science program to improve understanding of fisheries status and trends (multi-species research; Bay-wide monitoring and assessment). USACE to contribute data on oyster status and trends from its restoration sites. FWS to assess the impacts of pathogens, parasites and toxic contaminants on fish kills and intersex conditions in the Potomac watershed. FWS will monitor Atlantic sturgeon to determine preferred habitats and population trends; assess habitat suitability via side-scan sonar mapping of river bottoms	NOAA USACE FWS		Sep 2011
	3	Maintain phytoplankton and zooplankton monitoring network.	NOAA		Sep 2011
FW.16.	Establish watershed program for brook trout monitoring.				
	#	Action Name	Lead		Due
	1	Work with states to establish program for brook trout monitoring in the watershed. Coordinate habitat assessment, stream surveys, and long-term monitoring	FWS		Sep 2011
	2	USGS will work with FWS to determine if existing stream monitoring can be enhanced to address monitoring of habitat conditions for brook trout.	USGS		Sep 2011
FW.17.	Improve monitoring of black duck food sources.				
	#	Action Name	Lead		Due
	1	USGS will work with FWS and the Black Duck Joint Venture to evaluate additional science needed for Chesapeake Bay. USGS will continue assessment of factors affecting seaducks in Chesapeake Bay.	USGS		Sep 2011
FW 18.	Use science to evaluate oyster restoration progress.				
	#	Action Name	Lead		Due

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	1	Collect required habitat characterization, utilization and ecosystem services data for candidate tributaries. Conduct screening of sites restored using alternate substrates in Maryland to provide information to guide future use of alternate substrates. Monitor Oyster Projects in Lynnhaven, Great Wicomico. Continue native oyster restoration program in Maryland and Virginia. Note the link to WQ16, FW2, SS13 and SS15.	NOAA, USACE	Sep 2011
	2	Develop Habitat Assessment Team infrastructure to support information gathering and science development (primarily addresses Action FW18, link to WQ16, SS13, SS15).	NOAA	Sep 2011
	3	Support applied oyster restoration research.	NOAA	Sep 2011
FW.19.	Develop ecosystem models to support decision making.			
	#	Action Name	Lead	Due
	1	Provide initial results from the Chesapeake Atlantis Model (CAM) and begin applying CAM in 2011.	NOAA	Sep 2011
	2	Provide model results on the range of ecosystem effects of one invasive species (blue catfish), and develop/provide model results on other topics of concern based on feedback on model runs, management scenarios and other recommendations of the Sustainable Fisheries Goal Implementation Team.	NOAA	Sep 2011
FW.20.	Evaluate native bivalve restoration for water quality improvement.			
	#	Action Name	Lead	Due
	1	Complete literature review of relevant studies on the ability of tidal and nontidal (freshwater and estuarine) bivalves to enhance water quality. Where the literature review finds gaps, identify topic areas and funding needed to support new studies to evaluate the effect of native bivalves on Bay water quality.	NOAA	Sep 2011
	2	NOAA to identify possible pilot studies to test feasibility of different grow-out methods and for estuarine bivalve species.	NOAA	Sep 2011
	3	Propagation of native freshwater mussels to restore freshwater bivalve communities critical to maintaining water quality and habitat in tributaries of the Bay	FWS	Sep 2011
FW.21.	Assess quality of Black Duck habitat.			
	#	Action Name	Lead	Due
	1	Initiate research project to validate methods and estimates of energetic carrying capacity	FWS	Sep 2011

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|---|---|------|----------|
| 2 | USGS will work with FWS and the Black Duck Joint Venture to evaluate additional science needed for Chesapeake Bay. USGS will continue assessment of factors affecting seaducks in Chesapeake Bay. | USGS | Sep 2011 |
|---|---|------|----------|

Funding Summary

Oysters Outcome

Department	DOC
Agency	Total Funding
NOAA	\$700,000

Department Total	\$700,000
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Department	DOD
Agency	Total Funding
DOD-USACE	\$2,300,000

Department Total	\$2,300,000
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Department	DOI
Agency	Total Funding
FWS	\$570,519

Department Total	\$570,519
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Outcome Total	\$3,570,519
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Blue Crabs Outcome

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Department	DOC
Agency	Total Funding
NOAA	\$37,500

Department Total \$37,500

Outcome Total \$37,500

Brook Trout Outcome

Department	DOI
Agency	Total Funding
FWS	\$421,408

Department Total \$421,408

Department	USDA
Agency	Total Funding
USDA FS	\$120,000

Department Total \$120,000

Outcome Total \$541,408

Black Duck Outcome

Department	DOI
Agency	Total Funding

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FWS	\$384,427
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Department Total	\$384,427
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Outcome Total	\$384,427
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Additional Chesapeake Watershed Species

Department	DOC
Agency	Total Funding

NOAA	\$227,500
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Department Total	\$227,500
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Department	DOI
Agency	Total Funding

FWS	\$307,268
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Department Total	\$307,268
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Outcome Total	\$534,768
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Science Supporting Sustaining Fish and Wildlife Goal

Department	DOC
Agency	Total Funding

NOAA	\$5,920,250
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Department Total	\$5,920,250
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Department	DOD	
	Agency	Total Funding
	DOD-USACE	\$2,900,000
Department Total		\$2,900,000
Department	DOI	
	Agency	Total Funding
	FWS	\$598,549
	NPS	\$120,369
	USGS	\$505,352
Department Total		\$1,224,270
Department	USDA	
	Agency	Total Funding
	USDA FS	\$85,000
Department Total		\$85,000
Outcome Total		\$10,129,520
Goal Total		\$15,198,142

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Conserve Land and Increase Public Access

CL.1.	Launch a Chesapeake Treasured Landscape Initiative.		
	# Action Name	Lead	Due
	1 DOI will launch an initiative to expand land conservation and public access in priority Chesapeake landscapes in partnership with other federal agencies, state, local and private partners. Beginning in 2010, DOI will initiate the series of actions listed below to expand funding, better coordinate and target conservation efforts across federal agencies and initiate new strategies for conserving landscapes.	NPS	January 2011
CL.1.a	Increase Land & Water Conservation Fund allocations.		
	# Action Name	Lead	Due
	1 Federal agencies will allocate final LWCF appropriations once Congress has completed action on the increases proposed in the President's FY2011 Budget.	NPS	January 2011
	2 The President's Budget for fiscal year 2012 will propose funding levels for the Land & Water Conservation Fund.	NPS	March 2011
CL.1.b	Create a public-private conservation funding partnership.		
	# Action Name	Lead	Due
	1 Convene working session of federal and state agencies and nongovernmental organizations to create a public-private partnership to coordinate and leverage federal and possibly state conservation funding.	NPS	Jan 2011
	2 Develop a formal agreement between federal partners and a non-governmental organization on the relationship and scope of activities and conduct a pilot funding project.	NPS	Apr 2011
CL.2.	Coordinate and target federal land conservation funding.		
	# Action Name	Lead	Due

