Public Review Draft

Executive Order 13508

Action Plan

Strategy for Protecting and Restoring the Chesapeake Bay Watershed

November 14, 2012

Source: NOAA Chesapeake Bay Office

Source: NOAA Chesapeake Bay Office

FY2013

Developed by the Federal Leadership Committee for the Chesapeake Bay

Executive Order 13508, signed by President Obama in May 2009, set the stage for a renewed and reinvigorated federal effort to protect and restore the Chesapeake Bay, as described in the *Strategy for Protecting and Restoring the Chesapeake Bay*, released in May 2010. A collaborative team of people who work for federal, state and local governments; nongovernmental organizations; academic institutions; and community groups, as well as individual citizens across the Chesapeake Bay watershed, are hard at work to implement the Strategy to protect and restore our "national treasure."

The dedicated people on this team live and work around the Chesapeake Bay watershed—64,000 square miles of varied landscapes and 17 million dynamic people reaching across parts of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and Washington, D.C. They are all committed to protecting and restoring the Chesapeake Bay's vibrant ecosystem for future generations.

We understand the importance of protecting and restoring the Bay for a spectrum of reasons: providing clean water that is fishable and swimmable; restoring critical habitats needed for abundant wildlife; sustaining healthy populations of fish and wildlife; and connecting people to the Bay and the lands around it so they understand and appreciate its richness and value.

We also realize, while a sea of well-intentioned projects can make some forward progress, a well-coordinated, collaborative effort is needed to achieve the goal of a restored Chesapeake Bay. To ensure the substantial resources being committed to this effort are used effectively and efficiently, we drafted this Action Plan to guide the federal effort, including work with numerous partners. Here is a look at many of the major efforts slated to be part of this upcoming year's work.

Sincerely,
Federal Leadership Committee for the Chesapeake Bay
Senior Designees

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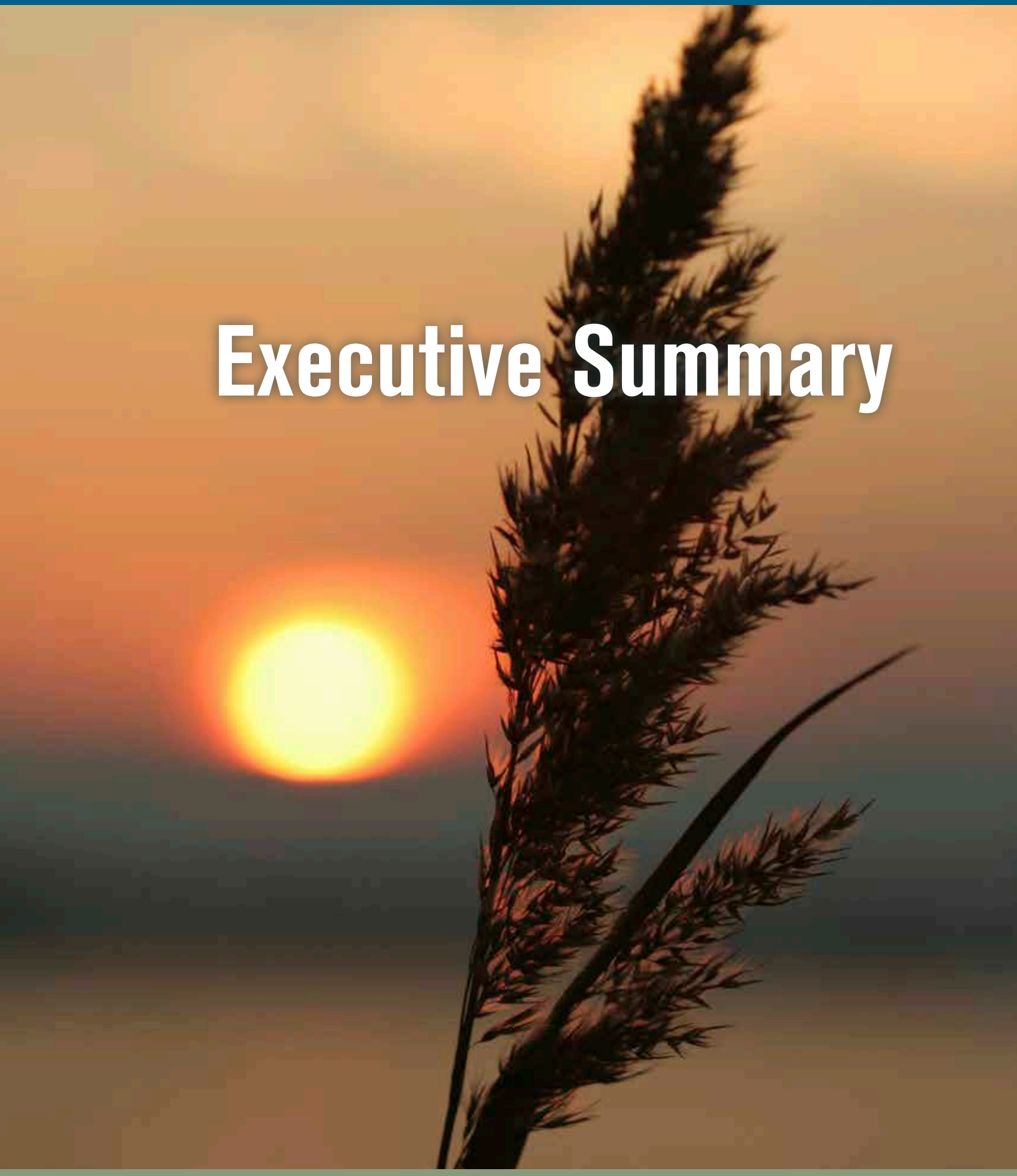


Executive Summary

In Fiscal Year 2013, substantial work will continue toward goals set forth in the *Strategy for Protecting and Restoring the Bay* via well-established, multi-year projects as well as new initiatives. This narrative describes work planned for FY 2013 that will push closer to goals to restore clean water, recover habitat, sustain fish and wildlife, and conserve land and increase public access, including:

- Continuing to provide state partners with assistance as they implement the Total Maximum Daily Load, or "pollution diet."
- Monitoring and assessing progress in urban and agricultural watersheds to evaluate the effects of management practices and using a groundwater model to better understand the response time between implementing practices and detecting water quality improvements.
- Providing financial and technical assistance to help farmers implement voluntary conservation practices in high priority watersheds.
- Releasing a report summarizing the occurrence and severity of toxic contaminants in the Bay and watershed as called for in the Restore Clean Water goal area of the Executive Order 13508 Strategy and its toxic contaminant section. The report findings may be used by EPA, other federal partners and the states to consider development of contaminant reduction goals during 2013.
- Developing management options and providing the science needed to address the Conowingo Dam reaching its sediment storage capacity.
- Monitoring selected fish species to see if they are returning to streams where barriers to fish passage have been removed.
- Delivering technical support to encourage landowners to adopt riparian forest buffers on their properties.
- Establishing a conservation threshold and management target for male blue crabs, which will help ensure sustainability of the blue crab harvest and population.

- Continuing tributary-scale oyster restoration in Harris Creek, Md. and collecting data to draft restoration plans for other priority tributaries such as the Lafayette River, Va.
- Prioritizing streams for restoration to support brook trout populations, and studying the potential effects of temperature change on streams that are home to brook trout, such as those in Shenandoah National Park.
- Applying new science on black duck energetics to prioritize tidal marshes, such as those adjacent to lands in the National Wildlife Refuge system, for restoration and protection.
- Enhancing Landscope Chesapeake—a publicly accessible geographic information and priority system that facilitates collaboration in land conservation planning, decision making and implementation.
- Continuing work with federal, state and local partners to further develop methodology for identifying indigenous cultural landscapes.
- Increasing public access to the Bay and its rivers through implementation of the Public Access Plan.

Supporting efforts to expand citizen stewardship, develop environmental markets, respond to climate change, and strengthen science all support the conditions necessary to achieve a healthier Bay. In FY 2013, this work will include:

- Creating a broader Chesapeake Youth Corps Network to create jobs and carry out conservation and restoration projects in priority watersheds.
- Developing research-based best practices guidance for continual improvements in environmental education programs in support of the Mid-Atlantic Environmental Literacy Strategy.
- Supporting the second phase of an economic study, "Building Capacity to Analyze the Economic Impacts of Nutrient Trading and other Policy Approaches for Reducing Agriculture's Nutrient Discharge into the Chesapeake Bay Watershed," to better understand the costs of water quality improvements and the role nutrient trading programs can play in reducing those costs.
- Completing revision of the Chesapeake Land Change Model to help identify lands that are vulnerable to development; the results will also be used in a report summarizing potential changes in streamflow conditions in the Bay watershed.
- Working with state and academic partners, continuing to deliver science to Chesapeake Bay Program Goal Teams as they use the adaptive management approach in decision making.
- Implementing the Monitoring Alliance, initially focusing on improving partnership for collecting water quality and land cover information.
- Developing tools and techniques to advance ecological forecasting, including early detection and prediction of harmful algal bloom events.

The following table summarizes the FY 2013 budget requests by agency. The table also includes the FY 2012 agency appropriations.

EXECUTIVE ORDER FEDERAL FUNDING SUMMARY

Department/Agency	FY 2012*	FY 2013**
USDA Total	$121,488,000	$159,921,000
Farm Service Agency***/****	($37,081,000)	$37,081,000
NRCS****	$119,828,000	$119,760,000
Office of Environmental Markets	$350,000	$350,000
USFS	$1,310,000	$2,730,000
U.S. Department of Commerce / NOAA	$9,208,425	$6,719,000
DoD Total	$84,827,963	$76,477,000
Services*****	$64,619,963	$56,877,000
USACE	$20,208,000	$19,600,000
DOI Total	$23,906,000	$26,597,000
FWS	$10,146,000	$10,294,000
NPS	$6,411,000	$6,454,000
USGS	$7,349,000	$9,849,000
EPA	$184,010,730	$178,975,000
Total	**$423,441,118**	**$448,689,000**

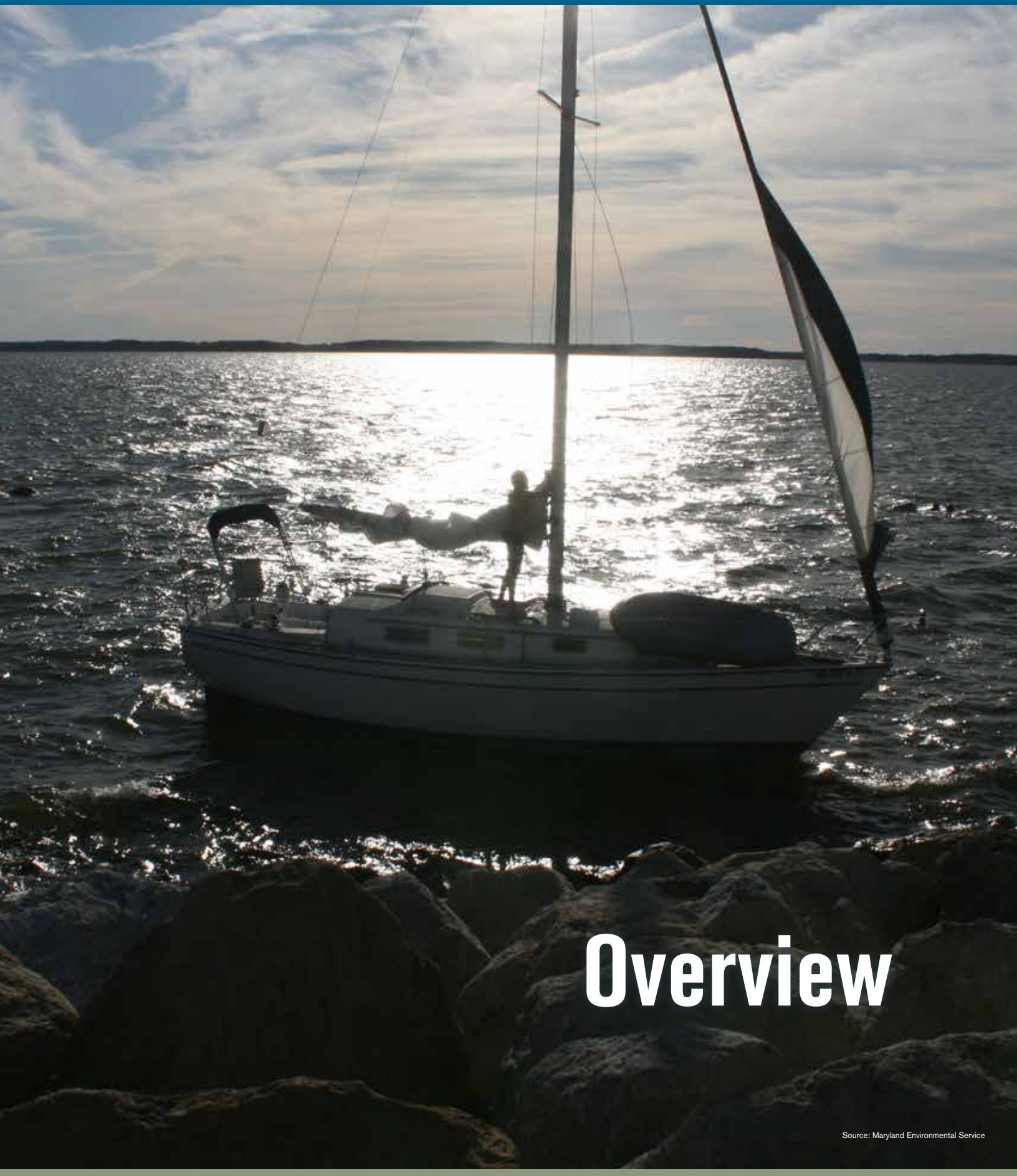
* FY 2012 budget figures are based on actual agency appropriations or outlays.

