E.O. 13508 2012 Action Plan - Sort By Goal

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

Action #	Action Task	Joint Lead(s)
1	Conduct oversight of states' efforts to implement WIP commitments and meet TMDL allocations.	EPA
2	Continue to provide the states with support in their development of the Phase 2 WIPs, as the states divide their TMDL allocations into local area targets that help facilitate implementation by local stakeholders. Review Phase II WIPs. Modify/Public Notice TMDL as necessary.	EPA

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

Action #	Action Task	Joint Lead(s)
1	Work with federal agencies to ensure that updated land use information for federal agencies and facilities is provided to the Chesapeake Bay Program Partnership and incorporated, as appropriate, into the Chesapeake Bay Program models.	EPA
2	Ensure that federal agencies provide the necessary facility and load reduction information to jurisdictions for them to use, as appropriate, in their Phase II WIPs, or ensure that federal agencies develop Federal Implementation Plans (FIP) that meet their share of TMDL allocations.	EPA

WQ 1.b	Create a system for tracking and reporting for TMDL pollution reduction commitments and two-year milestone commitments.

Action #	Action Task	Joint Lead(s)
1	Maintain and update information in Bay Tracking and Accounting System (BayTAS).	EPA
2	Evaluate and announce federeal and jurisdiction 2012-2013 two-year milestones	EPA
3	Evaluation of 2 year milestones (2009-2011 progress)	EPA

WQ 1.c	Improve mechanisms for tracking and forecasting land-use and land cover changes associated with water quality degradation.

Action #	Action Task	Joint Lead(s)

1	The USGS will enhance Chesapeake Land-Change Model to simulate alternative future development scenarios and future potential infill and redevelopment. Results from this model are being incorporated into the Chesapeake Bay watershed model to support the TMDL. Results are also used to improve assessments of combined impacts of climate and land change on the watershed (CC4). The enhanced model results will also contribute to implications for vulnerability of conserved lands (CL09).	USGS
2	Continue to examine the land-use/landcover data used by CBP with Forest Inventory and Analysis and multi-resolution remotely-sensed imagery.	FS

WQ 2.a Implement current regulations for concentrated animal feeding operations (CAFOs) and propose new regulations to more effectively achieve pollutant reductions necessary to meet the Chesapeake Bay TMDL.

Action #	Action Task	Joint Lead(s)
1	Complete Technical Standards review and engage states in necessary revisions to meet TMDL goals in CAFO Permits. Seek corporate/trade group partnerships to go beyond compliance requirements and work with growers. Conduct a review of each state's CAFO program by 12/30/2010.	EPA
2	Complete field test of CAFO designation strategy.	EPA
3	Continue its work to propose revisions to the national concentrated animal feeding operation (CAFO) rule that will provide additional pollutant reductions.	EPA

WQ 2.b Implement improvements to the current stormwater program and initiate new national stormwater rulemaking with Chesapeake Bay watershed provisions.

Action #	Action Task	Joint Lead(s)
1	Continue review of all MS4 and Stormwater Construction Permits in the Bay Watershed for TMDL conformance and implementation Urban Stormwater Guidance Issued 7/31 in review of stormwater permits. Provide Training to states and permittee on MS4 requirements.	EPA
2	Establish specific requirements for stormwater discharges from new and redeveloped sites and other requirements to strengthen the stormwater program.	EPA

WQ 2.c Launch the Chesapeake Bay/ Anacostia Green Streets-Green Jobs Initiative

Action #	Action Task	Joint Lead(s)
1	Design and Implementation of strategy, training and outreach and management of interagency partnership	EPA
2	Organize and hold Green Streets-Green Jobs training forums (and webinars)	EPA

3	Collaborate with Chesapeake Bay Trust and Maryland DNR on a grant program to award nonprofits/local governments funding for green street designs or installation of green infrastructure as part of a green street plan or to develop financial strategies to enable a green street program.	EPA

WQ 2.d Engage in early dialogue with Bay states and the District regarding how EPA will determine if state programs achieve TMDL pollution reduction goals and meet minimum federal program elements for stormwater and Concentrated Animal Feeding Operations.