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	1	Convene working session(s) of federal and state program managers for the Land & Water Conservation Fund, Forest Legacy, Coastal and Estuarine Land Conservation Program, Wetlands Reserve Program, Farm and Ranchlands Protection Program, Transportation Enhancements, North American Wetlands Conservation Act and the Readiness and Environmental Protection Initiative to address how to ensure conservation planning approaches and priorities are shared and coordinated across jurisdictions and programs in the Chesapeake Bay watershed.	NPS	Dec 2010
	2	FWS will protect priority forests and wetlands in the upper Pocomoke River watershed. FWS will also protect priority forests and wetlands in the Lower Potomac River watershed: including Mattawoman Creek, Nanjemoy Creek, Zekiah Swamp, and/or McIntosh Run	FWS	Sep 2011
	3	Use the USDA Farm and Ranch Lands Protection Program in partnership with state, local, and tribal governments and non-governmental organizations to preserve working agricultural lands in the Chesapeake Bay Watershed.	USDA NRCS	Sep 2011
CL.2.a	Increase collaboration in the Coastal and Estuarine Land Conservation Program.			
	#	Action Name	Lead	Due
	1	NOAA's Office of Ocean and Coastal Resource Management will conduct a webinar or in person meeting with state Coastal and Estuarine Land Conservation Program (CELCP) leads to address the following goals: identification and prioritization of multi-state (border) parcels; consideration of regional priority acquisitions that would benefit the Bay; and ensuring that priority acquisitions at National Estuarine Research Reserve System sites are fully incorporated into statewide CELCP planning.	NOAA	Mar 2011
	2	Share regional CELCP priorities and individual state CELCP plans with all "Treasured Landscape" agency leads, including the National Park Service for inclusion into the GIS database developed to support CL-9.	NOAA	Jun 2011
	3	Finalize all Chesapeake Bay state CELCP plans (NY and PA are already approved) by competing necessary reviews by NOAA's Office of Ocean and Coastal Resource Management.	NOAA	Sep 2011
CL.2.b	Encourage consideration of Transportation Enhancements, Scenic Byways, and Recreational Trails programs to support land conservation.			
	#	Action Name	Lead	Due
	1	DOT will continue to work with state agencies administering Transportation Enhancements, Scenic Byways, and Recreational Trails programs to enhance understanding of program provisions and procedures, and eligibility requirements. DOT will work with NPS and other partners to ensure conservation approaches and priorities are shared and coordinated in the Chesapeake Bay watershed.	DOT	Sept 2011

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CL.2.c	Conserve priority landscapes around defense installations.		
	# Action Name	Lead	Due
	1 Identify locations where land conservation priorities of military bases, National Wildlife Refuges, National Parks and National Trails overlap and develop coordinated land conservation strategies.	NPS	Sep 2011
	2 Revise guidance for the DOD Readiness and Environmental Protection Initiative program in 2011 to ensure Chesapeake Bay projects receive the extra credit for proposed projects that result in a title fee or easement purchase of significant landscape and areas of ecological and/or cultural value.	DOD-NAVY	Sep 2011
	3 Implement efforts to obtain conservation easements through DoD encroachment programs and other mechanisms such as mitigation projects that protects the ecosystem, historic resources and water quality while sustaining the military mission.	DOD-NAVY	Sep 2011
CL.3.	Conserve landscapes through National Park Service partnership areas.		
	# Action Name	Lead	Due
	1 Collect existing data about identified high priority landscapes within national heritage areas and around units of the national park system. This information will be incorporated into the watershed-wide GIS system (CL.9).	NPS	Sept 2011
	2 Protect lands within existing units of the National Park System. In 2011, at Catoctin Mountain Park, Prince William Forest Park and Fredericksburg & Spotsylvania Battlefield NMP.	NPS	Sep 2011
CL.3.a.	Consider a new unit of the National Park System for Chesapeake Bay & Rivers.		
	# Action Name	Lead	Due
	1 Convene representatives of the states' governors to explore the potential for a new unit of the National Park System focused on the Chesapeake and its rivers.	NPS	Dec 2010
CL.3.b	Identify high priority landscapes along National Trails.		
	# Action Name	Lead	Due
	1 Identify high priority landscapes along the route of the Captain John Smith Chesapeake National Historic Trail as a focus for land conservation efforts; publish landscape and site criteria and priority locations in the trail comprehensive management plan in 2010, and incorporate into watershed-wide GIS system (CL.9).	NPS	Dec 2010

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	2	Identify high priority landscapes along the route of the Star-Spangled Banner National Historic Trail as a focus for land conservation efforts; publish landscape and site criteria and priority locations in the trail comprehensive management plan in 2011 and incorporate into watershed-wide GIS system (CL.9).	NPS	Sept 2011
	3	Complete a corridor gap analysis identifying needed trail connections for the Potomac Heritage National Scenic Trail network in Northern VA and explore options for conducting similar analyses in other trail regions. Incorporate information in watershed-wide GIS system (CL.9).	NPS	June 2011
CL.3.c	Coordinate NPS conservation actions with FWS refuge partnerships.			
	#	Action Name	Lead	Due
	1	Develop a memorandum of understanding between NPS and FWS for coordination of National Wildlife Refuge conservation partnerships and planning and investments for the Captain John Smith Chesapeake National Historic Trail, Star-Spangled Banner Historic Trail and the Chesapeake Bay Gateways and Watertrails Network.	NPS	Oct 2010
CL.4.	Achieve mutual conservation goals through National Wildlife Refuge partnerships.			
	#	Action Name	Lead	Due
	1	Fund one FTE to coordinate activities in Virginia with a focus on land conservation in the Rappahannock and James River basins	FWS	Sept 2011
	2	Implement approved land conservation strategies, using new and existing partnerships, along the Nanticoke River in Maryland and the Rappahannock River in Virginia. Acquire up to 1200 acres in fee title and through wildlife conservation easements.	FWS	Sept 2011
	3	Fund one FTE at Potomac Refuge complex to work with partners along the Potomac River in Virginia to develop conservation corridors, plan for sustainable shorelines, plan/implement forest management practices	FWS	Sept 2011
CL.5.	Develop a Bay wide strategy to reduce the loss of farms and forests.			
	#	Action Name	Lead	Due
	1	See items CL.5. a and b for tasks.		
CL.5.b	Develop a strategy to consider incentives for preservation of agricultural land and forest land			
	#	Action Name	Lead	Due

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	1	Convene a working group to further develop strategies for preserving working lands. This will consider reports and recommendations anticipated later in 2010, including a report under development by the Chesapeake Bay Commission and the Chesapeake Conservancy.	USFS	Sep 2011
	2	NRCS, USFS, and NPS, in concert with the states and other partners, will lead an analysis that identifies optimum locations for conservation easements on working lands. The analysis will consider where easements should be located to obtain the biggest environmental benefit. This work will be coordinated with actions CL 8 and CL 9, ultimately integrating priorities into the watershed-wide land conservation system (CL9).	USDA NRCS	Sep 2011
CL.6.	Support creation and expansion of protected coastal and marine areas.			
	#	Action Name	Lead	Due
	1	NOAA will meet and work with state, federal and other partners to identify opportunities for the creation and management of new protected area sites in the Chesapeake Bay, as well as invite current marine protected areas (MPAs) from the region to join the national system of MPAs.	NOAA	Sep 2011
	2	NOAA will support and enhance existing state and federal Marine Protected Area Programs in the Chesapeake Bay region by providing access to training, technical assistance, and competitive MPA Partnership Grants.	NOAA	Sep 2011
CL.7.	Provide community assistance for landscape conservation.			
	#	Action Name	Lead	Due
	1	Deliver coordinated community assistance for identification, assessment and conservation of priority landscapes; priority landscapes for 2011 will be along high priority segments of the Captain John Smith Chesapeake National Historic Trail.	NPS	Sep 2011
	2	Convene federal and state partners to assess current technical assistance capabilities and gaps, and identify ways to improve local government and land trust access to assistance providers and capacity building support.	NPS	Sep 2011
CL.8.	Identify culturally significant and ecologically important landscapes.			
	#	Action Name	Lead	Due
	1	Convene working team of federal, state and non-governmental partners to develop a scope, approach and initial resources for conducting landscape surveys to identify landscapes of cultural significance to different communities and the region.	NPS	Feb 2011
	2	Initiate pilot landscape survey.	NPS	Sep 2011