** FY 2013 budget figures are draft and pending agency review and approval.

*** Farm Service Agency FY 2012 financial assistance figures were not included in the 2012 Executive Order Action Plan.

**** The FY 2013 President's Budget assumes program authority and funding for several mandatory conservation programs included in the 2008 Food, Conservation, and Energy Act (110-234), which expired on September 30, 2012. Funding for these programs and initiatives will be dependent on enactment of a new federal farm bill.

***** DoD Services used budget appropriations by planned FY 2013 projects as described in DoD's 2011 Federal Funding Inventory data call.



Overview

Source: Maryland Environmental Service

This Action Plan describes how federal funding proposed in the President's Budget will be used to protect and restore the Bay during the upcoming fiscal year, October 1, 2012—September 30, 2013. The FY 2012 data are provided as reference, and represent the amount actually appropriated by Congress for that fiscal year. While the text in this document provides a glimpse into many of the major efforts the federal team will undertake in FY 2013, a comprehensive database that includes more detail on plans, processes and efforts that comprise the FY 2013 Action Plan is available on the Chesapeake Bay Executive Order website.

This Plan was developed by staff of member agencies on the Federal Leadership Committee for the Chesapeake Bay—U.S. Environmental Protection Agency and the Departments of Agriculture, Commerce, Defense, Homeland Security, Interior and Transportation—in consultation with state and other agencies.

This document describes plans for the fiscal year ahead—some continuations of work already in progress; some new initiatives—compiled for the Strategy's four goal areas:

- Restore Water Quality
- Recover Habitat
- Sustain Fish and Wildlife
- Conserve Land and Increase Public Access

and supporting strategies:

- Expand Citizen Stewardship
- Develop Environmental Markets
- Respond to Climate Change
- Strengthen Science

Much of the work related to the Executive Order (EO) response touches multiple goal areas and/or strategy sections. This underscores the importance of collaboration among the involved agencies. This effective communication has been made possible through the earlier development of mechanisms including the Federal Leadership Committee and Federal Office Directors group, which meet regularly to monitor and ensure progress toward Action Plan goals.


Source: NOAA Chesapeake Bay Office


Source: NOAA Chesapeake Bay Office

Goal and Supporting Strategy Highlights

Source: NOAA Chesapeake Bay Office

Restore Clean Water

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

OUTCOMES

- 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.
- Work with producers to apply new conservation practices on 4 million acres of agricultural working lands in high priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries.
- Work with state and local governments and stakeholders to significantly expand understanding of toxic pollutant contamination in the Bay and its watershed and to develop contaminant reduction outcomes by 2013 and strategies by 2015.
- 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.

WATER QUALITY OUTCOME

Clean water is essential for people, fish and wildlife, and healthy habitats. Despite some significant progress in reducing pollution levels in the Chesapeake Bay watershed in the past decades, less than half – 43 percent – of approximately nine thousand stream sites sampled in the watershed between 2000 and 2010 are in fair, good or excellent condition and only 34 percent of tidal waters met or exceeded summertime water quality standards for dissolved oxygen between 2009 and 2011.

The U.S. Environmental Protection Agency (EPA) will continue working with state partners to assist in their implementation of the December 2010 Bay-wide Total Maximum Daily Load (Bay TMDL), or "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*. The Bay TMDL includes an accountability framework comprised of:

- Watershed Implementation Plans (WIPs), in which the seven Bay jurisdictions (Delaware, New York, Maryland, Pennsylvania, Virginia, West Virginia and the District of Columbia) identified how point and nonpoint sources will reduce nitrogen, phosphorus and sediment loads to levels sufficient to meet water quality standards in the Bay.
- Two-year milestones, in which the Bay jurisdictions and federal agencies set specific, short-term goals for achieving pollution reductions.
- EPA's commitment to track progress toward implementing WIPs and milestones.
- EPA's commitment to take federal actions, as appropriate, to ensure the implementation of actions necessary to reduce pollution and meet the Bay TMDL allocations.

In 2011 and 2012, the Bay jurisdictions worked with local partners to develop Phase II WIPs that described in more detail how they would achieve their pollution reduction goals. EPA will continue to provide technical assistance and resources directly to the Bay watershed jurisdictions as they implement their Phase II WIPs. EPA is also preparing an estimate of the costs and benefits associated with implementation of the Chesapeake Bay TMDL. The analyses are scheduled to be completed in 2013.

The primary purpose of Phase II WIPs is to ensure local partners who will play a key role in cleaning up our waterways are ready to help implement their state's WIP strategy. They provide a roadmap for how the states and the District of Columbia, 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. In 2012, federal agencies and our jurisdiction partners issued their first set of two-year milestones for 2012 and 2013 to help ensure they are on track to have all practices in place by 2025 to meet the Bay water quality TMDL goals. Not only will the Bay benefit from these actions, **thousands of local streams and rivers that feed into the Bay will be improved – protecting drinking water sources, improving recreational opportunities, and supporting local economies that rely on clean water and healthy habitats.**

EPA will continue to provide the jurisdictions with resources to help them implement their Phase II WIPs, including contractor support, financial resources and technical assistance. EPA has plans to partner with the Region 3 Environmental Finance Center to provide workshops on financing. The Chesapeake Assessment and Scenario Tool (CAST), developed in 2011, continues to assist jurisdictions and other interested parties across the watershed develop and quickly receive feedback on various pollution reduction scenarios and upgrades to CAST are being made in 2013 in response to jurisdiction requests.

Thousands of local streams and rivers that feed into the Bay will be improved – protecting drinking water sources, improving recreational opportunities, and supporting local economies that rely on clean water and healthy habitats.

The Chesapeake Bay Program (CBP) partnership has committed to the development and adoption of a basinwide best management practice (BMP) verification framework for use by the seven watershed jurisdictions to assure data quality for BMP reporting for annual Model Progress runs. The CBP partnership has defined verification as the process through which agency partners ensure practices, treatments, and technologies resulting in reductions of nitrogen, phosphorus, and/or sediment pollutant loads are implemented and operating correctly. During 2012, the CBP partnership drafted the key components of the overall BMP verification framework:

- Developed draft principles setting the expectations for verification across jurisdiction, pollutant source and funding source.
- Compiled draft pollutant source and habitat restoration specific protocols spelling out how sets of practices will be verified.
- Convened an independent BMP Verification Review Panel, which will examine the degree to which each of the seven watershed jurisdictions' verification programs meets the parameters established by the Partnership's BMP verification framework.

Working to verify practices are properly designed, installed, and maintained over time is a critical and integral component of transparent, cost efficient, and pollutant reduction effective program implementation. Verification helps assure the public of achievement of the expected nitrogen, phosphorus, and sediment pollutant load reductions over time. The CBP partnership will build from existing practice tracking and reporting systems and work toward achieving or maintaining its verification principles.

The Bay TMDL calls for an adaptive management approach, including a midpoint assessment in advance of 2017 that would allow EPA and its partners to take stock of the latest science and data, available pollution controls and implementation progress. The partners applied the CBP decision framework for water quality activities and are using it to help guide discussions as to what the midpoint assessment should entail.

Continued funding of several base national funding programs will further help augment state water quality improvement efforts.

Many of the Bay jurisdictions have indicated they intend to rely on trading to meet the reduction targets and to offset new or increased growth. EPA recognizes trading may play an important role in allowing states to reach their TMDL goals in a more cost-effective manner. EPA is working with state, local, private and other interested partners to develop offset and trading programs that meet the common elements set forth in Appendix S of the Chesapeake Bay TMDL, including that offsets and trades are verified, trading partners are accountable, and the process is open to all interested parties. To help the jurisdictions in further developing effective trading and offset programs, EPA plans to develop a number of technical memoranda to supplement Appendix S. Additionally, the U.S. Department of Agriculture (USDA) in 2012 announced approximately $2.5 million in Conservation Innovation Grants (CIG) to entities across the watershed to help facilitate and build the infrastructure for water quality trading markets. These grants and the authority provided to USDA under the 2008 Food, Conservation, and Energy Act (110-234) will help test and prove innovative approaches to improving soil health, increasing wildlife habitat, and protecting water quality while creating new revenue for farmers and ranchers.

EPA will continue its work on a variety of actions to support the states' and District of Columbia's plans to implement the TMDL. For example, EPA is evaluating requirements for stormwater discharges not currently covered under the Municipal Separate Storm Sewer Systems (MS4) program. EPA will also evaluate the national concentrated animal feeding operation (CAFO) rule. Other work focuses on addressing runoff from onsite (septic) systems. In 2013, EPA will issue a non-regulatory, suggested model program for managing these systems effectively.

EPA's Green Streets, Green Jobs, Green Towns (G3) Academy will sponsor webcasts, workshops (virtual), Green Infrastructure (GI) design competitions, and expert round tables on the topics of Next Generation High Performance GI Technologies, and Innovative Financing to provide the Chesapeake Bay communities with information and support in addressing their stormwater requirements. These topics came out of the 2012 National Experts Round Table on Low Impact Development (LID)/GI Technologies and Financing. The G3 Academy will also work with local communities to tailor workshops and round tables to address their individual needs in the areas of either technology or financing. Working with the Maryland Department of Natural Resources and the Chesapeake Bay Trust, Green Streets grants will be offered in 2013 as well as support for design competitions in cooperation with the Water Environment Federation. These efforts are supported by local tree canopy goals, the federal and state urban forestry programs and the Community Greening grant awards administered by Chesapeake Bay Trust, with assistance from the U.S. Forest Service (USFS).

EPA will again this year provide significant assistance to the states and the District of Columbia to help target and improve water quality restoration and protection efforts in the Chesapeake region. EPA will provide an estimated $32.1 million directly to the states and the District of Columbia through Chesapeake Bay Regulatory and Accountability Program and Implementation grants. These funds will support state work to develop

and implement stronger regulatory and accountability programs to control urban, suburban and agricultural runoff and will assist them in implementation of their Phase II WIPs. In addition to these grants, **continued funding of several base national funding programs will further help augment state water quality improvement efforts,** including Clean Water Act (CWA) Section 319 nonpoint source program grants; CWA Section 106 Water Pollution Control program grants; and EPA Clean Water State Revolving Fund (SRF) allocations. EPA is also providing more than $5 million in grants to support state tidal and non-tidal monitoring programs including maintaining the expansion of the Bay Nontidal Monitoring Network. In addition, funding will continue for the annual submerged aquatic vegetation (SAV) survey, which is important in measuring attainment of water clarity standards under the Bay TMDL.

Funding will also be available at the local level to help put in place on-the-ground and in-the-water strategies needed to improve water quality. EPA's Innovative Nutrient and Sediment Reduction Grants Program, administered by the National Fish and Wildlife Foundation, will provide **an estimated $5 million in grants for innovative, cost-effective projects that reduce agricultural and urban nutrient and sediment pollution in local and Bay waters.** An additional $2 million in grants will be available through the Small Watersheds Grants Program. These funds are leveraged with other federal and private funds to help organizations and local governments working on a local level to implement projects that improve small watersheds in the Chesapeake Bay basin, while building citizen-based resource stewardship.