Action #	Action Task	Joint Lead(s)
1	Conduct field effectiveness studies of state non-CAFO programs to assess compliance rate with state regulations and effectiveness of controls in priority states.	EPA
2	Completed program assessment for PA and VA; and will seek to incorporate areas of programmatic enhancement w/VA & PA.	EPA

WQ 2.e Reduce pollution from wastewater dischargers.

Action #	Action Task	Joint Lead(s)
1	Continue review of all proposed new or reissued NPDES permits for significant point source discharges of nitrogen, phosphorous, and sediment for TMDL consistency	EPA
2	Monitor implementation of compliance schedules in any NPDES permits or enforcement orders for significant municipal and industrial wastewater dischargers and conduct annual reviews to ensure sources are in compliance with TMDL based limits	EPA

WQ 2.f Reduce pollution from septic systems.

Action #	Action Task	Joint Lead(s)
1	Develop first draft of model state program for review by EPA and other federal agency representatives	EPA

WQ 2.g Reduce pollution from atmospheric deposition.

Action #	Action Task	Joint Lead(s)
1	Finalize NOxSOx secondary national ambient air quality standards by March 2012.	EPA
2	Begin annual & seasonal Cross State Air Pollution Rule requirements. New air deposition modeling for the Chesapeake watershed incorporating the most recent finalized rules with significant NOx reductions.	EPA
3	Conduct evaluations of large NOx-emitting sources in NSR priority sectors in Bay airshed and pursue enforcement.	EPA

WQ 2.h Reduce costs and provide flexibility through trading and development of protocols and programs for offsetting new and expanded discharges of nutrients and sediment.

Action #	Action Task	Joint Lead(s)
1	Develop a state trading and offset program review program to ensure that goals of program are being met. To be implemented in FY'12	EPA

WQ 2.i Reduce pollution through enforcement and compliance efforts.

Action #	Action Task	Joint Lead(s)
1	Implement Bay Enforcement Strategy for Stormwater, Agriculture, and Wastewater. Conduct inspections/pursue enforcement at non-compliant stormwater point sources within geographic areas critical to restoration of Bay. Take enforcement action in accordance with series of violations. Address significant non-compliance at significant WWTPs.	EPA
2	Conduct enhanced state review framework (SRF) and State significant non-compliance (SNC) oversight with emphasis on Bay Dischargers. Prioritize Bay Stormwater, combined sewer overflow (CSO) and seperate sanitary sewer overflows (SSO) facilities in Bay Watershed for necessary enforcement action and consent decree monitoring.	EPA

WQ 2.j EPA will coordinate with the Clean Water State Revolving Fund managers to build cooperation and partnership in using resources to better protect the Chesapeake Bay.

Action #	Action Task	Joint Lead(s)
1	EPA will continue to coordinate with the Clean Water State Revolving Fund (CWSRF) managers to build cooperation and partnership in using resources to better protect the Chesapeake Bay. Region 3 State CWSRF programs will continue to finance, both point and nonpoint source, infrastructure projects that contribute to the protection/restoration goals for the Bay in coordination w/ other CWSRF state priorities.	EPA

WQ 2.k Provide states with additional grants for their regulatory programs.

Action #	Action Task	Joint Lead(s)
1	Provide support to states through Chesapeake Bay Regulatory and Accountability Program grants.	EPA
2	Target other CWA funds, such as Chesapeake Bay Implementation Grants, to better protect the Bay and its tributaries.	EPA
3	Use other national CWA base programs such as the nonpoint source grant programs established in Section 319 or the state water pollution control grants under Section 106 for Chesapeake Bay watershed implementation activities, where authorized by law and regulation, and in coordination with other state priorities.	EPA

WQ 3. Ensure the federal government leads by example in reducing pollution from federal lands and facilities.

Action #	Action Task	Joint Lead(s)

1	Facilitate the work of the interagency federal facilities team to plan and implement pollution reductions in coordination with the jurisdictional WIP's.	EPA

WQ 3.a Implement the Energy Independence and Security Act, Section 438.