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CL.9.	Establish watershed-wide GIS-based land conservation targeting system.		
	# Action Name	Lead	Due
	1 Convene working session(s) of federal agency partners, states and non-governmental organizations to develop a scope for the system and the mechanisms to put the system into place beginning in 2011.	NPS	Dec 2010
	2 Begin to develop GIS targeting system based on agreed upon scope and existing information. USGS will establish a decision-support specialist for land conservation to develop products to help users understand the implications of different conservation options. USGS will also provide results from improved land-change model to help assess vulnerability of lands to development. This will be a prototype for DOI national effort.	USGS	Mar 2011
	3 See actions related to WQ1b (Bay Tracking and Accounting System and the National Environmental Information Exchange Network) and WQ7 (tracking and reporting systems for agricultural conservation practices).	EPA	Sep 2011
CL9.a.	Improve monitoring of land use changes.		
	# Action Name	Lead	Due
	1 USGS will work with EPA to begin development of a long-term land-change analysis framework for conserved lands by federal partners (and states, NGOs). [Need input from EPA]	USGS	
CL.9.b.	Describe land-cover change to evaluate progress toward land conservation.		
	# Action Name	Lead	Due
	1 USGS will analyze where priority lands are lost to development (based on land-cover information produced in CL 9a) and work with CBP partners on implications for progress toward meeting land conservation goal. Planning approach will start in 2011 but in-depth analysis will not begin until 2012.	USGS	Sept 2011
CL.10.	Develop integrated transportation, land use, housing and water infrastructure plans setting forth smart growth and environmental stewardship visions.		
	# Action Name	Lead	Due

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	1	Work with partners and provide continued technical assistance to further promote environmentally sustainable transportation and development as part of integrated regional planning. Number of plans initiated, TIGER grants, HUD Sustainable Communities Planning Grants or EPA Smart Growth awards.	DOT	Sept 2011
CL.11.	Develop a plan to expand public access.			
	#	Action Name	Lead	Due
	1	Convene working session(s) of federal agency partners, states and non-governmental organizations to develop scope and process for drafting a regional strategy designed to inform and guide expansion of Chesapeake watershed public access. Along with Statewide Comprehensive Outdoor Recreation Plans, the access strategy will be used to focus federal, state and local funding for public access expansion.	NPS	Nov 2010
	2	Initiate development of regional public access strategy based on scope; strategy to be completed by 2012.	NPS	January 2011
CL.11.a	Identify public access needs and opportunities along National Trails.			
	#	Action Name	Lead	Due
	1	Identify public access needs and opportunities along the Captain John Smith Chesapeake National Historic Trail in the trail comprehensive management plan; incorporate in regional public access strategy.	NPS	Dec 2010
	2	Identify public access needs and opportunities along the Star Spangled Banner NHT in the trail comprehensive management plan; incorporate in regional public access strategy.	NPS	Sep 2011
	3	Incorporate information from corridor gap analyses performed along Potomac Heritage National Scenic Trail described in CL.3.b.	NPS	Sep 2011
CL.12	Prioritize funding for public access development.			
	#	Action Name	Lead	Due
	1	Revise criteria for Chesapeake Bay Gateways and Watertrails Network grants to set public access development as a priority funding focus for 2011.	NPS	Oct 2010
	2	Issue 2011 grants for public access development through Chesapeake Bay Gateways and Watertrails Network grants program.	NPS	May 2011
	3	Convene meeting of state and federal fund managers to coordinate public access funding.	NPS	Apr 2011

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Funding Summary

Land Conservation Outcome

Department	DOC	
	Agency	Total Funding
	NOAA	\$15,000
Department Total		\$15,000
Department	DOD	
	Agency	Total Funding
	DOD (All Services except USACE)	\$4,700,000
Department Total		\$4,700,000
Department	DOI	
	Agency	Total Funding
	FWS	\$2,390,292
	NPS	\$14,575,581
	USGS	\$400,000
Department Total		\$17,365,873
Department	DOT	
	Agency	Total Funding

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DOT	\$8,231,000
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Department Total	\$8,231,000
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Department	EPA
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Agency	Total Funding
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EPA	\$565,920
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Department Total	\$565,920
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Department	USDA
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Agency	Total Funding
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USDA FS	\$120,000
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USDA NRCS	\$10,350,000
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Department Total	\$10,470,000
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Outcome Total	\$41,347,793
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Public Access Outcome

Department	DOI
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Agency	Total Funding
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NPS	\$1,246,425
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Department Total	\$1,246,425
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Outcome Total	\$1,246,425
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Goal Total	\$42,594,218
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Expand Citizen Stewardship

CS.1.	Expand Chesapeake conservation corps workforces.		
	# Action Name	Lead	Due
	1 Convene working session(s) of partners to expand existing conservation corps workforces that create jobs and carry out conservation and restoration projects in priority watersheds. Coordinate development of a proposed strategy for expanding corps programs.	NPS	Sep 2011
CS.2	Expand master watershed stewards program.		
	# Action Name	Lead	Due
	1 Convene working session(s) of partners to determine how best to expand the existing model master watershed stewards program and to develop an expansion plan and methods for measuring progress.	NPS and EPA	Sep 2011
CS.3	Prioritize citizen stewardship in Small Watershed Grants program.		
	# Action Name	Lead	Due
	1 Revise criteria for Small Watershed Grants Program to make citizen stewardship-based projects a priority funding category in 2011.	NPS and EPA	Oct 2010
CS.4.	Expand outreach to private forest landowners.		
	# Action Name	Lead	Due
	1 Work through state partners to expand forest stewardship outreach to citizens in targeted areas.	FS	Sep 2011
	2 Expand Forestry for the Bay website capabilities to feature video and webinar technology.	FS	Mar 2011
CS.5.	Enhance visitor experiences and stewardship.		
	# Action Name	Lead	Due
	1 Create new interpretive, educational, and wildlife observation opportunities at four Chesapeake Bay refuges (Eastern Shore of VA, Mason Neck, Rappahannock, and Blackwater)	FWS	Sep 2011
	2 Convene working team of partner agencies and organizations to define "meaningful Chesapeake visitor experiences" and propose approach for measuring progress in enhancing those experiences.	NPS	Sept 2011

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	3	Develop new interpretive media and visitor information for sites along key segments of Captain John Smith Chesapeake NHT and Star-Spangled Banner NHT.	NPS	Sep 2011
CS.6.	Build long-term local partnerships for engaging communities and citizens along national trails.			
	#	Action Name	Lead	Due
	1	Convene partners to plan for long-term stewardship, sustainable tourism and landscape conservation along two high potential route segments of the Captain John Smith Chesapeake NHT.	NPS	Sep 2011
CS.7.	Initiate robust elementary and secondary environmental literacy initiative.			
	#	Action Name	Lead	Due
	1	Create inventory of partner agency activities related to student environmental education programs (CS.7.a), educator training, tools, and resources (CS.7.b) and green schools (CS.7.c).	NOAA	Sep 2011
	2	Conduct stakeholder meeting to assess needs and interest of broader education community. Conduct partner meeting.	NOAA	Sep 2011
	3	Complete draft literacy plan.	NOAA	Sep 2011
CS.7.a.	Support and enhance outdoor student environmental education programs.			
	#	Action Name	Lead	Due
	1	NOAA's actions to support CS.7.a are captured in CS.7 actions (above) for the FY 2011 Action Plan.	NOAA	Sep 2011
	2	NPS will provide funding and technical assistance to park, national trail and Chesapeake Bay Gateways and Watertrails Network partners to create and enhance student environmental programs and multi-discipline resources.	NPS	Sep 2011
CS.7.b.	Provide high-quality professional development, tools, and resources for educators.			
	#	Action Name	Lead	Due
	1	NOAA's actions to support CS.7.b are captured in CS.7 actions (above) for the FY 2011 Action Plan.	NOAA	Sep 2011
	2	NPS and partners will provide multiple professional development sessions with the introduction of new tools and resources related to the Chesapeake Campaign of the War of 1812, including a Virtual Educational Resource Center developed with Maryland Public Television.	NPS	Sep 2011