The EO Strategy also includes a strong compliance component. To help effectively target pollution reduction efforts in the watershed, EPA will continue to implement a Chesapeake Bay Compliance and Enforcement Strategy for stormwater, agriculture, wastewater and air pollution sources. EPA will target key regulated sectors, including wastewater treatment plants, CAFOs, MS4s, and others that contribute significant amounts of nutrients, sediment and other pollutants into the Bay. As was previously performed in Pennsylvania and Virginia, EPA will conduct stormwater program assessments for Maryland, Delaware and West Virginia.

EPA will work with the U.S. Geological Survey (USGS), National Oceanic and Atmospheric Administration and the state partners to enhance science to implement and monitor progress toward the TMDL. USGS is working with EPA, USDA and the jurisdictions to apply results from its nutrient and sediment SPARROW Chesapeake Bay models to better focus practices in areas of the highest nutrient and sediment delivery to the Bay and streams. USGS will work with EPA and partners to maintain the Chesapeake Nontidal Monitoring network and to update the trends of the nutrient and sediment conditions that are measured in the network. USGS will also expand continuous monitoring of water quality conditions at selected locations to improve the resolution of nutrient and sediment loads. USGS will release a report on a new technique for changes in loads and work with EPA and the jurisdictions to **better assess progress in load reductions.**

In addition to monitoring in the nontidal network, **USGS will continue monitoring and assessment in urban and agricultural watersheds to better evaluate the effect of management practices.** USGS is working in two urban watersheds and USDA showcase watersheds to expand monitoring and conduct research on the reduction of nutrient and sediment sources and factors affecting water quality. EPA, through the Chesapeake Bay Program monitoring team, is releasing a report summarizing results from existing small watershed studies, to improve understanding of water quality improvements from management practices.

USGS will complete an assessment to explain nutrient conditions and changes on the Eastern Shore. As part of the assessment, **USGS will use results of a groundwater model to help better understand the response time between implementing practices and detecting water quality improvement.** USGS will continue its assessment of changes in the Conowingo reservoirs and contribute to related federal and state efforts. Finally, USGS will begin an enhanced assessment of water quality change in the Potomac basin.

The U.S. Department of Defense (DoD) will participate in and support Chesapeake Bay jurisdictions' municipal separate storm sewer system (MS4) regulation development in order to ensure installations are prepared to incorporate the permit requirements of the Chesapeake Bay TMDL. Consistent with the Strategy for Protecting and Restoring the Chesapeake Bay Watershed released May 12, 2010, "Federal agencies will incorporate Section 502 guidance considerations as part of their overall strategy to meet load reductions under the jurisdictions' Phase II WIPs."

DoD will continue to complete stormwater management assessments at installations in the Chesapeake Bay watershed. These assessments present opportunities to strengthen stormwater management by identifying structural and non-structural BMPs, erosion control, and infrastructure maintenance and repair opportunities. Using these assessments, installations can determine the appropriate stormwater management controls to reduce pollutant loadings, improve stormwater quality and meet Chesapeake Bay TMDL requirements. BMPs to be implemented will be prioritized to achieve load reductions required to comply with the Chesapeake Bay TMDL. Structural BMPs may include but are not limited to vegetated roofs, rooftop disconnection, bioretention, permeable pavement, and constructed wetlands. Non-structural BMPs include nutrient management, reforestation and landscaping maintenance. Additionally, DoD is developing a BMP Operation and Maintenance Policy for each military Service.

USGS will continue monitoring and assessment in urban and agricultural watersheds to better evaluate the effect of management practices.

Satellite observations from NOAA will continue to play a key role in Chesapeake Bay monitoring and assessment this year by providing synoptic views of the entire Bay on a daily basis. NOAA expects to continue space-based water quality measurements like temperature, chlorophyll and sediment concentration. Space-based platforms used by NOAA are combined with aircraft, buoy and onsite measurements to provide the best possible assessment of Bay conditions along a spectrum of time and space scales.

NOAA will work to validate models that use satellite and other data to predict harmful algal blooms in the Chesapeake Bay. This combination of computer modeling and onsite sampling will advance analysis techniques and move us one step closer to accurate forecasting of harmful algal bloom events and their impacts.

Energy Independence and Security Act (EISA) 438: EPA will continue to lead the federal agencies by providing a forum for exchange of information across agencies. Tracking and reporting mechanisms including EISA 438 tracking are being developed by EPA with significant input from the other agencies and implementation progress will be reported by each agency.

Agricultural Outcome

USDA's Natural Resources Conservation Service (NRCS) continues to help people help the land. NRCS has achieved historic levels of conservation implementation over the last few years in the Chesapeake Bay watershed, leading to water quality improvements, wildlife habitat enhancement, and the support of rural economies.

In FY 2012, NRCS had another successful year in getting conservation on the ground spending approximately $127 million to further conservation efforts and in 2013 NRCS expects to spend approximately $119 million. For FY 2013, NRCS will continue to support voluntary actions by farmers and landowners to improve water quality by providing financial and technical assistance from the Environmental Quality Incentives Program (EQIP), Agricultural Management Assistance (AMA) Program, Wildlife Habitat Incentive Program (WHIP), Farm and Ranchland Protection Program (FRPP), Conservation Stewardship Program (CSP), and Conservation Technical Assistance (CTA) funds. On September 30, 2012, the2008 Farm Bill expired, which means NRCS can no longer make new commitments under expired programs. These programs include the Chesapeake Bay Watershed Initiative (CBWI), Wetlands Reserve Program (WRP), Grasslands Reserve Program (GRP), and the Healthy Forest Reserve Program (HFRP).

The 2008 Farm Bill contained $188 million in mandatory spending over 4 years for a new program called the Chesapeake Bay Watershed Initiative. This program was designed to reduce nitrogen, phosphorus, and sediment loads from private lands using a targeted approach of existing NRCS programs. Since implementation, NRCS and its partners have helped landowners implement conservation practices that protect the watershed's soil and water resources while maintaining productive working lands. Again, the CBWI program authority and mandatory funding expired on September 30, 2012, and therefore NRCS will not be able to enroll new acres in FY 2013. NRCS plans to conduct a program evaluation and assessment of the CBWI program.

NRCS maintains a focus on partnering for conservation success. In 2010, USDA announced three showcase watersheds in Pennsylvania, Maryland and Virginia to test and monitor the benefits of a focused, highly partnered, voluntary approach to conservation. In 2012, NRCS continued to support these projects with financial and technical assistance, and will do so again in FY 2013. NRCS will also publish a report in 2013 highlighting what can be achieved by combining strong partnerships, sound science, and funding to solve natural resource concerns in a targeted area in the Chesapeake Bay watershed.

In FY 2012, NRCS committed funding for the Strategic Watershed Action Teams (SWAT) and the Conservation Cooperative Partnership Initiative (CCPI) agreements. These agreements help leverage resources and capabilities of non-federal partners as well as NRCS technical and financial resources to implement conservation on working lands. For FY 2013, NRCS will continue these partnerships.

NRCS is preparing a follow up study to evaluate the effectiveness of voluntary conservation practices. In 2011, USDA released a study, "Assessment of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region," as part of its Conservation Effects Assessment Project (CEAP). This study quantified environmental gains from conservation practices and identified opportunities for further progress. The study was based on data obtained through a survey of farming and conservation practices in use during the period 2003 to 2006, and from other sources. In late 2011 and early 2012, USDA's National Agricultural Statistics Service conducted a follow up data collection effort in the Bay watershed. Particular focus was placed on collecting more specific data on nutrient management practices and cover crops, which will allow NRCS to refine estimates of conservation effectiveness in the watershed. NRCS expects to publish the follow up Chesapeake Bay report early in 2013.

NRCS focuses on innovation. Through the NRCS Conservation Innovation Grants (CIG), USDA has been exploring innovative ways to help producers. In 2012, NRCS announced $26 million in water quality grants, with approximately $2.5 million targeted to the Chesapeake Bay.

FY 2012 was the first time NRCS announced a separate CIG for water quality trading. A number of Chesapeake Bay states included water quality trading in their WIPs and the funding targeted to the watershed will help develop water quality trading programs. In 2013, NRCS will convene a series of workshops designed to facilitate the dialogue on water quality trading programs and implementation in the Chesapeake Bay watershed.

Also in FY 2012, USDA awarded a CIG grant to Maryland to work on a certainty project. Agricultural Certainty is an approach for providing assurances and predictability to farmers that their conservation efforts will be recognized by state water quality programs developed by states. USDA sees certainty as a valuable tool for accelerating voluntary private land conservation and in FY 2013, USDA will continue to work with states on that approach.

Farm Service Agency. The Conservation Reserve Program (CRP) is a voluntary land conservation program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water. The program is administered by USDA's Farm Service Agency (FSA) with assistance from NRCS, and enrolls land under long-term (10- to 15-year) contracts. The participants receive financial assistance including annual rental payments for the term of the contracts. In the Chesapeake Bay watershed, 287,000 acres are currently under contract, including 61,000 acres (approximately 4,000 miles) of riparian forest buffers, 43,000 acres of grass filter strips, and 160,000 acres of grass plantings. These practices are helping restore the Bay by reducing the amount of nitrogen, phosphorus and sediment in agricultural runoff that reaches the Bay's waters.

Most of the enrollment in the Chesapeake Bay basin has been through the Conservation Reserve Enhancement Program (CREP), a component of CRP. Under CREP agreements, USDA partners with states and tribal governments to address specific environmental objectives. The partners contribute 20 percent of the overall cost, with USDA providing the remainder. USDA has entered into CREP agreements directed at restoring the Bay with each of the six states with land in the Chesapeake Bay watershed. Under these agreements, specific practices and locations are targeted for enrollment to provide maximum water quality impact. In the six CREP projects, a total of 237,000 acres are currently (as of September 2012) under contract.

FSA plans to maintain lands currently under contract, and to resume enrollment activities in all the six states when enrollment authority is restored.

Toxic Contaminants Outcome

EPA, USGS, U.S. Fish and Wildlife Service (FWS) and NOAA will release a report summarizing the occurrence and severity of toxic contaminants in the Bay and watershed. The report findings may be used by EPA, other federal partners and the states to consider development of contaminant reduction goals during 2013. Based on the report recommendations, USGS will enhance research of the sources and extent of toxic contaminants, including endocrine-disrupting compounds, and other factors affecting the health of fish and wildlife.

Stream Restoration Outcome

EPA, through the CBP monitoring team, will be working with the Interstate Commission on the Potomac River Basin (ICPRB) and jurisdictions to develop a methodology to calculate changes in stream health over time using the Stream Health Index.

This methodology will be used to track progress toward achieving the Stream Health Outcome. **Many of the practices to reduce nutrients and sediment as part of the Bay TMDL will also benefit stream health.** Additional information on restoration activities to improve stream conditions, including use of riparian forest buffers, is discussed in the Recover Habitat section of this report.

Combined budget requests for this goal area total $363.1 million. The following table is a breakdown of these figures by agency.

Restore Clean Water*	
DoD (Services)	*$45,200,000*
DOI (FWS)	*$161,901*
DOI (USGS)	*$5,781,980*
EPA	*$169,828,300*
NOAA	*$351,500*
USDA (FSA)	*$37,081,000*
*USDA (NRCS)***	*$104,560,000*
USDA (USFS)	*$150,000*
Total	***$363,114,681***

* All budget figures are draft and pending agency review and approval.

** The FY 2013 President's Budget assumes program authority and funding for several mandatory conservation programs included in the 2008 Food, Conservation, and Energy Act (110-234), which expired on September 30, 2012. Funding for these programs and initiatives will be dependent on enactment of a new federal farm bill.

OUTCOMES AND MILESTONES FOR THIS GOAL AREA INCLUDE:

2025 Outcome	Baseline	2012-2013 Milestone
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.	89 of the 92 segments of the Bay and its tidal waters are impaired.	Methodology under development.
	For pollution reduction actions, the FY 2010 baseline is 0 percent. The universe is 100 percent goal achievement by December 31, 2025 (FY 2026).	**FY2013 22.5 percent** of goal achieved for implementing nitrogen, phosphorus and sediment pollution reduction actions to achieve final h the phase 5.3 watershed model. (cumulative from FY 2010 baseline)
		Reduce EPA's portion of air deposition load to tidal surface waters by an estimated 350,000 pounds during the 2012-2013 milestone period for a total of approximately 2.5 million pounds of nitrogen reductions between 2009 and 2013.
Stream Condition: Improve the health of streams so 70 percent of sampled streams throughout the Chesapeake watershed rate fair, good or excellent, as measured by the Index of Biotic Integrity, by 2025.	45 percent of sampled stream sites are rated fair, good or excellent.	**50 percent** of sampled stream sites rate fair, good or excellent as measured by the Index of Biotic Integrity.
Agricultural Conservation: Work with producers to apply new conservation practices on 4 million acres of agricultural working lands in high priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries.		Implement conservation practices that protect the watershed's soil and water resources while maintaining productive working lands.