Action #	Action Task	Joint Lead(s)
1	Develop and report on implementation of agency-wide policies to ensure implementation of EISA Section 438 stormwater requirements in the EO progress report.	EPA

WQ 3.b Implement sustainable land management practices and programs into all federal capital improvements, public works management and energy management projects.

Action #	Action Task	Joint Lead(s)
1	Work with Federal Agencies with 10 or more acres in the Chesapeake Bay watershed to initiate implementation of Section 502 Guidance	EPA
2	Federal Agencies will incorporate Section 502 Guidance considerations as part of their load reductions strategies in the state Phase II WIPs	EPA

WQ 3.c Ensure that stormwater impacts are minimized as part of environmental review of federal-aid highway projects and other federally-assisted transportation projects.

Action #	Action Task	Joint Lead(s)
1	DOT will provide ongoing technical assistance to state DOTs as requested and continue encouragement of using federal transportation funds eligible under environmental restoration for projects to address stormwater management problems.	DOT

WQ 4.a Target efforts at watersheds that contribute the most nitrogen, phosphorus, and sediment.

Action #	Action Task	Joint Lead(s)
1	Align targeted watershed efforts with state watershed implementation plans.	NRCS
2	Strive to obligate 100% of FY 2012 Chesapeake Bay Watershed Initiative funds in targeted priority watersheds. Use other USDA programs (EQIP, AMA, WHIP, and CTA) as appropriate to plan and implement additional conservation practices in the Watershed.	NRCS

WQ 4.b Identify the most effective conservation practices.

Action #	Action Task	Joint Lead(s)
1	Review FY 2011 priority practices in light of USDA Conservation Effects Assessment Project (CEAP) results, USGS SPARROW data and other new data to determine effects of these practices. Evaluate CEAP-based tool for determining existing level of conservation treatment for a land unit and potential effect of adding additional conservation practices.	NRCS

2	Adopt a core and supporting conservation practice list for the Chesapeake Bay Watershed Initiative. Work with States to ensure that where possible, State priority practices are included in the Federal core and supporting practice list.	NRCS

WQ 5.a	Leverage funding for conservation in the Chesapeake Bay watershed.	
Action #	**Action Task**	**Joint Lead(s)**
1	FWS PFW program will partner with NRCS and others to identify projects that benefit federal trust species and improve water quality and to promote citizen-centered conservation.	FWS

WQ 5.b	Utilize EPA funding for agriculture challenges.	
Action #	**Action Task**	**Joint Lead(s)**
1	EPA will fund projects to address key agricultural challenges in the Chesapeake Bay through the Innovative Nutrient and Sediment Reduction Program, CWA S117 and other grant programs.	EPA

WQ 5.c	Establish showcase projects in small watersheds.	
Action #	**Action Task**	**Joint Lead(s)**
1	Develop watershed/farm assessments for showcase watersheds, highlighting resource concerns, level of conservation treatment, and program participation.	NRCS
2	Implement water quality monitoring protocols.	NRCS/USGS

WQ 5.d	Monitor the results of showcase projects.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will work with NRCS and conduct core monitoring two USDA showcase watersheds. USGS will communicate results of initial assessments to local partners to support local targeting of water-quality practices.	USGS
2	Monitor showcase watershed restoration effort on brook trout populations.	FS

WQ 5.e	Simplify conservation planning for producers.	
Action #	**Action Task**	**Joint Lead(s)**
1	USDA will implement a limited production release of the CDSI Financial Assistance Desktop to selected pilot test states (including PA in the CBW) in January 2012.	NRCS
2	USDA will implement a limited production release of the CDSI Client Gateway to selected pilot test states (including PA in the CBW) in January 2012.	NRCS

3	USDA will release the Conservation Delivery Streamlining Initiative's Conservation Desktop and Client Gateway for national use in October 2012, fully integrating resource concerns, selected inventory and analysis tools, electronic signature, and geospatial information into conservation planning tools.	NRCS

WQ 6.a	Fund research and development of conservation technology.

Action #	Action Task	Joint Lead(s)
1	Direct up to $5 million to stimulate innovative conservation approaches, including the development of ecosystem markets in the watershed.	NRCS
2	Collaborate with other funding entities in the CBW. Evaluate priority funding needs for conservation technology to ensure that funding resources are effectively allocated.	NRCS

WQ 6.b	Evaluate effectiveness of next generation conservation tools.