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CS.7.c	Encourage the creation and maintenance of green schools, including schoolyard habitat and green facilities programs.		
	#	Action Name	Lead Due
	1	Reinvigorate FWS schoolyard habitat program throughout the Chesapeake Bay by leveraging increased investment with other partners	FWS Sep 2011
	2	Provide unique environmental education opportunities for students at Presquile NWR in partnership with James River Association. Create new overnight educational facilities using green infrastructure concepts, and work with schools to translate learning accomplished on the refuge with projects on school grounds, such as recycling, energy conservation, and creating habitat	FWS Sep 2011

Funding Summary

Citizen Stewardship Outcome

Department	DOC	
	Agency	Total Funding
	NOAA	\$450,000
Department Total		\$450,000
Department	DOI	
	Agency	Total Funding
	FWS	\$2,891,184
	NPS	\$2,196,607
Department Total		\$5,087,791
Department	EPA	
	Agency	Total Funding
	EPA	\$2,105,000
Department Total		\$2,105,000
Department	USDA	
	Agency	Total Funding
	USDA FS	\$1,340,000

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Department Total	\$1,340,000
Outcome Total	\$8,982,791
Goal Total	\$8,982,791

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Develop Environmental Markets

EM.1.	Establish a market for trading pollutant reduction credits for nutrients and sediments in support of the water quality goals in the TMDL.		
	# Action Name	Lead	Due
	1 Work with States to develop and finalize common performance standards for and elements of offset and trading programs; establish offsets for new or increasing discharges of N and P for appendix to Bay TMDL in December 2010.	EPA	Sep 2011
	2 Establish Trading mechanism for existing discharges of N and P to meet load and wasteload allocations established in Bay TMDL	EPA	Sep 2011
EM.2	USDA will lead, in coordination with EPA and other federal agencies, an interdepartmental Environmental Market Team to coordinate efforts in establishing an environmental market infrastructure for the Chesapeake Bay.		
	# Action Name	Lead	Due
	1 Lead interdepartmental team to develop protocols, tools and guidance for the establishment of water quality and other environmental markets.	USDA OEM	Sep 2011
	2 In concert with Sec 2709 of the 2008 Farm Bill, determine performance thresholds needed to achieve baselines and create eligibility for nutrient credit generation from non-point sources, recommend practical verification protocols for water quality and other environmental markets, and standards for design of a registry for tracking a variety of environmental credits.	USDA OEM	Dec 2010
	3 Evaluate existing Federal Agency authorities and roles in creating demand for and supporting the infrastructure and operation of environmental trading markets in order to ensure unified actions to promote environmental markets.	USDA OEM	Apr 2011

Funding Summary

Environmental Market Outcome

Department		EPA
Agency		Total Funding
EPA		\$150,000
Department Total		\$150,000
Department		USDA
Agency		Total Funding
USDA FS		\$20,000
USDA NRCS		\$50,000
USDA OEM		\$150,000
Department Total		\$220,000
Outcome Total		\$370,000
Goal Total		\$370,000

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Respond to Climate Change

CC.1.	Identify communities that are vulnerable to the impacts of climate change.			
	#	Action Name	Lead	Due
	1	NOAA will build regional capacity to deliver effective climate information (e.g., regional trainers).	NOAA	
	2	Analyze the results of NOAA community climate change adaptation projects conducted in FY 2010, and, depending on outcome of such review and the availability of funding, initiate a second round of funding by January 2011, targeting selected communities.	NOAA	Jan 2011
	3	NOAA and USGS will evaluate the operational use of the Chesapeake Inundation Prediction System.	NOAA USGS	Sep 2011
CC.2.	Demonstrate and implement effective restoration planning in face of land elevation change and sea level rise.			
	#	Action Name	Lead	Due
	1	Final guidance document ("Sea Level Rise Impacts on Tidal Wetland Habitat Restoration") released to restoration partners (Nov 2010).	NOAA	Nov 2010
	2	Provide modernized heights completed for Poplar Island, update tidal datums for Poplar Island and functional nested 3D circulation model for Poplar Island. USGS/FWS will summarize results from Blackwater Refuge to show how sea-level rise projections were used for wetland planning. (USGS funding reflected in CC3)	NOAA USGS FWS	Mar 2011
	3	Continue ongoing efforts to train local partners in using geodetic techniques to provide high-accuracy coastal elevations and to monitor elevation change.	NOAA	Sep 2011
	4	USACE to use climate change simulations to address issues related to potential impacts of sea level rise and changing precipitation patterns. Use monitoring data from Poplar Island and Mid-Bay to assist in identifying and assessing risks.		
CC.3.	Identify and assess risk to key tidal and coastal habitats from potential impacts of changing climatic conditions and rising sea level.			
	#	Action Name	Lead	Due

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	1	USGS will conduct vulnerability study of coastal wetlands to sea-level rise during 2011-2015. FY2011 activities include working with NOAA and other agencies to compile tide datum and sea-level rise information to compare to predictions of sea-level rise in selected areas of Chesapeake Bay. USGS will work with FWS to coordination potential vulnerability studies in the North Atlantic Conservation Cooperative with those in Chesapeake Bay.	USGS	Sept 2011
	2	NOAA will initiate data efforts in 2011 to support work in FY 2012. Efforts in 2011 include compilation of available coastal elevation datasets (to be available 2nd Q FY 2012), identification of key coastal habitats for evaluation (to be available 4th Q FY 2012), and analysis of available land elevation change data (CORS, SETs; to be available 2nd Q FY 2013)	NOAA	Sep 2011
	3	USACE to use climate change simulations to address issues related to potential impacts of sea level rise and changing precipitation patterns. Use monitoring data from Poplar Island and Mid-Bay to assist in identifying and assessing risks.		
	4	Model coastal vulnerability for freshwater tidal reaches of the Potomac and Anacostia Rivers.	NPS	
CC.4.	Identify and assess risk to key watershed habitats from potential impacts of climate and land change.			
	#	Action Name	Lead	Due
	1	Develop bird population-habitat models to assess current capability to support bird populations	FWS	Sep 2011
	2	USGS will begin improvement of Chesapeake Land-Change model to improve vulnerability assessments for climate and land-cover change. USGS will also focus on integrating results using existing models of climate-change scenarios on water quality loads and streamflow in the Bay watershed. The USGS will also work with FWS for using land-change model to help develop bird-habitat models (see action 1) and working with Landscape Conservation Cooperatives to coordinate watershed studies, and with NPS on vulnerability models for birds (action 4) and USFS on forest landscapes (action 3).	USGS	Sep 2011
	3	The Northern Forest Futures project will provide modeled impacts of climate and land use change on forested landscapes, including impacts and interaction of global change/ forest stressors (elevated CO2, N deposition, Ozone, Climate, Land use) on forest ecosystems in CBW using predictive modeling.	FS	Sep 2011
	4	NPS is funding a project to be led by the Smithsonian Institution to develop vulnerability models for birds in the Northeast and Chesapeake Bay Region (*Carried out with FY10 Funds)	NPS	
CC.5.	Enhance federally-supported research to improve and streamline vulnerability assessments.			
	#	Action Name	Lead	Due