ADDITIONAL PROGRAMMATIC MILESTONES FOR THIS GOAL AREA INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
	TMDL/WIPs
2013	Develop and implement a Best Management Practices Operation and Maintenance Policy to meet permit and water quality requirements for each Service. (DoD)
May 2013	Provide mid-term evaluation of 2012 milestones progress to jurisdictions. (EPA)
	AGRICULTURE
2013	Publish follow up Chesapeake Bay CEAP cropland report.
2013	Assess progress made in the showcase watersheds.
2013	Create a network among Bay watershed Conservation Innovation Grant awardees to help stimulate environmental markets.
2013	Evaluate and publish a report on the CBWI program contained in the 2008 Food, Conservation, and Energy Act (110-234).
2013	Continue to pursue the development of agricultural certainty programs in Bay watershed states.
2013	Evaluate revisions to the national CAFO rule. (EPA)
	ATMOSPHERIC – RULES, DEPOSITION, ALLOCATIONS
	Significantly reduce nitrogen deposition to the Bay and watershed by 2020. (EPA)
2013	• Tier 3 Light-Duty Vehicle Emission and Fuel Standards final rule (criteria and toxic pollutants). (EPA)
	STORMWATER
2013	Evaluate revisions to the national stormwater rule. (EPA)
	ONSITE (SEPTIC) SYSTEMS
June 2013	Develop a model program for states with voluntary general recommendations for activities to reduce pollution from onsite (septic) systems. (EPA)
	TOXIC CONTAMINANTS
November 2012	Issue a report summarizing the extent and severity of toxic contaminants in the Bay and its watershed that will include an assessment of progress on the Chesapeake Bay Basinwide Toxins Reduction and Prevention Strategy. (USGS/FWS/EPA co-lead)
December 2013	Work with DOI (FWS/USGS), the Bay states, the District of Columbia and stakeholders to consider toxic contaminant reduction goals. (EPA)

Target Date	Programmatic Milestone
	OVERSIGHT AND ENFORCEMENT
	Permit and Enforcement Oversight – Stormwater, Wastewater, Agriculture, Trading/Offsets, Air.
December 2012	• Review Chesapeake Bay states' technical standards for nutrient management to ensure they meet CAFO regulations. (EPA)
December 2012 and 2013	• NPDES Permit Reviews – Report annually on number of permits reviewed. (EPA)
December 2012 and 2013	• Inspections and Case Development – Report annually on results and/or status. (EPA)
	MONITORING AND SCIENCE SUPPORT
December 2012	Implement year two expansion (20 sites) of the non-tidal monitoring network to support TMDL. (EPA/USGS co-lead)
December 2012	Evaluate water quality changes and progress to adjust management actions in support of the TMDL/WIPs and milestone progress evaluation. (EPA/USGS/NOAA co-lead) • USGS will issue an annual update of nutrient and sediment concentration trends based on the CBP non-tidal monitoring network and release a new supplemental technique looking at trends in nutrient and sediment loads.
December 2012	• EPA will provide annual updates of trends in estuary monitoring data to assess progress toward water quality standards. (EPA)
December 2013	• EPA will work with USGS and jurisdictions to apply the new technique to assess progress toward reductions.
	EPA GRANT SUPPORT TO STATES AND THE DISTRICT OF COLUMBIA
2013	Provide financial support to jurisdictions by maintaining funding, as authorized, through EPA's assistance programs including CWA Section 319, SRF, CBIG and CBRAP. (EPA)

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

- 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.
- 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.
- 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.

Habitats within the Chesapeake Bay watershed—including wetlands, streams, forests, fields, islands, underwater grasses, sand beaches and mudflats—have been degraded and no longer support an abundance of wildlife. In 2013, federal and state partners will continue to align restoration actions, especially those that improve: wetlands, fish passage, riparian forest buffers and stream function. Restoration of such habitats is critical to support priority wildlife species and associated ecosystem services including public benefits.

FWS, NRCS, NOAA and USACE will continue with their state and local partners to 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. To meet this goal, **partners will need to restore 4,000 and enhance 20,000 acres of wetlands every two years.** Partners in the Habitat Goal Implementation Team (Habitat GIT) will engage wildlife and natural resource agencies in strategic wetland action teams in interested Bay states in 2013. The Habitat GIT has obtained funding from the Scientific and Technical Advisory Committee to host a workshop titled "Targeting Restoration of Coastal Habitat Complexes," scheduled to take place in March 2013 with significant input from academia, nongovernmental organizations (NGOs) and local communities. Another supporting science activity involves USGS, FWS and NOAA continuing to provide monitoring of water levels and land subsidence to help assess vulnerability of coastal wetlands to sea level rise.

Partners will need to restore 4,000 and enhance 20,000 acres of wetlands every two years.

Actions planned by USACE at the nation's premier island habitat restoration site, Poplar Island, include developing 111 acres of wetland and tidal gut habitat, allowing inflow of dredged material, and beginning the design of the expansion of the Poplar Island project. The 111 acres of wetland are scheduled to be open to fish and natural tidal flow by early 2014, increasing the area of fully restored/developed wetlands to 287 acres.

FWS, NRCS and NOAA, working closely with state and local partners, will build on progress to open 1,000 additional stream miles for fish passage, with a focus on American eel, American shad, and river herring, by 2025. To achieve this goal, **132 miles will need to be reopened to fish passage every two years.** In 2013, partners in the CBP Fish Passage Workgroup will work with The Nature Conservancy, American Rivers, and other partners to demonstrate the utility of the Bay-wide fish passage prioritization tool completed in 2012. The group will also work with the Eastern Brook Trout Joint Venture to include data layers for brook trout in headwater streams. USGS and FWS are monitoring selected fish species to see if they are returning to streams where passage barriers have been removed.

The EO Strategy directs Chesapeake Bay partners to **restore riparian forest buffers along stream banks and shorelines at a rate of 1,800 miles every two years.** Despite having achieved this level of buffer restoration

between 2002-2005, the rate of implementing this practice has slowed considerably in recent years. USFS will continue to lead partner engagement to have 63 percent, or 181,440 miles, of riparian miles forested by 2025. Because this is largely a farm-based practice, USFS is working closely with NRCS and FSA to ensure the most important federal programs for placing new riparian forests are focused and effective. FWS, USFS and state forestry agencies will provide technical assistance to benefit riparian forest buffers. Many supporting efforts will also continue, including small watershed grant awards and improved tracking of riparian forest gains and losses through a new monitoring tool developed by USFS and USGS.

In 2012, USDA and DOI announced the Working Lands for Wildlife Initiative. This partnership between NRCS and FWS uses technical expertise combined with financial assistance from NRCS programs, such as the Wildlife Habitat Incentives Program and the Wetlands Reserve Program (WRP), to combat the decline of seven species whose decline can be reversed and will benefit other species with habitat needs. Through Working Lands for Wildlife, landowners can voluntarily participate in incentive-based efforts to restore populations of declining species by receiving regulatory certainty that the conservation investments the landowner makes will help sustain their operation over the long term. In the Chesapeake Bay watershed, the bog turtle and golden-winged warbler are two species that have been identified for habitat restoration activities. In FY 2013, NRCS and FWS expect to continue this partnership to restore and protect wildlife habitat on working lands.

In 2012, USFS worked with a broad array of partners to complete a Chesapeake Forest Restoration Strategy. The focus of this Strategy goes beyond riparian forest buffers to include other priority restoration areas—such as mine lands and urban areas—for strategic placement of new trees and forests. Using this Strategy as a guide, partners will begin implementation of the recommended actions in the Strategy in 2013. The Strategy is posted on the Chesapeake Bay Executive Order website.

Improved stream health is an EO outcome with connections to water quality, fish passage (fish will thrive in reopened reaches only if the stream habitat can support them), riparian forest buffer, and land conservation goals.

Source: Jane Thomas, IAN Image Library

Source: NOAA Chesapeake Bay Office

The Habitat GIT is working with the CBP monitoring team to improve the methodology to calculate trends in stream health and with the CBP Scientific, Technical Analysis and Reporting (STAR) team to host a workshop to guide consistent implementation of a functional approach to stream restoration and protection.

Combined budget requests for this goal area total $33.4 million. The following table is a breakdown of these figures by agency.

Recover Habitat*	
DoD (Services)	*$4,800,000*
DoD (USACE)	*$14,600,000*
DOI (FWS)	*$5,193,936*
DOI (USGS)	*$206,246*
NOAA	*$1,627,500*
USDA (NRCS)	*$6,400,000*
USDA (USFS)	*$560,000*
Total	***$33,387,682***

* All budget figures are draft and pending agency review and approval.

** The FY 2013 President's Budget assumes program authority and funding for several mandatory conservation programs included in the 2008 Food, Conservation, and Energy Act (110-234), which expired on September 30, 2012. Funding for these programs and initiatives will be dependent on enactment of a new federal farm bill.

OUTCOMES AND MILESTONES FOR THIS GOAL AREA INCLUDE:

2025 Outcome	Baseline	2012-2013 Milestone
Wetlands: 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.	The National Wetlands Inventory estimates 1 million acres of tidal and non-tidal wetlands are available in the Chesapeake Bay watershed for restoration or enhancement.	Restore 4,000 acres of wetlands every two years. (FWS) Enhance 20,000 acres of degraded wetlands every two years. (FWS)
Riparian Forest Buffer: 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.	58 percent of the 288,000 total riparian miles in the Bay watershed have forest buffers in place.	Restore 1,800 miles of riparian forest every two years (900 miles annually) in order to achieve the goal of restoring an additional 14,440 miles of riparian forest (to get to 181,440 miles, or 63 percent) by 2025. This effort is consistent with USDA's High Priority Performance Goal initiative and includes restoration efforts by individuals, nonprofit organizations and all levels of government. (USFS)
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.	2,041 stream miles in the Chesapeake Bay watershed have been opened and are accessible for fish migration.	Reopen 132 additional stream miles with the degree of restoration success measured by the presence of river herring, American shad, hickory shad, brook trout and/or American eel. To determine degree of project success, document the presence/absence of indicator species (river herring, American shad, hickory shad, brook trout and/or American eel) at 50 percent of the completed fish passage projects. (FWS/NOAA)

ADDITIONAL PROGRAMMATIC MILESTONES FOR THIS GOAL AREA INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
	WETLANDS
Spring 2013	Develop initial estimates of restored and enhanced coastal wetlands needed to support energetic carrying capacity metric for revised black duck goal, with spatial specificity. Circulate for review, critique and revision by appropriate scientists and subject matter experts. (FWS)
December 2012	Engage wildlife and natural resource agencies in strategic wetland action teams in interested Bay states during 2013. (FWS)
December 2013	Continue Chesapeake Bay island and wetlands restoration construction management, monitoring, stakeholder coordination and design of wetland cells at Poplar Island. (USACE)
	FISH PASSAGE
December 2013	Conduct outreach on use of the Bay-wide fish passage prioritization tool in Maryland, Virginia and Pennsylvania. (FWS/NOAA)
	RIPARIAN FOREST
March 2013	Produce a White Paper on Riparian Forest Restoration in the Chesapeake Bay. (USFS)
June 2013	Complete pilot of Land Image Analyst, a tool for improved monitoring of riparian forest buffers. (USFS and USGS)
December 2013	Conduct outreach using completed strategy to accelerate forest restoration in priority areas. (USFS)
	ADDITIONAL MILESTONES
December 2013	Initiate feasibility studies focused on the Anacostia River watershed immediately with Montgomery and Prince George's counties in Maryland. (USACE)
December 2013	Continue to work closely with the City of Virginia Beach at Lynnhaven River Basin, Virginia, to complete design for restoration of wetlands, submerged aquatic vegetation, Bay scallops and essential fish habitat. (USACE)
December 2013	Continue to work closely with the Commonwealth of Virginia and localities in the Rappahannock watershed to identify water resource issues and develop a study that will come up with innovative restoration solutions. (USACE)
December 2013	Prepare reconnaissance report and begin scoping follow on efforts with non-federal partners in preparation for the Chesapeake Bay Comprehensive Plan.
December 2013	CBP partners are developing a methodology to calculate trends in stream health over time using the Stream Health Index. This methodology will be used to track progress toward achieving the Stream Health Outcome. (EPA/CBP Monitoring Team)

Sustain Fish and Wildlife

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

OUTCOMES

- Restore native oyster habitat and populations in 20 tributaries out of 35 to 40 candidate tributaries by 2025.
- 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.
- Restore naturally reproducing brook trout populations in headwater streams by improving 58 sub-watersheds from "reduced" classification (10–50 percent of habitat lost) to "healthy" (less than 10 percent of habitat lost) by 2025.
- Restore a three-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025.