Action #	Action Task	Joint Lead(s)
1	EPA will support the Chesapeake Bay Program Agriculture Workgroup in convening technical panels to evaluate, define, and develop nutrient and sediment effectiveness estimates for next generation conservation practices for credit in the Chesapeake Bay Watershed Model, in accordance with the "Chesapeake Bay Program's Protocol for Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model."	EPA
2	Use Conservation Effects Assessment Project results, GoalLine 2025 workshop information, and other data to begin the process of developing a method to assess the effectiveness of new conservation tools and practices in reducing nitrogen, phosphorus, and sediment losses. Evaluate CEAP-based tool for determining existing level of conservation treatment for a land unit and potential effect of adding additional conservation practices.	NRCS

WQ 7.	Develop a system of accountability for tracking and reporting conservation practices.

Action #	Action Task	Joint Lead(s)
1	Develop and encourage states to implement tracking, reporting, and verification mechanisms for voluntary conservation practices and other best management practices installed on agricultural lands.	EPA/NRCS

WQ 7.a	Expand existing tracking and reporting sytems for conservation practices, best management practices, and treatment technologies.

Action #	Action Task	Joint Lead(s)

1	USDA will release a 2012 update to the Conservation Effects Assessment Project (CEAP) Cropland Report for the Chesapeake Bay region that will increase the spatial resolution of the model results and account for changes in conservation adoption since 2006.	NRCS
2	USGS expects to finalize an automated data aggregation protocol for reporting NRCS and FSA conservation practice data at the small watershed scale. The USGS will interact with states, USDA and EPA to how best to provide information for CBP watershed model and work to summarize information for USGS studies of NRCS showcase watersheds.	USGS

WQ 7.b Develop and implement a method for tracking and reporting voluntary conservation practices on agricultural land

Action #	Action Task	Joint Lead(s)
1	Complete protocols for reporting non-cost share conservation practices that were applied without federal or state financial assistance. NEIEN data transfer standards will be used. The protocol should include a procedure for assessing these practices and determining if they are 1) functioning and 2) meet technical standards. The protocol should indicate where landowners can go to report their data (e.g., a website, a local NRCS or FSA office, the county extension agent, etc.). This work is being	EPA/NRCS

WQ 8. EPA, DOI, and NOAA will work with state and local governments and stakeholders to expand understanding of the extent and seriousness of the toxic contaminant problem in the Bay and its watershed and to develop contaminant reduction goals by 2013

Action #	Action Task	Joint Lead(s)
1	EPA, USGS, FWS, & NOAA workgroup will meet with federal and state managers to discuss critical information needed to develop specific toxic outcomes for the Nov 2012 Toxics report.	EPA
2	USGS will summarize results from studies on impacts of chemical contaminants on fish and wildlife and the occurrence and sources of chemical contaminants and contribute to report on seriousness of toxic contaminants in the Bay and watershed (report due in Nov, 2012). USGS complete chemical analyses of toxic contaminants in fish and fish-eating birds samples collected from the Potomac in 2011 and will conduct sampling of in selected areas in the James and Elizabeth rivers.	USGS

WQ 9. EPA will work with DOI, states, and stakeholders to develop toxic contaminant strategies by 2015

Action #	Action Task	Joint Lead(s)
1	Work with EPA to reconcile implementation of FWS SmaRxt Disposal and USEPA pharmaceutical takeback programs.	FWS

2	EPA will work with partners to begin development of a prioritization process that will help identify the most likely regulatory and voluntary controls that can be used to reduce toxic contaminants. The initial findings would be part of the 2012 report (see WQ8) that includes an assessment of progress towards management actions implemented for the Toxics 2000 Strategy.	EPA

WQ 10.	Improve computer models used to guide restoration activities.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will provide results from SPARROW models of nitrogen, phosphorus, and sediment to support targeting management practices. USGS will publish a groundwater model of the Eastern Shore Coastal Plain to support targeting and assessments of lag times in management actions. USGS will make model results available in web based systems. USGS will continue to make streamflow and preliminary load estimates available to support bay forecasts.	USGS