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	1	Increase federally supported research on adaptation and assessing vulnerability in the Chesapeake Bay watershed. For example, NOAA research continuing in FY 2011 includes assessing fish habitats in the Chesapeake Bay in relation to other embayments nationally and in relation to human activity in the coastal zone, and assessing the effects of ocean acidification on resource species common to the Chesapeake Bay.	NOAA	Sep 2011
	2	The USGS and NOAA will also work with CBP STAC and STAR to consider highest priority research activities for the Chesapeake Bay and its watershed. A priority list of needs will be released in 2012. The USGS will coordinate with the DOI Landscape Conservation Cooperatives on common research activities. NOAA will explore the development of a Climate and Societal Interactions (CSI) program Request for Proposals for FY 2011 focused on adaptation and assessing vulnerability in the Chesapeake Bay watershed.	USGS	Sep 2011
	3	Support existing activities related to climate change in the Chesapeake Bay (e.g., CSI-Coasts SLR decision support tool developed by the Conservation Fund (http://www.chesapeakeadaptation.org/) and the CSI-Coasts supported tools and resources webpage on the NOAA Coastal Services Center adaptation website).	NOAA	Sep 2011
CC.5.a	Provide land use change data. [Land cover change data]			
	#	Action Name	Lead	Due
	1	Produce updated C-CAP (Coastal Change Analysis Program) land cover analysis for the Chesapeake Bay coastal counties. Note that distribution of 2011 C-CAP land cover and change products (along with 1996, 2001, and 2006 analysis dates) through NOAA's Digital Coast website (http://www.csc.noaa.gov/digitalcoast/) will be an FY 2012 action.	NOAA	Sep 2011
	2	In 2010, USGS released updated land-cover data for 5 year increments from the mid-1980's through 2005. The USGS will plan with NOAA its next release of land-cover information for the 2010/2011 time period. [USGS funds reflected under SS8]	USGS	Sep 2011
CC.5.b	Provide projections of land use changes.			
	#	Action Name	Lead	Due
	1	The USGS will use information from EPA, state, and county planning agencies to improve forecasts of urban change using the Chesapeake Land Change Model. [USGS funds reflected under SS8]	USGS	Sep 2011
	2	Create a subset of nationwide county-level population projections for the Bay Watershed	EPA	FY11
CC.5.c	Assist states and local communities with topographic data.			
	#	Action Name	Lead	Due

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	1	USGS will provide improved access to digital elevation information (LiDAR) and work with states to compile and acquire improved elevation data near coastal areas of Chesapeake Bay and its tidal tributaries.	USGS	Sep 2011
CC.6.	Develop tools and training to provide states, local communities, and resource managers with effective climate adaptation planning and implementation resources.			
	#	Action Name	Lead	Due
	1	NOAA will hold training sessions in FY 2011, specifically: "Public Issues in Conflict Management" Training in VA and "Mid-Atlantic Forum on Coastal Climate Adaption website."	NOAA	Dec 2010
	2	Provide technical support to Maryland's efforts to consider climate change in coastal habitat conservation decisions.	NOAA	Sep 2011
	3	USGS will begin to synthesize information and provide selected results of coastal wetland vulnerability studies and water-quality changes in the Bay watershed. Initial results will be provided in 2012 and 2013 through the USGS COAST decision tool and summary WWW-based products (funds in SS5)	USGS	Sep 2011
CC.6.a.	Strategic land use decision support			
	#	Action Name	Lead	Due
	1	Conduct pilot evaluation of wetlands, forests and streams to identify protection and restoration opportunities.	EPA	Sep 2011
	2	Create a vulnerability assessment to guide Frederick County, MD with strategic land-use decisions and address Ches. Bay goals	EPA	Sep 2011
CC.6.b.	Adapting wetland restoration techniques.			
	#	Action Name	Lead	Due
	1	NOAA is recommending work with partners University of Maryland to investigate sediment and nutrient impacts on Chesapeake Bay tidal marshes in response to land use and climate change. Work would include sediment and nutrient input/output, measurement of sediment/erosion in wetlands, and comparing those data to LIDAR (LIght Detection And Ranging) topography to model impact on marshes. This work can be combined with the initial Poplar Island work discussed for FY 2011 in CC2 to provide input to adaptation of wetland restoration techniques in FY 2012. This will be coordinated with NOAA and USGS actions under coastal vulnerability studies (CC3). NOAA funding in FY 2011 to support this action included with CC2. (also supported by prior year appropriations)	NOAA	Sep 2011

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	2	USACE to use Poplar Island case studies and subsequent guidance to assist in assessing changes to wetland restoration techniques.		
	3	USGS will summarize existing results from Poplar Island studies and Blackwater Refuge to contribute to wetland restoration planning. FWS will use results of studies in adaptive management context in FY12 and beyond. USGS will work closely with NOAA and University of MD on new coastal vulnerability studies (funds under CC3) and relation to wetland restoration.	USGS	Sep 2011
CC.7.	Improve monitoring of climate change impacts in the Bay and watershed.			
	#	Action Name	Lead	Due
	1	The USGS and NOAA will collaborate with partners to refine partner needs to improve climate effects monitoring in the Bay and its watershed. Initial actions in FY2011 will be to work through STAR and STAC to refine monitoring priorities and present how the needs would be part of the Chesapeake Bay Program Monitoring Alliance.	USGS	Sep 2011
	2	FS will examine climate change impacts on landscapes and human health, including urban to rural gradient studies, climate change plots, carbon flux information, and pollen studies.	FS	Sept 2011
	3	NOAA will compile the projects supported by academic partners and the work of the Regional Climate Centers to assess the ongoing monitoring and data compilation capabilities supported by NOAA in the watershed. NOAA will also explore a demonstration project to illustrate how existing independent data can be integrated with larger regional data sets to produce climate adaptation tools to address a specific question and portion of the watershed.	NOAA	Sep 2011
CC.7.a	Implement the Climate Effects Network.			
	#	Action Name	Lead	Due
	1	USGS will pursue opportunities with the DOI agencies to enhance climate effects monitoring in the Bay watershed. Initial efforts will focus on carbon-flux monitoring in the Potomac River.	USGS	Dec 2010
CC.7.b	Develop monitoring framework for streams.			
	#	Action Name	Lead	Due
	1	Develop with Maryland a monitoring framework to detect climate change responses in stream biota.	EPA	Sep 2011
CC.7.c	Develop a complementary estuarine monitoring network.			
	#	Action Name	Lead	Due