Success in protecting and restoring the Chesapeake Bay ecosystem will ultimately be measured by the vitality and richness of its living resources and the health and well-being of the people who rely on them. To this end, **the EO 13508 Strategy established outcomes for four species—blue crab, oysters, brook trout and black duck. These species were chosen based on their ecological, commercial and recreational significance and are assumed to be representative of the overall health of the Chesapeake Bay watershed.** Restoration, conservation, planning and management actions taken to achieve the stated outcomes for these four species will also address the needs of other species and improve Bay and watershed health. While the combined efforts of federal, state and local governments, as well as NGOs and private citizens, have enabled significant progress in advancing the health of fish and wildlife in the Chesapeake Bay and its watershed, these living resources—as well as the habitat on which they depend—need our continued, sustained effort.

Blue Crabs

The Sustainable Fisheries Goal Implementation Team (Fisheries GIT), chaired by NOAA and comprised of senior fishery managers (including Maryland Department of Natural Resources, Potomac River Fisheries Commission, Virginia Marine Resources Commission, District of Columbia Department of the Environment, and Atlantic States Marine Fisheries Commission) as well as scientists and key stakeholders, has been established as the forum for coordinating science-based fisheries policy and management Bay-wide. This year, the Fisheries GIT will work with the Chesapeake Bay Stock Assessment Committee (CBSAC) to develop and adopt new male blue crab conservation threshold and management targets to pair with the female reference points adopted in 2012. Having these thresholds and management targets will help ensure the sustainability of the blue crab harvest and population. The Fisheries GIT will also deliver a status report on blue crab populations in 2013 through the CBSAC Blue Crab Advisory Report and will initiate discussions on how to better calculate recreational blue crab harvests.

Oysters

Restoring native oyster populations and the habitat they provide for other species in the Chesapeake Bay remains a priority for NOAA, USACE and state agencies. To establish a common planning framework, USACE will complete the Native Oyster Restoration Master Plan and NOAA will lead development of a collaborative strategy to guide selection of an agreed-upon federal-state list targeting four to six tributaries for restoration. In advance of restoration, NOAA and Maryland will provide seafloor mapping and habitat assessments for two to three tributaries to guide oyster restoration projects. Additionally, USACE is working with the Virginia Marine Resources Commission to quantify and classify fossil shell resources in the James and Elizabeth rivers and Tangier-Pocomoke Sound to be used as substrate

for restoration. NOAA, USACE and the Maryland Department of Natural Resources will continue reef construction, spat on shell planting, and restoration monitoring and evaluation in Harris Creek, Maryland, as a blueprint for large-scale sanctuary restoration. NOAA will continue reef ball and construction efforts in the Lafayette River, Virginia and USACE will start planning for additional restoration. USACE will continue restoration in the Great Wicomico and Lynnhaven rivers in Virginia and will provide monitoring of federally funded and constructed projects. Research efforts will include NOAA's work on a pilot project to quantify the ecosystem services provided by oyster reefs and USACE's efforts to model commercial and environmental benefits on sanctuary areas and rotational harvest areas. Finally, USACE, NOAA, and state partners will apply the adopted oyster restoration performance metrics to current and existing projects in tributaries, such as Harris Creek and the Great Wicomico River to evaluate the success of the multi-agency restoration efforts.

Federal agencies will continue to work with the states, the public, watermen and resource agencies on the challenges of large, tributary-scale oyster restoration. Challenges include acquiring the large quantities of shell and hard substrates required for constructing oyster reef habitat and balancing competing uses at candidate restoration sites. Federal efforts continue to work through these challenges with all Chesapeake Bay oyster restoration stakeholders.


Source: NOAA Chesapeake Bay Office


Source: NOAA Chesapeake Bay Office

Commercial Oyster Aquaculture Development

The NOAA Fisheries Offices of Aquaculture and Habitat Conservation (Chesapeake Bay Office) and the Northeast Regional Office (NERO) and Northeast Fisheries Science Center (NEFSC), NOAA Sea Grant are actively involved in grant-making, technical assistance, and extension programs to ensure the priorities are pertinent to the needs of the industry and to the Chesapeake Bay restoration, conservation, seafood, and working waterfront/job objectives. The NOAA Aquaculture Office and NERO Aquaculture Coordinator are working closely with the states of Maryland and Virginia on several projects, including administering crab fishery disaster funding and training watermen in oyster farming (involving various private entities like the watermen's and aquaculture associations) throughout the Chesapeake Bay. There is a key link between commercial and restoration aquaculture - the aquaculture interests are working closely with restoration interests.

The Northeast Fisheries Science Center at Milford, Conn. is actively involved in assisting shellfish hatcheries and growers in the Chesapeake Bay. They are collaborating with researchers at the University of Maryland and Virginia Institute of Marine Science to address issues associated with shellfish farming. This activity will continue as will research carried out in other regions that

will have implications for shellfish aquaculture in the Bay.

The NOAA Aquaculture Office and NERO Aquaculture Coordinator will continue to identify pertinent programs that can benefit the area and to let shellfish aquaculture interests know of these opportunities. The Sea Grant program continues to identify aquaculture as an area of interest.

Collaborative Fisheries Science and Management

Working through the Fisheries GIT, NOAA will facilitate interjurisdictional fisheries management by supporting and delivering science (external research, fisheries habitat products and ecosystem models) to support decision making on keystone fishery species including striped bass.

Brook Trout

The Habitat GIT will continue to coordinate with the Eastern Brook Trout Joint Venture's (EBTJV's) Science and Data Committee to refine the Chesapeake watershed's brook trout outcome using the latest science. In 2011, USFS and EBTJV funded a population reassessment of this species at the catchment scale. Data from this study were used by STAR and the Habitat GIT in 2012 to translate the current outcome (which is at the sub-watershed level) to a finer geographic scale that is both more meaningful in terms of measuring impacts of local actions on brook trout habitat and more cost effective in terms of targeted monitoring. Early in 2013, partners will consider options for a watershed metric for brook trout abundance; recommend catchments in which to focus stream restoration to meet two-year milestones for this species; and identify a consistent monitoring protocol among the states. These efforts will help guide targeted investment in brook trout habitat restoration projects, such as those funded in 2012 through National Fish and Wildlife Foundation grants specifically to restore brook trout habitat in the Chesapeake Bay drainage. In addition, USGS is enhancing brook trout science, working with FWS through the Appalachian and North Atlantic Landscape Conservation Cooperatives and other partners, to provide assessment of brook trout population conditions at finer scales to support the enhanced metrics. Agencies will utilize the interagency hydrofracking research agenda to consider potential impacts from Marcellus Shale drilling on brook trout habitat, and consider the combined effect of land and climate change on stream habitats. USGS, EPA, FWS and other partners will release a report summarizing the extent and severity of toxic contaminants on fish and wildlife in the Bay and its watershed. USGS will use the results of the report to enhance efforts to determine the sources of toxic contaminants and endocrine-disrupting compounds impacting the health of fish in the watershed (see water quality goal).

Black Ducks

The FWS Migratory Bird Joint Ventures (Atlantic Coast and Black Duck) are developing a decision support tool designed to estimate regional energetic capacity and demands for black ducks along the U.S. Atlantic coast. Initial results are expected in fall 2012/winter 2013 and will be applied to guide wetland restoration goals and actions in the Chesapeake Bay in 2013. Most importantly, this decision tool can help inform a revision of the EO goal for black ducks from a population goal of a three-year average of 100,000 black ducks into an acreage goal (i.e., how many acres by habitat type) needed to support 100,000 black ducks during the non-breeding season. Similarly, USGS recently initiated a finer-scale project to estimate capacity and management alternatives on individual FWS refuges including the Chesapeake Marsh Complex and Rappahannock National Wildlife Refuges. The USGS project will also address the potential impact of land development and climate change on black duck habitat. In addition, the Habitat GIT will continue to work with the SAV community to explore potential for expanding seagrass beds adjacent to National Wildlife Refuge lands and National Estuarine Research Reserves in order **to provide a continued source of food for waterfowl** while adapting to conversion of marsh to shallow water habitat.

Combined budget requests for this goal area total $10.6 million. The following table is a breakdown of these figures by agency.

Sustain Fish and Wildlife*	
DoD (Services)	*$587,000*
DoD (USACE)	*$5,000,000*
DOI (FWS)	*$737,818*
DOI (USGS)	*$1,859,535*
NOAA	*$2,262,500*
USDA (USFS)	*$120,000*
Total	***$10,566,853***

*All budget figures are draft and pending agency review and approval.

OUTCOMES AND MILESTONES FOR THIS GOAL AREA INCLUDE:

2025 Outcome	Baseline	2012-2013 Milestone
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.	A new 215 million adult female abundance target was adopted in 2012. The 2012 Blue Crab Advisory Report (from CBSAC) indicated the abundance of female blue crabs was 97 million, which is above the overfished threshold of 70 million and below the newly adopted 215 million target.	
Oysters: Restore native oyster habitat and populations in 20 tributaries out of 35 to 40 candidate tributaries by 2025.	There are several tributaries with ongoing restoration of oyster reef habitat; zero tributaries have been evaluated per the recently established oyster restoration performance metrics.	NOAA, USACE, Maryland and Virginia, with input from stakeholders, will develop tributary restoration plans (blueprints) for 1 to 2 priority tributaries (Elizabeth, Lafayette, Lynnhaven and Little Choptank rivers) in 2013. NOAA, USACE and the Maryland Department of Natural Resources will continue reef construction (30 acres), spat on shell planting, and restoration monitoring and evaluation in Harris Creek, Maryland, as a blueprint for large-scale sanctuary restoration. However, we note the first several years are focusing more heavily on establishing standardized assessment protocols and developing tributary restoration plans with accelerated implementation of in-water restoration expected in the outyears.
Brook Trout: Restore naturally reproducing brook trout populations in the Chesapeake watershed with a X% gain in total patch area by 2025. (% gain figure is in discussion with STAR)	Catchment-level data collected via the Eastern Brook Trout Joint Venture's 2011 reassessment is currently being analyzed and will be used to refine this outcome to a more meaningful scale.	Work with state and NGO partners to populate unoccupied suitable habitats, improve in-stream habitat in regions with occupied but 'less than intact' populations, and sustain integrity of headwater habitats where intact populations persist. (FWS, USGS)
Black Ducks: Revise EO goal for the black duck from a population abundance metric to an energetic capacity metric.		Work with state, NGO and federal partners to establish an energetic capacity goal based on estimates of current energetic capacity and demand; anticipated goal will estimate number of acres by wetland type needed to support a desired number of black ducks during the non-breeding period. (FWS)

2025 Outcome	Baseline	2012-2013 Milestone
Black Ducks: Restore a three-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025.	Recent mid-winter aerial surveys estimated the 2009-2011 rolling three-year average at 47,269 black ducks in the Chesapeake Bay.	Create 3 percent more forage on refuge lands every two years in order to restore a three-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025. (FWS, USGS)

ADDITIONAL PROGRAMMATIC MILESTONES FOR THIS GOAL AREA INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
	OYSTERS
March 2013	Complete and release Native Oyster Restoration Master Plan. (USACE)
December 2014	Complete Bay-wide Oyster Population Assessment. (NOAA)
December 2014	Conduct a study of existing and potential future oyster restoration activities in the Lafayette River. (USACE)
	BLUE CRABS
June 2013	Establish and adopt new Bay-wide conservation thresholds and management targets for adult male crabs through the Chesapeake Bay Stock Assessment Committee and the Sustainable Fisheries GIT. (NOAA)
June 2013	Assess the extent to which the population is sustainable (i.e., between the abundance and exploitation targets and thresholds) by preparing and delivering the Chesapeake Bay Blue Crab Advisory Report annually (2012 and 2013) and convening the Sustainable Fisheries GIT to approve the report and adapt management approaches when necessary. (NOAA)
	BROOK TROUT
May 2013	Host working session of Eastern Brook Trout Joint Venture to prioritize patches in Va., Md., N.Y., Pa. and W.Va. for brook trout habitat restoration and protection. (FWS, USGS)
	BLACK DUCKS
March 2013	Work with STAC and the Habitat GIT to host workshop on Targeting Restoration of Coastal Habitat Complexes, resulting in management guidelines for local governments on how to minimize impacts to waterfowl wintering habitat. (FWS, USGS)
June 2013	Work with Joint Ventures and North Atlantic Landscape Conservation Cooperative to apply results of research on energetic carrying capacity of Bay habitats to articulate two-year milestones in terms of black duck habitat. (FWS, USGS)

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

- 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.
- Increase public access to the Bay and its tributaries by adding 300 new public access sites by 2025.