WQ 10.a	Use results from watershed models to prioritize locations of actions.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS and EPA will work together to provide seleced results from the CBP watershed model and new SPARROW sediment and existing nutrients models to help states develop the Phase 2 watershed implementation plans. USGS will also collaborate with NRCS to use results to focus conservation practices in agrictural priority watersheds. Selected results will be put into the USGS COAST decision tool for improved access to model results. USGS will establish a decision-support specialist to closely interact	USGS
2	Provide results from updated CBP watershed model to help agencies and states focus water quality actions in areas of highest nutrient and sediment loads in the Bay. Make available initial results of scenario development of future water quality under changing climate and land use conditions for 20 watersheds.	EPA

WQ 10.b	Develop groundwater models.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will release a ground-water model of the MD eastern shore. The results wil be used to help determine direct ground-water discharge of nitrogen to the Bay.	USGS

WQ 10.c	Ensure availability of Bay forecasts and modeling results.	
Action #	**Action Task**	**Joint Lead(s)**

1	NOAA will complete and validate habitat model for harmful algal bloom (HAB) species in the Bay; Action 2: NOAA-supported Coastal Hypoxia Research Program (CHRP) study will continue development, implementation, and analysis of simulation models and statistical models of estuarine circulation, biogeochemistry and habitats to improve understanding of factors regulating spatial/temporal distributions of C.B. hypoxia. They are being designed, also for use in guiding hypoxia remediation in the context	NOAA
2	Specific examples of outputs for FY 2011 include: (1) NOAA will complete and validate habitat model for harmful algal bloom (HAB) species in the Bay (complete for one species, validate for 2 additional species.)*; (2) NOAA will continue its research on how best to link freshwater inputs and models to estuary modeling capabilities to create Coast Estuary River Information Service (CERIS) for the Chesapeake Bay.	NOAA
3	NOAA will support research to implement a coupled Regional Ocean Modeling System-Water Quality hydrodynamic model for use in ecological forecasting. This research will expand hypoxia forecasting efforts for Chesapeake Bay to consider interactions between nutrient management trends and variable climatic conditions, and to determine the exposure of economically and ecologically important species to hypoxia (and co-occurring low pH) in the field.	NOAA

WQ 11. Improve water-quality and stream monitoring in the nontidal portion of the watershed.

Action #	Action Task	Joint Lead(s)
1	USGS will work with EPA and local jurisdictions to support enhanced nontidal monitoring USGS will provide improved access to network data and results through web-based information tools. USGS will release a report describing improved trend and condition assessment approaches for the nontidal network.	USGS
2	Support state monitoring programs with grant funds.	EPA

WQ 13. Monitor and assess the effect of restoration activities in small urban and agricultural watersheds.

Action #	Action Task	Joint Lead(s)
1	USGS will conduct core monitoring in one urban watershed (Difficult Run, VA) and in two USDA showcase watersheds (Smith Cr. VA, Chester R. Md.). USGS will continue initial assessments of nitrogen and sediment sources to support targeting of practices. USGS will continue research on nutrient and sediment sources and transport in these and other selected watersheds.If USGS receives additional funds proposed in the President's 2012 budget, we expand monitoring and assessment into an additional NRCS	USGS
2	Support state monitoring programs with grant funds.	EPA

3	Baltimore Ecosystem Study (BES) and the USFS Baltimore Field Station will continue to monitor and evaluate urban restoration activities in the Baltimore ecoregion, adopting an integrated research approach that utilizes ecological, social and economic data. Baltimore is one of two urban Long Term Ecological Research (LTER) projects in the US.	FS

WQ 15.	Improve monitoring of tidal waters.	
Action #	**Action Task**	**Joint Lead(s)**
1	NOAA, through the CoastWatch East Coast Node, will distribute satellite remote sensing data products that provide information about chlorophyll a concentrations, temperature, salinity, and turbidity for the Chesapeake Bay.	NOAA
2	Align monitoring grant funds to support ongoing state monitoring programs identified gaps in priority areas.	EPA