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	1	Produce guidelines for establishing vertical control within the National Estuarine Research Reserve System (NERRS) (1st Q FY11) by coordinate with Federal (USGS) and State partners to record and document best practices for the development of high accuracy vertical control network within the NERRS. Conduct training on geodetic and tidal datum techniques.	NOAA	Dec 2010
	2	Complete geodetic control network (2nd Q FY11) at VA NERR, MD NERR (Jug Bay component) and conduct work to build local vertical control networks at MD NERR Jug Bay component (4th Q FY 11).	NOAA	Sep 2011
	3	Evaluate tide station information, specifically evaluate existing tidal and water level information at Jug Bay and VA sites and provide recommendations for enhanced water level products.	NOAA	Sep 2011
CC.8.	Ensure monitoring results are integrated and available to assess effectiveness and adjust management actions as necessary.			
	#	Action Name	Lead	Due
	1	USGS will begin dialogue with EPA in developing a method to provide climate monitoring results once requirements for a network have been developed.	USGS EPA	Sep 2011
	3	NOAA will hold two workshops to conduct knowledge assessments on drought and the Chesapeake Bay. These assessments will serve as the basis for establishing a Chesapeake Bay Regional Drought Early Warning Information System (Chesapeake - RDEWS), including assessment of how low flow alters water quality on the Susquehanna River and assessment of drought related data and monitoring gaps in the Susquehanna, James and Potomac Rivers. This is part broader National Integrated Drought Information System.	NOAA	Sep 2011
CC.9.	Integrate climate change adaptation into the Chesapeake Bay Program.			
	#	Action Name	Lead	Due
	1	USGS will support integration of climate information by hiring a climate coordinator. The coordinator will help form a CBP entity (workgroup) that will work to supply information to CBP Goal Teams and develop synthesis products of selected findings to provide implications for CBP goals. In addition, NOAA will establish a detailee position to coordinate within NOAA and contribute to overall interagency climate coordination for the program. NPS will also hire two individuals to coordinate on climate (see CC12).	USGS NOAA	Sep 2011
	2	Identify climate change information and services support from the NOAA's proposed National Climate Service keystone partners in the region, such as the Northeast Regional Climate Center.	NOAA	Sep 2011
CC. 10.	Conduct technical performance review of agencies' climate response effectiveness.			
	#	Action Name	Lead	Due

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	1	The Chesapeake Bay Program's Scientific and Technical Advisory Committee will lead an annual performance review of effectiveness of monitoring, restoration, conservation, and research activities for adapting to and mitigating climate change effects.	EPA	
CC.11.	Predict potential changes in pollution loads due to climate change.			
	#	Action Name	Lead	Due
	1	In FY2011 USGS will focus on integrating results of climate change scenarios on water quality loads and streamflow in the Bay watershed. [USGS comment: consider putting this in QW12 and SS12]	USGS	Sep 2011
	2	Make available Initial results of scenario development of future water quality under changing climate and land-use conditions for 20 watersheds	EPA	
CC.12.	Develop adaptation strategies to manage vulnerable habitats and public infrastructure on federal lands to increase resiliency to climate change impacts.			
	#	Action Name	Lead	Due
	1	Develop watershed management plan for the Blackwater River in Maryland in partnership with Maryland Audubon Society in conjunction with ongoing watershed management planning on the Transquaking River. The focus will be on increasing adaption and resilience of watershed habitats and wildlife to sea level rise, and improving the quality of water entering the Bay	FWS	Sep 2011
	2	NPS will hire two climate change adaption coordinators in FY11 that will devote a portion of their duties to collaborate with other federal, state and NGO partners in developing adaptation strategies to deal with climate change issues impacting the natural and cultural resources throughout the Chesapeake watershed, including in urban landscapes. The positions will work in collaboration with the North Atlantic LCC, USGS Climate Science Center and NCR Center for Urban Ecology and climate change coordinators being established for the CBP.	NPS	Sep 2011
CC.13.	Integrate climate response into federal growth and development programs and strategies.			
	#	Action Name	Lead	Due
	1	Collaborate with NGOs to support integration of climate change adaption and greenhouse gas mitigation into Smart Growth and Sustainable Community strategies.	EPA	Sep 2011
CC.14.	Coordinate with other national initiatives to enhance federal mitigation efforts in the Bay watershed.			
	#	Action Name	Lead	Due

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1 Create a Bay-watershed subset of emissions data collected by large emitters of greenhouse gases. EPA

Sep 2011

Funding Summary

Climate Outcome

Department	DOC	
Agency		Total Funding
NOAA		\$1,252,000
Department Total		\$1,252,000
Department	DOD	
Agency		Total Funding
DOD-USACE		\$300,000
Department Total		\$300,000
Department	DOI	
Agency		Total Funding
NPS		\$290,958
USGS		\$1,633,603
Department Total		\$1,924,561
Department	EPA	
Agency		Total Funding
EPA		\$75,000

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Department Total		\$75,000
Department	USDA	
	Agency	Total Funding
	USDA FS	\$553,000
Department Total		\$553,000
Outcome Total		\$4,104,561
Goal Total		\$4,104,561

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Strengthen Science

SS.1.	Expand scientific coordination and capabilities of the Chesapeake Bay Program.		
	# Action Name	Lead	Due
	1 USGS will work with EPA and other federal agencies and CBP partners to develop a plan to evolve the Scientific, Technical Assessment and Reporting (STAR) team to have increased federal and partner capabilities to address CBP science needs. NOAA will coordinate with the science support structure for the Sustainable Fisheries Goal Implementation Team.	USGS and NOAA	Dec 2010
	2 Reorganize and focus CBP Scientific, Technical assessment and Reporting (STAR) efforts to coordinate program science activities	EPA	Sep 2011
SS.2.	Establish decision support specialists.		
	# Action Name	Lead	Due
	1 USGS will establish decision-support specialists for land conservation and water quality in 2011. The specialists will interact respective Goal Implementation teams of the CBP.	USGS	Mar 2011
SS.3.	Improve communication products.		
	# Action Name	Lead	Due
	1 Work with UMCES and other regional institutions, and the CBP STAR to translate scientific findings and illustrate impacts of management decisions.	EPA	Sep 2011
	2 USGS will focus on WWW-based products to summarize science to support the TMDL and watershed implementation plans in 2011 and additional products for fish health; and sea-level rise and habitat	USGS	Sep 2011
	3 Work with the University of Maryland's EcoCheck program to demonstrate capabilities in science communications to Chesapeake Bay Program partners to better leverage partnership.	NOAA	Sept 2011
SS.4.	Review and improve CBP science approaches.		
	# Action Name	Lead	Due
	1 Support for CBP Scientific and Technical Advisory Committee to review key science approaches and recommend improved science activities.	EPA	Sep 2011

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	2	EPA will establish a Chesapeake Bay Analysis and Synthesis Center to facilitate the formation of synthesis teams of scientists and managers to focus on addressing key environmental issues in the Bay and watershed and providing answers to the most pressing problems facing the Bay	EPA	Mar 2011
SS.5.	USGS and NOAA will ensure scientific tools, data, and computer model results are available.			
	#	Action Name	Lead	Due
	1	USGS will provide selected water-quality results to support the TMDL through the Chesapeake Online Adaptive Support Toolkit (COAST). USGS will work with EPA on how best to summarize results from SPARROW models and nontidal water-quality network to support TMDL implementation and with NRCS in priority watersheds.	USGS	Mar 2011
	2	NOAA will participate in relevant discussions and workshops to ensure its Digital Coast capabilities, tools, training and data are recognized by the Chesapeake Bay partners.	NOAA	Sep 2011
	3	EPA will make the underlying computer code for all its Bay TMDL related models and tools readily accessible to partners and stakeholders through the Chesapeake Community Modeling Program website.	EPA	Jun 2011
SS.6	EPA, working with Chesapeake Bay Program partners, will establish ChesapeakeStat.			
	#	Action Name	Lead	Due
	1	EPA, working with USGS, NOAA, FWS, the US Navy and other partners and taking into consideration the recommendations of the ChesapeakeStat Action Team will enhance the ChesapeakeStat website to improve accountability features and capacity to support Partnership decision making.	EPA	Sep 2011
SS.7	Improve modeling used for restoration activities and assessing impacts of climate change.			
	#	Action Name	Lead	Due
	1	Conduct demonstration of the Habitat Priority Planner tool to consider applicability for NOAA activities.	NOAA	Sep 2011
	2	USGS is improving SPARROW models for water quality (see WQ10). Initial recommendations to improve models for impacts of climate change will be in the STAR report and addressed under USGS climate vulnerability studies. This will include definition of priority model needs for other CBP goals (Fish, Wildlife, Habitat) [USGS funds reflected under WQ10] and working to improve land-change model (funds under WQ 1c).	USGS	Dec 2010