The EO Strategy sets out a goal of protecting an additional 2 million acres of high priority conservation lands by 2025.

Achieving the land conservation goal requires a focus on conserving the most important lands. Partners in the Bay watershed 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 continues a major step toward that end—enhancing and promoting Landscope Chesapeake, a publicly accessible geographic information and priority system launched in 2012 to facilitate collaboration among state, federal, local, and NGO partners and support land conservation planning, decision making and implementation throughout the watershed. This year, the U.S. National Park Service (NPS) and USGS, in partnership with NatureServe's Landscope America, will continue to build out and expand this watershed-wide geographic information system (GIS)-based land conservation priority system. USGS, NPS and NatureServe will work with other partners to build out and add additional data layers from federal and NGO partners as well as add reporting capabilities that will enable land conservation statistics in the Chesapeake region to be generated.

This year, NPS will build upon previous years collaborative efforts and continue to convene partners engaged in land conservation throughout the watershed. In addition to hosting workshops, NPS will also develop other means of fostering collaboration.

Source: NOAA Chesapeake Bay Office

In order to continue the EO Strategy commitment to identify culturally significant and ecologically important landscapes, NPS will continue to work with federal, state and local partners to further develop the methodology for identifying indigenous cultural landscapes (ICLs) through initial pilot mapping efforts. This year, NPS will work with the University of Maryland to further the identification and mapping of ICLs for conservation and/or interpretation along the Captain John Smith Chesapeake National Historic Trail, as well as to refine the criteria and methodology guiding such identification. The project involves: conducting a review of literature relevant to ICLs; listing and mapping existing identified ICLs in the Chesapeake Bay watershed; pilot ICL identification and mapping projects along the John Smith Trail; and providing recommendations on ICL criteria and methodology. NPS is also completing a conservation strategy for the Captain John Smith Chesapeake National Historic Trail that will identify focus areas along the major tributaries.

Direct land conservation efforts will continue to be carried out by a wide range of private landowners, local and regional land trusts, and local, state and federal agencies. While most land conservation action in the Chesapeake region is carried out at the state and local level, some federal support for land conservation or direct federal land protection is anticipated this year. NRCS, FWS, NPS and USFS all contribute to this. In particular, this year several federal agencies including NPS, FWS and the Bureau of Land Management along with states, local governments, land trusts and river groups are partnering in a large-scale conservation effort to identify potential sites for protection and funding in FY 2014 and beyond. In addition, FWS and NPS are participating in efforts to determine how land conservation can be credited in the Chesapeake Bay model that has been used to identify management practice levels to be implemented in order to comply with the Chesapeake Bay TMDL.

USDA will complete a Working Land Conservation Strategy begun in 2012, to reduce the loss of farms and forests on the landscape. To complement this Strategy, a status paper of the forest lands in the watershed will be produced.

NPS will also support an NGO to facilitate public and private sector partnerships that advance conservation innovation in the region. These conservation innovation partnerships are intended to develop and promote transformative technologies and techniques, and break down traditional barriers to create a better hybrid environment where the public and private sectors can work together to accomplish landscape scale conservation in the Chesapeake.

DoD will continue through the Readiness and Environmental Protection Initiative (REPI) Program to identify opportunities to conserve priority landscapes around defense installations. DoD will conserve lands on DoD installations where compatible with the military mission as described in the installation's approved Integrated Natural Resources Management Plan (INRMP). NPS and FWS will coordinate with DoD to identify potential opportunities for collaboration in land conservation.

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. This year, federal, state, local, nongovernmental and community partners will implement the Chesapeake Bay Public Access Plan that was released in 2012; this plan will inform and guide expansion of Chesapeake Bay watershed public access sites. In particular, NPS financial assistance will prioritize creation of new public access sites in the Chesapeake region, specifically along the Captain John Smith Trail, Star-Spangled Banner Trail and the Potomac Heritage National Scenic Trail.

Combined budget requests for this goal area total $22.5 million. The following table is a breakdown of these figures by agency.

Conserve Land and Increase Public Access*	
DoD (Services)	*$5,300,000*
DOI (FWS)	*$1,670,323*
DOI (NPS)	*$4,880,500*
DOI (USGS)	*$275,000*
*USDA (NRCS)***	*$8,800,000*
USDA (USFS)	*$1,620,000*
Total	***$22,545,823***

* All budget figures are draft and pending agency review and approval.

** Funding for land conservation will be dependent upon enactment of a new federal farm bill.

OUTCOMES AND MILESTONES FOR THIS GOAL AREA INCLUDE:

2025 Outcome	Baseline	2012-2013 Milestone
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.	7.8 million acres protected watershed-wide.	Protect an additional 2 million acres of land by 2025, an average of 133,333 acres annually. This includes total land protected by local, state and federal government, and nonprofit organizations. (NPS)
Public Access: Increase public access to the Bay and its tributaries by adding 300 new public access sites by 2025.	1,129 public access sites providing access to the Bay and its tributaries exist in the District of Columbia, Maryland, Pennsylvania and Virginia (based on 2010 data); data on existing access sites in New York, Delaware and West Virginia are to be collected in the future.	Add 300 public access sites by 2025 by adding an average of 20 public access sites annually. This includes total sites added by local, state and federal government, and nonprofit organizations. (NPS)

ADDITIONAL PROGRAMMATIC MILESTONES FOR THIS GOAL AREA INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
December 2012	Complete initial build-out of the Land Conservation Priority Mapping Tool. (NPS and USGS)
December 2012	Finalize public access plan. (NPS)
December 2012	Complete strategy to reduce the loss of working lands. (USFS)

Expand Citizen Stewardship Supporting Strategy

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

Source: Maryland Environmental Service

Source: NOAA Chesapeake Bay Office

Source: NOAA Chesapeake Bay Office

America has a long history of stewardship. Unfortunately, increased pressures and competing interests have resulted in a degraded Bay. The citizens of this region have yet to find the elusive balance between conservation and growth development—and the need for increased stewardship of the Chesapeake watershed is great. The citizen stewardship section of the EO Strategy outlines key actions needed to continue to educate and engage people in the important work of protecting and restoring the Bay's fragile ecosystem.

The EO Strategy calls for expanding Chesapeake Conservation Corps programs to help fill this need. Existing conservation corps in the Chesapeake watershed support work on trail development, improving public access, planting trees, removing invasive species, improving stormwater systems, restoring wildlife habitats, implementing education programs, and maintaining parks and trails—all while expanding participants' skills to aid in their future employment. NPS will continue to convene federal, state and nongovernmental partners to expand existing conservation corps that create jobs and carry out conservation and restoration projects in priority watersheds, creating a broader Chesapeake Youth Corps. NPS will support the development of the Chesapeake Youth Corps Network and will assist in identifying other opportunities for youth engagement, developing a strategy for youth engagement throughout the Chesapeake Bay and identifying opportunities to collaborate with partners to increase youth engagement. This year, NPS will partner with the Virginia Youth Conservation Corps and Maryland Conservation Job Corps and other youth corps on projects that aid the Star-Spangled Banner and Captain John Smith Chesapeake National Historic Trails and increase public access to the Bay and rivers. USGS and other agencies are utilizing students for supporting science activities.

In order to enhance visitor experiences and stewardship, NPS will continue to build long-term local partnerships for engaging communities and citizens along national trails. NPS will continue to

work with state and local partners to develop orientation and interpretive media along the Captain John Smith Chesapeake National Historic Trail and Star-Spangled Banner National Historic Trail.

Fostering systemic change in schools to support student environmental education is critical to grow the next generation of Bay stewards. This year, NOAA will collaborate with its partners to develop a suite of research-based best practices for environmental education related to students, teachers and schools. These best practices will be used to refine the definition of and tracking procedures for the Meaningful Watershed Educational Experience (MWEE) metric. The revised metric will be piloted during the 2013-2014 academic year. On behalf of the Education Workgroup, NOAA and NPS will also plan for and begin to build out www.baybackpack.com, the CBP's teacher resource website.

Forestry for the Bay, a program sponsored by USFS, provides education and outreach to landowners to promote sustainable forest management. This program will continue to expand its outreach with woodland owners by enhancing existing partnerships and engaging new, non-traditional partners like local governments and realtors. The program's web resources and tools will be regularly updated and integrated with the most current technologies to ensure their utility for landowners.

Combined budget requests for this strategy total $7.8 million. The following table is a breakdown of these figures by agency.

Expand Citizen Stewardship•	
DoD (Services)	*$588,000*
DOI (FWS)	*$2,482,022*
DOI (NPS)	*$1,573,500*
EPA	*$2,272,000*
NOAA	*$585,000*
USDA (USFS)	*$280,000*
Total	***$7,780,522***

*All budget figures are draft and pending agency review and approval.

PROGRAMMATIC MILESTONES FOR THIS STRATEGY INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
December 2012	Chesapeake Conservation Corps strategy will be finalized. (NPS)
July 2013	Complete a set of research-based best practices in support of the meaningful watershed educational experience and develop metrics to monitor implementation of these practices by signatory states and the Chesapeake Bay Program. (NOAA)
October 2013	Serve on the Leadership Team for the Maryland Partnership for Children in Nature to ensure federal priorities are included in the nation's first effort to define a high school graduation requirement for environmental literacy. (NOAA)

Develop Environmental Markets Supporting Strategy

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.

The EO Strategy called on federal agencies to form an interdepartmental Environmental Markets Team (EMT) tasked with collaboratively developing the infrastructure needed for enabling environmental markets to function effectively in the Chesapeake Bay watershed. The EMT includes over 12 different federal agencies and departments and under the leadership of USDA works together to support the missions of individual agencies (including USDA (Office of Environmental Markets, NRCS, USFS, Agricultural Research Service, Economic Research Service), U.S. Department of Commerce (NOAA), DOI (FWS), U.S. Department of Transportation (Federal Highway Administration), DoD (U.S. Navy, USACE), EPA, Council on Environmental Quality, Office of Management and Budget and U.S. Department of Homeland Security) charged with regulating environmental compliance as well as those supporting voluntary conservation. In FY 2013, the EMT will continue developing the infrastructure to support the establishment of environmental markets in the Chesapeake Bay. The EMT will release issue papers that address trading ratios, additionality, the role of government, and other mechanisms to support establishment of a sustainable market. The EMT will also expand its focus to promote increased participation of animal agriculture in environmental markets in the Chesapeake Bay. **Additionally, the EMT will support the second phase of an economic study, "Building Capacity to Analyze the Economic Impacts of Nutrient Trading and other Policy Approaches for Reducing Agriculture's Nutrient Discharge into the Chesapeake Bay Watershed," to better understand the costs of water quality improvements and the role that nutrient trading programs can play in reducing those costs.**

The EMT will continue to evaluate opportunities for other environmental markets, such as mitigation and conservation banking. The EMT will continue to emphasize coordination, education and outreach in all of its activities.

The EMT will focus efforts in four areas:

1. **Strengthen federal, state and local coordination –** Facilitate meetings of federal and state agencies to inform development of markets and market infrastructure, and host stakeholder workshops to advance development and implementation of market mechanisms for environmental markets.
2. **Facilitate Development/Expansion of Conservation and Mitigation Banking Markets –** Identify opportunities for use of mitigation and conservation banking to conserve and restore ecosystem services. Identify strategies to expand existing markets and develop public-private partnerships for credits supplied to and sold by conservation banks, and clarify how conservation banks would overlap or interact with wetland/stream mitigation banking as well as TMDL markets.
3. **Facilitate Development of Water Quality Credit Trading Markets –** Explore emerging market demand and identify potential federal investment strategies or mechanisms that could be used to support environmental market development and catalyze their use in meeting water quality and other Chesapeake Bay goals under the TMDL.
4. **Build Local Capacity –** Conduct outreach and education, and facilitate stakeholder engagement in environmental markets through workshops, training sessions and by improving access to existing information, databases, registries and other resources.

Combined budget requests for this strategy total $0.6 million. The following table is a breakdown of these figures by agency.

Develop Environmental Markets*	
EPA	*$250,000*
USDA (OEM)	*$350,000*
Total	***$600,000***

*All budget figures are draft and pending agency review and approval.