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	3	FWS will develop bird population-habitat models to assess current capability to support bird populations	FWS	Sep 2011
SS.8.	Establish a Chesapeake Monitoring Alliance.			
	#	Action Name	Lead	Due
	1	The initial approach for establishing a monitoring alliance will be in the STAR report recommendations. The STAR will be reorganized in 2011 to establish a monitoring alliance.	USGS EPA NOAA	Dec 2010
	2	The USGS, EPA, and NOAA will support the alliance by approaching national programs within their respective agencies to have enhanced aspects of programs carried out within Chesapeake Bay and its watershed (see next action). The agencies will coordinate on how information from the monitoring alliance will be stored in the Data Enterprise (action SS 13).	EPA, USGS and NOAA	Sep 2011
	3	USGS will continue existing land-cover monitoring for analysis of the Bay watershed. USGS will work with EPA and NOAA to begin development of long-term land-cover monitoring and analysis framework for 2012 and later years. USGS will initiate improved monitoring of impervious land cover change to support TMDL, tracking and to explain water-quality change.	USGS	Sep 2011
	4	Continue long-term monitoring of indicator species at National Parks in the Chesapeake Watershed; work with monitoring alliance to share monitoring data.	NPS	Sep 2011
SS.9.	Coordinate regional water monitoring with national networks.			
	#	Action Name	Lead	Due
	1	NOAA and USGS will approach the Integrated Ocean Observing System (IOOS) and associated programs will coordinated through the alliance. USGS will also focus on increased coordination for monitoring with USGS National Stream Information Program, National Water-Quality Assessment Program, and Toxics Substances Hydrology. Note for NOAA that this coordination with IOOS will be conducted via action SS8.	USGS	Sep 2011
	2	EPA will ensure national survey work is coordinated with regional and state efforts.	EPA	Jun 2011
SS.10	Increase monitoring by state, local, and non-governmental partners.			
	#	Action Name	Lead	Due
	1	EPA will provide expanded grant, technical, and program development support to state programs and others as resources are available, to systematically expand their tidal and watershed monitoring networks.	EPA	Sep 2011

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	2	EPA will develop partnership guidance documents that define quality assurance requirements for a monitoring program to become a partner in the Monitoring Alliance.	EPA		Sep 2011
SS.11	Improve monitoring of climate change impacts.				
	#	Action Name	Lead		Due
	1	USGS and NOAA will interact with proposed agency activities to improve climate monitoring in the bay and its watershed. USGS will work with the DOI Climate Effects network to assess potential for increased monitoring within the Bay watershed and NOAA will approach programs in the proposed NOAA Climate Services. [USGS funds reflected under CC7]	USGS		Sep 2011
	2	NOAA, USGS, and NPS will coordinate publication of guidelines for monitoring wetland surface elevation change using Surface Elevation Table technology (aligns with actions in CC7).	NOAA	USGS NPS	Sep 2011
	3	Explore development of coordinated Chesapeake Bay climate change data. Provide initial scoping study on feasibility of Chesapeake Bay-wide coastal climate change data (cross-referenced with CC7c)	NOAA		Sep 2011
SS.13.	Improve management of environmental information through a Data Enterprise.				
	#	Action Name	Lead		Due
	1	Initiate the design and development of the Chesapeake Bay Data Enterprise system to share scientific data between partners.	EPA		Sep 2011
	2	NOAA will identify existing activities and coordinate with EPA lead, participate in EPA-led Data Enterprise formative discussions, and will suggest refinements as appropriate to scope of customers (e.g., modelers) for Data Enterprise. NOAA will finalize the Chesapeake Bay Ecosystem Integrated Information System Oyster Restoration data tool and demonstrate that tool to the Chesapeake Bay Program Sustainable Fisheries Goal Implementation Team.	NOAA		Sep 2011
	3	USGS will work with EPA to ensure the data enterprise includes information to support all the CBP goals (in addition to water quality). USGS will improve access to information through COAST and National Water Information System (NWIS).	USGS		Sep 2011
SS.14.	Improve indicators of environmental conditions.				
	#	Action Name	Lead		Due
	1	Establish Alignment Action Team to work with state partners to improve environmental indicators to better reflect outcomes. Each agency that is lead or co-lead on an environmental outcome in the Strategy will coordinate with partners to review and improve environmental indicators as needed.	EPA		Sep 2011

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	2	Baltimore Ecosystem Study (BES) Group will continue to develop high resolution data coverage and assessments, including social and economic data, for urban areas for use in having as a possible future comprehensive indicator (sustainable development and ecological indicators).	FS		Sep 2011
SS.15	Create case studies of targeted restoration activities.				
	#	Action Name	Lead		Due
	1	USGS and NOAA will begin to synthesize information on selected restoration studies. USGS will focus 2011 and 2012 efforts on water quality studies in small watersheds to help information the TMDL implementation. NOAA will focus initially on habitat restoration in the estuary, specifically pre-restoration mapping surveys (see FW.2) in FY 2012 will be compared with post-restoration surveys and monitoring to evaluate and document progress in selected tributaries.	USGS	NOAA	Sep 2012
SS.16	Explain the factors affecting progress toward restoration goals and the effects of management actions.				
	#	Action Name	Lead		Due
	1	USGS and EPA will begin analysis to explain water quality on the Potomac River in 2011 and expand to other basins in 2012-2016.[USGS funds reflected under WQ17] (see water quality actions for more details).	USGS		2012 (for Potomac basin)
	2	NOAA will conduct analysis of factors affecting selected fish species in the Bay (see Fish and Wildlife actions).	NOAA		Sep 2011
	3	NOAA will assess conditions affecting navigation and maritime trade. Contingent on final allocation of ship resources and funding, NOAA will acquire hydrographic survey data in the Lower Bay in 2011 to updated navigation products. NOAA will complete acquiring hydrographic survey data for planned project in lower Bay.	NOAA		Sep 2011
SS.17	Assess new threats to the Bay and its watershed.				
	#	Action Name	Lead		Due
	1	USGS will focus on new threats from emerging contaminants (see FW14, WQ8) and combined impacts of land use and climate change on water quality in the watershed habitats (see CC 4). [USGS funds reflected under WQ8, FW14]	USGS		
	2	In FY 2011, NOAA will focus its efforts to assess new threats to the Chesapeake Bay on using ecological forecasting techniques - see actions associated with WQ.10.c.	NOAA		Sep 2011

Funding Summary

Strengthen Science Outcome

Department	DOC	
	Agency	Total Funding
	NOAA	\$6,494,000
Department Total		\$6,494,000
Department	DOI	
	Agency	Total Funding
	NPS	\$441,000
	USGS	\$1,182,339
Department Total		\$1,623,339
Department	EPA	
	Agency	Total Funding
	EPA	\$4,689,866
Department Total		\$4,689,866
Department	USDA	
	Agency	Total Funding
	USDA FS	\$270,000

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

Department Total	\$270,000
Outcome Total	\$13,077,205
Goal Total	\$13,077,205

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed**Implementation and Accountability**