Respond to Climate Change Supporting Strategy

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

Projecting land use and climate change effects on Bay resources and communities is essential to planning for future health of the Chesapeake Bay and its watershed and to meet the long-term goals and outcomes of the EO and the Chesapeake Bay partnership. Federal agency partners will continue putting mechanisms in place to better instill an understanding of potential impacts of land and climate change in planning to meet goals for water quality, habitat, fish and wildlife, and land conservation.

Science and Monitoring

USGS will focus on science and modeling to address potential effects of land and climate change on the Bay watershed. **USGS will complete its revision of the Chesapeake Land Change Model to help identify lands that are vulnerable to development.** The land change model results will be used in conjunction with climate change information to assess potential changes in streamflow conditions in the Bay watershed. The report will be used by EPA to help assess potential changes in water quality and implications for the Bay TMDL. USGS is working with FWS, USFS, and state partners, through the Appalachian Landscape Conservation Cooperative, to enhance the science **on the potential impact of land and climate change on brook trout habitat**. USGS will continue a local study of the potential impacts of temperature change on streams with brook trout in the Shenandoah National Park. EPA and NOAA will work with the CBP's Submerged Aquatic Vegetation (SAV) Workgroup to convene a panel of experts to develop a consensus statement on likely impacts of climate change on SAV, including impacts from sea level rise, shoreline changes, water quality changes and invasive species.

NOAA and USGS will continue monitoring and modeling of sea level rise along the Atlantic Coast, including focused analysis of risks to coastal wetlands in sentinel sites such as Blackwater National Wildlife Refuge and National Estuarine Research Reserve sites. Similarly, USACE will complete a sea level rise pilot study at Willoughby Spit, Virginia. USGS will release a summary of rates of sea level rise in the Bay region and implications for Bay ecology. In addition, EPA is developing a case study on climate change impacts on stormwater quality in the Patuxent River. NOAA also is supporting both an inventory of Light Detection and Ranging (LiDAR) data for Maryland, Virginia and other mid-Atlantic states, and use of that data for the Sea Level Rise and Coastal Flooding Impacts Viewer. Based on the results of the LIDAR inventory, NOAA and USGS will help jurisdictions acquire additional data. NOAA is also spearheading a regional Chesapeake Bay Sentinel Site Cooperative with other federal, state, academic, nonprofit, private and industry partners to strengthen the science among all sentinel-type datasets around the larger Chesapeake Bay region, and to build synergistic, collaborative decision support models and tools to foster sustainable Bay living resources and resilient coastal communities.

Tools, Training and Guidance

NOAA will support tools and training to assist with restoration adaptation planning, including:

- Workshops with the National Wildlife Federation to integrate climate adaptation with restoration and conservation techniques at the sub-watershed level.
- A technical workshop on how tidal and geodetic infrastructure can be applied to sustainable wetland restoration.
- Development of guidelines with USGS and NPS on monitoring wetland surface elevation change.
- Workshops on drought and the Chesapeake Bay as a basis for establishing the Chesapeake Bay Regional Drought Early Warning Information System.
- Work with USGS to conduct workshop on adaptation strategies and information needs in response to extreme events: this case study workshop covering the Virginia Tidewater region is the third of five

workshops being held across the nation. The goals of the workshops are to get a better understanding of what worked and did not work in water/wastewater utilities' responses to extreme climate and weather events, identify emerging approaches to adaptation planning, and discuss gaps in tools and knowledge for coping with the next extreme event (e.g., new tools, data formats, relationships, etc.).

- To assist understanding of community-level decisions, NOAA is funding Virginia Sea Grant support for the "Community Adaptation to Sea Level Rise" project, which will evaluate data visualization, awareness of sea level rise, and policymakers' response to community policy preferences.

- In addition, NOAA will connect the work of the National Science Foundation-funded Maryland and Delaware Climate Change Education, Assessment and Research project to the regional climate literacy effort and the citizen stewardship components of the CBP.

Federal agencies will continue advancing climate adaptation in specific locations in the watershed. For example, FWS is working in partnership with the Maryland Audubon Society to develop a watershed management plan for the Blackwater River. The partnership focuses on increasing adaption and resilience of watershed habitats and wildlife to sea level rise and improving the quality of water entering the Bay.

Integrating Climate Change Efforts with the Chesapeake Bay Program

NOAA's Chesapeake Bay Office will develop a proposal and seek approval for the formation of an interagency climate strategy team to coordinate Chesapeake Bay Executive Order climate activities. The team will exist under the CBP structure and have a Chesapeake Research Consortium staffer assigned to run the team in conjunction with the NOAA Chesapeake Bay Office. FWS, USGS and NPS are working with other federal and state partners, through the Landscape Conservation Cooperatives, to provide science on land and climate change to better inform resource management activities, many of which are related to CBP goals. USGS, FWS and NPS will also be working through the U.S. Department of Interior (DOI) Northeast Climate Science Center to supply climate science for the Chesapeake and working with regional groups that are implementing the Ocean Action Plan. The Chesapeake Bay Sentinel Site Cooperative, working in closer cooperation with state, local and academic partners, will also support the climate related CBP goals. Federal partners will work with the Scientific and Technical Advisory Committee to integrate their climate actions with ongoing research.

Combined budget requests for this strategy total $1.7 million. The following table is a breakdown of these figures by agency.

Respond to Climate Change*	
DoD (Services)	*$152,000*
DOI (USGS)	*$650,000*
EPA	*$700,000*
NOAA	*$172,500*
Total	***$1,674,500***

* All budget figures are draft and pending agency review and approval.

PROGRAMMATIC MILESTONES FOR THIS STRATEGY INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
September 2013	Hold a workshop to conduct knowledge assessments on drought and the Chesapeake Bay watershed. These assessments will serve as the basis for establishing a Chesapeake Bay Watershed Regional Drought Early Warning Information System.
September 2013	Draft a Chesapeake Bay sentinel site cooperative implementation plan, focused on sea level rise in collaboration with federal, state, local, university and nonprofit partners.
December 2013	Complete improvements to Chesapeake Land Change Model (version 3) to enhance assessments of the combined impact of climate and land change on the Bay and its watershed. Results from the model will also be used to assess vulnerability of conserved lands to future development. (USGS)

Strengthen Science Supporting Strategy

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.

Federal agencies are working with state and academic partners on two key efforts to strengthen science in 2013: (1) providing science to the Goal Teams as they implement the adaptive management decision framework (see accountability chapter for more details on the decision framework) and (2) implementing the Monitoring Alliance and Data Enterprise. These activities will help CBP partners to more effectively prioritize, implement, monitor and evaluate the actions and policies for the restoration and protection of the Chesapeake Bay and its watershed.

Providing science to the CBP Goal Teams for adaptive management: Federal agencies are working with state and academic partners to provide science to the CBP Goal Teams as they use a new adaptive management approach to decision making. The Goal Teams are using the CBP adaptive management decision framework, and its associated support tool Chesapeake*Stat*, to refine their goals, formulate management strategies, and establish monitoring to assess progress toward the goals. The federal agencies will interact with the Goal Teams, working with state and academic partners through CBP's STAR team to provide science to help them refine their goals and begin to enhance associated monitoring efforts and modeling tools. Selected science activities to support the Goal Teams for 2013 include:

- **Fisheries Goal Team:** Science is being provided to enhance decision making for oyster restoration and fisheries management in the estuary as well as improving conditions for key freshwater species including brook trout. **NOAA will continue to integrate acoustic seabed mapping products with results of oyster surveys to work with partners to identify the best locations and designs for oyster reef restoration.** NOAA will continue working with partners to improve benthic habitat, water quality, oyster population and finfish


Source: NOAA Chesapeake Bay Office


Source: Maryland Environmental Service

monitoring to facilitate sustainable, interjurisdictional fisheries management in the estuary. Enhanced science will be provided to the Fisheries and Habitat Goal Teams as they collaborate to address management of brook trout and other key freshwater species (see habitat goal team item for more details). Finally, **EPA, USGS, FWS and NOAA will release a report on the extent and severity of the impact of toxic contaminants on fish and wildlife in the Bay and its watershed. The findings may be used by EPA and CBP partners to consider reduction goals for toxic contaminants.**

- **Habitat Goal Team:** Science is being provided to refine the brook trout outcome based on catchment-level data collected in 2011 and assessed in 2012. **In 2013, FWS, USGS and USFS will work with STAR and the Eastern Brook Trout Joint Venture to develop improved metrics and associated monitoring recommendations for brook trout.** FWS is also working with USGS and STAR to establish a steering committee for a 2013 workshop focused on stream restoration in the watershed. **The FWS migratory bird joint ventures (Atlantic Coast and Black Duck) are developing regional estimates of energetic carrying capacity for black ducks and goals for habitat protection and management to increase capacity.** Results of this energetics research are expected in fall 2012 and will be applied to guide wetland restoration actions in 2013. USGS is continuing development of local models of habitat and food requirements for black ducks to help FWS consider implications for refuge management. Finally, FWS, USGS and NOAA will continue monitoring of sea level rise to assess potential loss of coastal wetlands including those near Blackwater Refuge.

- **Water Quality Goal Team: As part of the effort to apply the CBP decision framework, EPA will work with USGS, NOAA and state partners to have an integrated approach to enhancing the use of monitoring as part of the mid-point assessment for the TMDL.** EPA is working with USDA and the jurisdictions to improve reporting of management practices, USGS is expanding evaluation of nutrient and sediment trends in the watershed, and EPA is working with NOAA and state partners to enhance assessment of changes in dissolved oxygen, water clarity and chlorophyll conditions. STAR is leading an action team to consider ideas for a "modeling laboratory" to help enhance the CBP modeling effort. The CBP monitoring team, in cooperation with EPA and USGS, will release a summary report on the effects of BMPs on water quality improvements. The results will help jurisdictions enhance implementation of water quality practices. NRCS is also working with USGS to monitor the impacts of agricultural practices implemented by producers in the showcase watersheds. USGS is characterizing nutrient and sediment sources and transport properties in both agricultural and urban watersheds to improve water quality restoration strategies. USGS will continue its assessment of sediment in the Conowingo Dam and support associated state and federal efforts. Finally, the Goal Team may also use key science findings from the summary report on the extent and severity of the impact of toxic contaminants on fish and wildlife in the Bay and its watershed to consider toxic reduction goals during 2013.

- **Healthy Watersheds and Stewardship Goal Teams:** Science is being enhanced to support the land and habitat protection activities of these Goal Teams. **NPS and USGS will work with Nature Serve to enhance the initial version of Chesapeake Landscope, a decision tool to enhance efforts to identify priority areas for land conservation.** The federal and state agencies will enhance information contained in Chesapeake Landscope including new results on potential vulnerability of future land development on priority lands (provided by USGS). STAR, led by the CBP monitoring team (EPA/ University of Maryland Center for Environmental Science), will be working with the Healthy Watershed and Habitat Goal Teams to develop a methodology to track changes in stream health over time. The information will be used to better assess the impact of both stream protection and restoration activities on stream health.

Monitoring Alliance and Data Enterprise: To improve coordination of federal, state and citizens monitoring programs, **CBP has established a Monitoring Alliance, with the initial focus on improving partnerships for collecting water quality and land cover information.** EPA, working through STAR, is formulating pilot partnerships with local jurisdictions and NGOs to expand the use of their water quality monitoring to assess conditions in the

Bay and its watershed. USGS will produce more recent land cover (2011 data) for the Bay watershed and work with NOAA to enhance coastal land cover.

To better manage and share monitoring information, EPA is leading efforts to establish a Data Enterprise. Building on progress made in 2012, **EPA is launching the Data Upload and Evaluation Tool (DUET) to receive, quality assure, and aggregate data from across the partnership.** In 2013, EPA will work with USGS and jurisdictional partners in the Nontidal Water Quality Network to use DUET to enhance reporting and access to data from the network and also work with NOAA and other partners to receive tidal data.

The majority of milestones to strengthen science, which includes modeling, monitoring and assessment activities, are listed in each of the major EO Strategy goals.

Combined budget requests for this strategy total $4.8 million. The following table is a breakdown of these figures by agency.

Strengthen Science*	
DoD (Services)	*$250,000*
DOI (FWS)	*$48,000*
DOI (USGS)	*$1,076,239*
EPA	*$1,725,000*
NOAA	*$1,720,000*
Total	***$4,819,239***

* All budget figures are draft and pending agency review and approval.