IA.1.	Align FLC and CBP Functions		
	# Action Name	Lead	Due
	1 Support for efforts to align federal actions, roles and functions with CBP partnership actions, roles and functions.	EPA	
	2 Support for coordination and implementation of overall strategy and coordination and facilitation of the Chesapeake Bay Partnership, including support to science, citizens and local government advisory committees, and interagency committees.	EPA	
IA.2.	Develop Federal Milestones to Track Progress Toward Goals		
	# Action Name	Lead	Due
	1 Federal agencies will join the states in establishing two-year milestones with many federal efforts designed to support the states and District in meeting their current and future water quality milestones. Actions will be tracked through the transparent accountability and tracking system described in the Restore Water Quality chapter of this strategy. EPA will coordinate the effort.	EPA	Apr 2011
	2 Federal agencies will also consult and collaborate with the states and District to develop appropriate two-year milestones for the outcomes outlined in this strategy beyond those for water quality.	FLC	Apr 2011
IA.3.	Develop Annual Action Plan		
	# Action Name	Lead	Due
	1 The FLC will develop the fiscal year 2012 action plan based on funding proposed in the President's Budget for fiscal year 2012.	FLC	Apr 2011
IA.4.	Develop Annual Progress Report		
	# Action Name	Lead	Due
	1 The FLC will develop tracking mechanisms for reporting on progress made during fiscal year 2011 to support the Fiscal Year 2011 Progress Report, which will be prepared and published in early 2012.	FLC	Sep 2011

E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed

IA.5.	Establish Independent Evaluation		
	# Action Name	Lead	Due
	1 Develop a process that will include independent evaluation mechanisms as part of the adaptive management cycle and annual progress report.	FLC	Sep 2011
IA.6.	Institute Adaptive Management		
	# Action Name	Lead	Due
	1 Establish a regular cycle for reviewing activities, progress against goals and timelines outlined in the strategy.	FLC	Sep 2011
	2 USGS will work with NOAA and other agencies to employ ecosystem-based adaptive management to provide science for targeting, monitoring, and evaluation of management actions and ecosystem improvements (see strengthen science section for more information and funding).	USGS	Sept 2011

Funding Summary

Implementation and Accountability Outcome

Department	EPA	
	Agency	Total Funding
	EPA	\$3,992,529
Department Total		\$3,992,529
Outcome Total		\$3,992,529
Goal Total		\$3,992,529

Appendix A: EO Final Strategy Goals and Outcomes

The EO Strategy set out goals and outcomes for four goal areas and objectives for four supporting strategies.

Goal Areas:

Restore Clean Water

Goal: Reduce nutrients, sediment and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity and chlorophyll-a and toxic contaminants.

Outcomes:

- Water Quality: Meet water quality standards for dissolved oxygen, clarity/underwater grasses and chlorophyll-a in the Bay and tidal tributaries by implementing 100 percent of pollution reduction actions for nitrogen, phosphorus and sediment no later than 2025, with 60 percent of segments attaining water quality standards by 2025.
- Stream Restoration: Improve the health of streams so that 70 percent of sampled streams throughout the Chesapeake watershed rate fair, good or excellent, as measured by the Index of Biotic Integrity, by 2025.
- Agriculture Conservation: Work with producers to apply new conservation practices on four million acres of agricultural working lands in high priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries.

Recover Habitat

Goal: Restore a network of land and water habitats to support priority species and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

Outcomes:

- Wetland Restoration: Restore 30,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025.
- Forest Buffers: Restore riparian forest buffers to 63 percent, or 181,440 miles, of the total riparian miles (stream bank and shoreline miles) in the Bay watershed by 2025.
- Fish Passage: Restore historical fish migratory routes by opening 1,000 additional stream miles by 2025, with restoration success indicated by the presence of River herring, American shad, and/or American eel.

Sustain Fish and Wildlife

Goal: Sustain healthy populations of fish and wildlife which contribute to a resilient ecosystem and vibrant economy.

Outcomes:

- Oysters: Restore native oyster habitats and populations in 20 tributaries out of 35 to 40 candidate tributaries by 2025.
- Blue Crabs: Maintain sustainable blue crab interim rebuilding target of 200 million adults (1+ years old) in 2011 and develop a new population target for 2012 through 2025.
- Brook Trout: Restore naturally reproducing brook trout populations in headwater streams by improving 58 sub-watersheds from “reduced” classification (10-50 percent of habitat loss) to “healthy” (less than 10 percent of habitat loss) by 2025.
- Black Duck: Restore a three-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025.

Conserve Land and Increase Public Access

Goal: Conserve landscapes treasured by citizens to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value. Expand public access to the Bay and its tributaries through existing and new local, state and federal parks, refuges, reserves, trails and partner sites.

Outcomes:

- Land Conservation: Protect an additional 2 million acres of lands throughout the watershed currently identified as high conservation priorities at the federal, state, or local level by 2025, including 695,000 acres of forest land of highest value for maintaining water quality.
- Public Access: Increase public access to the Bay and its tributaries by adding 300 new public access sites by 2025.

Supporting Strategies:

Expand Citizen Stewardship

Objective: Foster a dramatic increase in the number of citizen stewards of every age who support and carry out local conservation and restoration.

Develop Environmental Markets

Objective: Working collaboratively, USDA, EPA, Bay states, and other federal partners will develop environmental markets for the Chesapeake Bay, including the management infrastructure for measuring, reporting and verifying environmental performance for a suite of ecosystem services.

Respond to Climate Change

Objective: Minimize the vulnerability of the Chesapeake Bay watershed, including its habitats, public infrastructure and human communities, to adverse impacts to climate change.

Strengthen Science

Objective: Strengthen science to support ecosystem-based adaptive management, to more effectively prioritize, implement, monitor and evaluate the actions and policies needed, and to identify new threats to the health of the Chesapeake Bay and its watershed.

Appendix B: List of Acronyms

CWA: Clean Water Act

DHS: Department of Homeland Security

EO: Executive Order

EO Strategy: *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, published May 2010

EPA: U.S. Environmental Protection Agency

FLC: Federal Leadership Committee

FS: U.S. Forest Service

FWS: U.S. Fish and Wildlife Service

NOAA: National Oceanic and Atmospheric Administration

NPS: National Park Service

NRCS: Natural Resources Conservation Service

OEM: Office of Environmental Markets

TMDL: Total Maximum Daily Load

USACE: U.S. Army Corps of Engineers

USDA: U.S. Department of Agriculture

USGS: U.S. Geological Survey

Appendix C: National Ocean Policy Cross-Walk with Chesapeake Bay Executive Order

<u>National Priority Objectives</u>	<u>Chesapeake Annual Action Plan</u>
1. Ecosystem-Based Management. Adopt ecosystem-based management as a foundational principle for [the] comprehensive management...	— Sustain Fish and Wildlife — Strengthen Science
2. Coastal and Marine Spatial Planning. Implement comprehensive, integrated, ecosystem-based coastal and marine spatial planning and management in the United States.	— Recover Habitats
3. Inform Decisions and Improve Understanding. Increase knowledge to continually inform and improve management and policy decisions and the capacity to respond to change and challenges. Better educate the public through formal and informal programs about the ocean, our coasts, and the Great Lakes.	— Strengthen Science — Citizen Stewardship
4. Coordinate and Support: Better coordinate and support Federal, State, tribal, local, and regional management...	— Implementation and Accountability
5. Resiliency and Adaptation to Climate Change and Ocean Acidification: Strengthen resiliency of coastal communities and marine and Great Lakes environments and their abilities to adapt to climate change impacts and ocean acidification.	— Respond to Climate Change
6. Regional Ecosystem Protection and Restoration: Establish and implement an integrated ecosystem protection and restoration strategy that is science-based and aligns conservation and restoration goals at the Federal, State, tribal, local, and regional levels	— All
7. Water Quality and Sustainable Practices on Land: Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land	— Restore Water Quality — Conserve Lands
9. Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure: Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system, and integrate that system into international observation efforts.	— Strengthen Science