PROGRAMMATIC MILESTONES FOR THIS STRATEGY INCLUDE:

(Actions to be completed in FY 2013 and beyond)

Target Date	Programmatic Milestone
December 2012	Implement the CBP decision framework through interaction with all GITs. Summarize the information in Chesapeake*Stat* (EPA) and work to provide the science needed to help support this adaptive management process. (USGS, NOAA and EPA)
July 2013	As part of the Monitoring Alliance, engage local jurisdictions and NGOs on partnerships to expand the use of their water quality monitoring to assess conditions in the Bay and its watershed. (EPA) Integrate federal and state dissolved oxygen data across tidal, non-tidal and main stem monitoring data through the Data Enterprise to advance understanding of hypoxia and progress toward water quality standards. (EPA, USGS and NOAA)
December 2013	Implement the Chesapeake Monitoring Alliance by producing more recent land cover (2011 data) for the Bay watershed that can be used to support the implementation of EO goals. (USGS)

Implementation and Accountability Supporting Strategy

Objective: The Executive Order recognizes the federal government alone cannot achieve the goals and outcomes needed to restore and protect the Chesapeake Bay and its watershed without significant collaboration with state and local government, nongovernmental organizations and citizens.

As chair of the Federal Leadership Committee (FLC), 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. Recognizing the importance of using the organization already established through the Chesapeake Bay Program partnership, the FLC committed to working with the Partnership to align goals and actions with the CBP goals and commitments and to consider changes to the governance structure to coordinate the work and responsibilities of the states and the federal agencies. In 2011, the Chesapeake Executive Council and the FLC agreed to an approach to aligning these goals and governance structures. This year, the FLC and CBP's Executive Council continue to align goals and outcomes using the CBP partnership's organizational structure to ensure collaboration with states and other stakeholders. Through the CBP's Goal Implementation Teams, common goals and outcomes will be refined and strategies developed using a decision framework that is based on adaptive management principles and developed and tested in FY 2012. This year the CBP governance will also be considered to determine if any changes need to be made to the organization of the partnership and its decision making process to better align the work under this Executive Order with that of the overall partnership. Finally, the CBP will consider whether a new partnership agreement will need to be developed to update the existing Chesapeake 2000 to reflect the changes to goals, outcomes and/or governance.

In addition, this year the FLC will continue its commitment to develop annual action plans and progress reports; and developing, implementing and reporting progress on two-year milestones. The Progress Report for FY 2012 activities is scheduled to be released by the end of the first quarter of CY 2013. **Chesapeake*Stat* will be enhanced to provide a website for use in decision making for the CBP's Goal Implementation Teams and Management Board and to provide accountability and transparency related to progress.** 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 GITs. This responsibility also calls for 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 is associated with management of the CBP and 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.

FY 2013 budget requests associated with implementation and accountability are approximately $4.2 million.

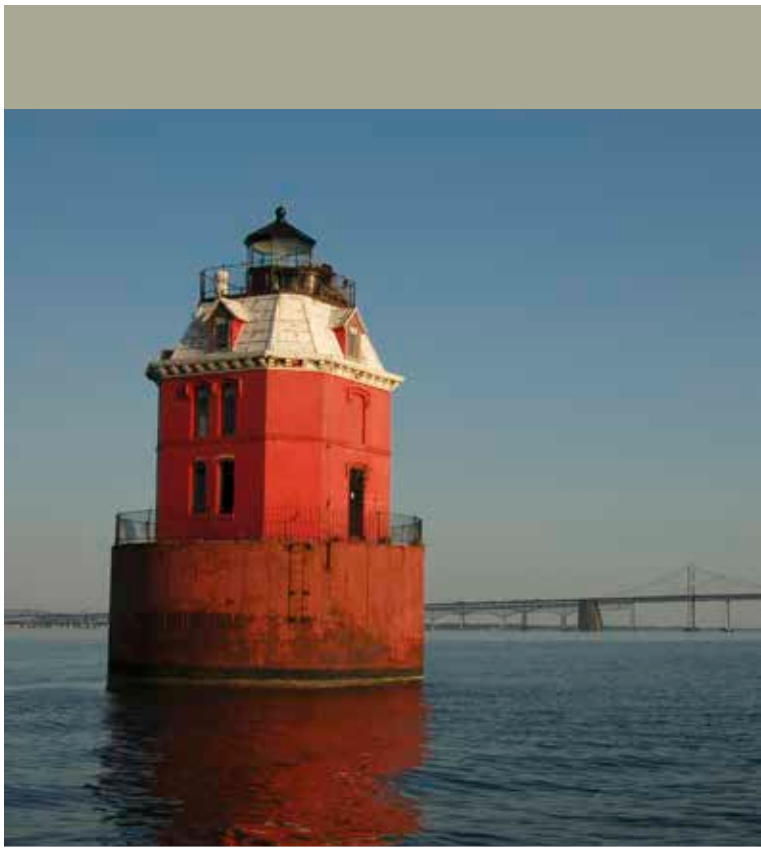
Implementation and Accountability*	
EPA	*$4,200,000*
Total	***$4,200,000***

* All budget figures are draft and pending agency review and approval.

Funding Summary

The 2013 Action Plan provides a breakdown of how FY 2013 funding identified 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 $403 million is targeted toward meeting the outcomes and goals set forth in the EO Strategy. Funding* is summarized in the following table by goal and supporting strategy and agency. Allocations are based on funding 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 toward the EO Strategy.
- Shares of national programs that can be reasonably and directly attributed to supporting the EO Strategy in the Chesapeake watershed.



Source: NOAA Chesapeake Bay Office

Department/ Agency	Water Quality	Habitat	Fish and Wildlife	Land Conservation and Public Access	Citizen Stewardship	Environmental Markets	Climate Change	Science	Implementation and Accountability	Total
USDA Total	$141,791,000	$6,960,000	$120,000	$10,420,000	$280,000	$350,000	$0	$0		$159,921,000
FSA**	$37,081,000									$37,081,000
NRCS***	$104,560,000	$6,400,000		$8,800,000						$119,760,000
Office of Environmental Markets						$350,000				$350,000
USFS	$150,000	$560,000	$120,000	$1,620,000	$280,000					$2,730,000
U.S. Department of Commerce / NOAA	$351,500	$1,627,500	$2,262,500		$585,000		$172,500	$1,720,000		$6,719,000
DoD Total	$45,200,000	$19,400,000	$5,587,000	$5,300,000	$588,000	$0	$152,000	$250,000		$76,477,000
Services****	$45,200,000	$4,800,000	$587,000	$5,300,000	$588,000		$152,000	$250,000		$56,877,000
USACE		$14,600,000	$5,000,000							$19,600,000
DOI Total	$5,943,881	$5,400,182	$2,597,353	$6,825,823	$4,055,522	$0	$650,000	$1,124,239		$26,597,000
FWS	$161,901	$5,193,936	$737,818	$1,670,323	$2,482,022			$48,000		$10,294,000
NPS*****				$4,880,500	$1,573,500					$6,454,000
USGS	$5,781,980	$206,246	$1,859,535	$275,000			$650,000	$1,076,239		$9,849,000
EPA	$169,828,300				$2,272,000	$250,000	$700,000	$1,725,000	$4,200,000	$178,975,300
Total	$363,114,681	$33,387,682	$10,566,853	$22,545,823	$7,780,522	$600,000	$1,674,500	$4,819,239	$4,200,000	$448,689,300

* All budget figures are draft and pending agency review and approval.

** Farm Service Agency FY 2012 financial assistance figures were not included in the 2012 Executive Order Action Plan.

*** The FY 2013 President's Budget assumes program authority and funding for several mandatory conservation programs included in the 2008 Food, Conservation, and Energy Act (110-234), which expired on September 30, 2012. Funding for these programs and initiatives will be dependent on enactment of a new federal farm bill.

**** DoD Services utilized budget appropriations by planned FY 2013 projects as described in DoD's 2011 Federal Funding Inventory data call.

***** The NPS funding request in this table does not include the $4 million request for federal Land and Water Conservation Funds.

****** The Department of Transportation (DOT) is a member of the Federal Leadership Committee. While DOT does not make any direct programmatic or base funding contributions specifically for Chesapeake Bay restoration activities under federal surface transportation programs, it is expected that DOT programs will be used to support Chesapeake Bay restoration in 2013. DOT offers funding assistance to all states and to local transportation agencies by formula for a broad range of surface transportation improvements. States and transit agencies determine what activities they will finance from formula funds through state and metropolitan transportation planning. The Department offers funding assistance to states and metropolitan areas for transportation planning, including activities that integrate transportation planning with housing and other infrastructure planning. DOT also funds discretionary programs such as the Transportation Investment Generating Economic Recovery (TIGER) program; transit New Start program; Clean Fuel Grants; and the Transportation, Community, and System Preservation (TCSP) program that can foster livable communities; a number of awards were announced under these programs for projects in Chesapeake Bay states and communities in FY 2012. A number of discretionary and formula programs were consolidated under the new surface transportation authorization, Moving Ahead for Progress in the 21st Century (MAP-21), effective October 1, 2012, although eligibility for these activities generally continues. The President's FY 2013 budget requested funding for the TIGER discretionary program; however, MAP-21 did not authorize funding for the program.

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. In addition, 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 other substantial 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 funding projections that have been made for FY 2013 based on an explicit strategy and a set of actions jointly adopted by all participating agencies.

Development of the Annual Action Plan Process

The EO directed the Federal Leadership Committee to "consult with stakeholders—including relevant Bay jurisdiction 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 Bay jurisdictions and other key stakeholders during the development of the Action Plan. Consultations took place in the summer and fall of 2012.

Source: Maryland Environmental Service

Progress Reports

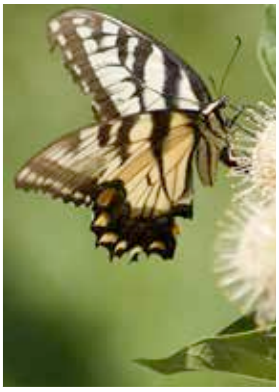

Source: Maryland Environmental Service

The EO directs the Federal Leadership Committee 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 2012 Progress Report will be available in 2013.

Public Comment


Source: Maryland Environmental Service


Source: NOAA Chesapeake Bay Office



The Federal Leadership Committee provided a draft of the report for public comment prior to its final release. The FLC was particularly interested in comments that would help improve the development of this Action Plan, 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 this and future plans.

Appendix A. Programmatic Milestones Completed in FY 2012

Target Date	Programmatic Milestone
	RESTORE CLEAN WATER
	TMDL/WIPs
January 2012 – February 2012	Evaluate and announce federal and jurisdictional 2012-2013 two-year milestones. (EPA)
January 2012 – June 2012	Evaluate draft and final Phase 2 WIPs. (EPA)
June 2012	Assess progress made to implement the May 2009 – December 2011 two-year milestones. (EPA)
2012	Participate in jurisdictions' Phase 2 WIP processes: provide DoD installation information to jurisdictions and disseminate jurisdiction information throughout DoD to support the most effective implementation of future WIP requirements on DoD installations. (DoD)
	AGRICULTURE
July 2012	Develop and implement tracking, reporting and verification mechanisms for voluntary conservation practices and other BMPs installed on agricultural lands. (EPA/USDA co-lead)
2012	Update the CEAP Cropland Report for the Bay region; increase the spatial resolution of model results and account for changes in conservation adoption since 2006. (USDA)
2012	Direct up to $5 million to stimulate innovative conservation approaches, including the development of ecosystem markets in the watershed. (USDA)
2012	Pilot the Conservation Delivery Streamlining Initiative's Conservation Desktop for national use; integrate resource concerns, selected inventory and analysis tools, electronic signature, and geospatial information into conservation planning tools. (USDA)
	ATMOSPHERIC – RULES, DEPOSITION, ALLOCATIONS
	Significantly reduce nitrogen deposition to the Bay and watershed by 2020. (EPA)
2012	• NOxSOx Secondary National Ambient Air Quality Standards finalized. (EPA)
2012	• New air deposition modeling for the Chesapeake Bay watershed incorporating the most recent finalized rules with significant NOx reductions. (EPA)
2012	• EPA/DOT 2017–2025 Model Year Light-Duty Vehicle GHG Emissions and CAFÉ Standards final rule. (EPA)
	SUSTAIN FISH AND WILDLIFE
	BROOK TROUT
December 2012	Work with CBP's STAR and Eastern Brook Trout Joint Venture to adapt the brook trout outcome based on latest science. (USGS, FWS)
	EXPAND CITIZEN STEWARDSHIP
November 2011	NOAA will convene a Mid-Atlantic Environmental Literacy Summit to focus on the intersection of science education and environmental literacy priorities, and to solicit state input on the draft federal K-12 Environmental Literacy Strategy. (NOAA)
November 2011	Work with the Chesapeake Bay Trust to build capacity for environmental education in the region, including supporting a workshop focused on incorporating best practices into metrics and self-assessment tools to support environmental education. (EPA)