WQ 16.	Expand NOAA buoy system to improve water-quality monitoring and assess new sensors for monitoring emerging contaminants.	
Action #	**Action Task**	**Joint Lead(s)**
1	NOAA will continue operation of the Chesapeake Bay Interpretive Buoy System (CBIBS). In addition to the operation of the systems, to forward the goal of using CBIBS in water quality monitoring, an intercalibration study with MD DNR will be completed, analyzed, and published in FY12	NOAA

WQ 17.	Evaluate water-quality changes and progress to adjust management actions.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will initiate a regional synthesis of water-quality in the Eastern Shore Coastal Plain to explain factors affecting changes in water quality in this region. USGS will work with EPA to develop a process to track progress in load reductions in support of two-year milestones. If USGS receives additional funds proposed in the President's 2012 budget, we will begin regional synthesis of water quality in Potomac watershed and develop additional ground-water models.	USGS

WQ 18.	Ensure TMDL allocations account for climate change impacts.	
Action #	**Action Task**	**Joint Lead(s)**
1	Determine the climatological changes (temperature, wind, rainfall) likely to occur with climate change and, thru the use of the bay models, determine the changes that will occur in water quality at Bay TMDL loads and other scenarios.	EPA
2	USGS will be conducting an initial analysis of changes in streamflow and nutrient loads under different climate change scenarios (funding and more information under CC11.	USGS

Strategy Goal:	*Habitat*

RH 1.	Restore and protect priority Chesapeake marshes.	
Action #	**Action Task**	**Joint Lead(s)**
1	In FY12 Restore, enhance, and protect 1,500 acres of priority Chesapeake Bay wetlands for the American black duck an other wetland birds.	FWS
2	Work with USGS and LCCs to determine how many acres of wetlands need to be restored, enhanced and protected to see gains in fish and wildlife habitat and water quality.	FWS
3	Work with partners to develop detailed soil maps for the watershed where they don't exist (SSURGO).	FWS
4	Provide technical expertise on specific engineering designs for living shoreline projects and complete funded living shoreline projects (e.g., Jamestown r-H Phase 2 (200 linear feet/.25 acres), Haven Creek (800 LF, .9 acres, 500 feet in VA by FWS). .	FWS/NOAA
RH 2	Increase incentives for wetland restoration and enhancement on private land.	
Action #	**Action Task**	**Joint Lead(s)**
4	Use the USDA Wetlands Reserve Program to restore, protect, and enhance wetlands on private lands in the Chesapeake Bay Watershed.	NRCS
RH 4.	Accelerate application of Conservation Reserve Enhancement Program (CREP) to achieve state goals for riparian forest buffer adoption.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue to develop and distribute outreach materials for CREP/forest buffers with state partners.	FS
2	Develop and deliver trainings for CREP partner agencies on forest buffer outreach and technical assistance.	FS
RH 5.	Restore forest buffers in priority watersheds.	
Action #	**Action Task**	**Joint Lead(s)**
1	Apply targeting tools in priority watersheds to focus outreach eforts where forest buffers are most beneficial.	FS
2	Restore 900 miles of riparian forest buffer in watersheds with species-of-interest (e.g., Upper James where rare, freshwater mussles will be protected by buffer restoration) in coordination with the USDA NRCS and FS.	FWS
RH 6.	Explore alternative payment mechanisms for incentivizing the installation of targeted riparian forest buffers.	
Action #	**Action Task**	**Joint Lead(s)**
1	Present option paper on alternative payment mechanisms (i.e., efficiency pricing for forest buffers) to CREP partners and others and determine next steps.	FS
RH 7.	Enhance technical capacity for riparian buffer restoration.	

Action #	Action Task	Joint Lead(s)
1	Action has been incorporated into RH 5.	FWS
2	Assess impact of current partnership initiative that provides additional direct landowner assistance in MD.	FS
3	Build and support collaborative partnership to provide additional forestry technical assistance to landowners in targeted landscapes.	FS

RH 8. Remove stream barriers and provide fish passage.

Action #	Action Task	Joint Lead(s)
1	Working in partnership, NOAA, FWS, NRCS, and the States of MD, VA, and PA will open 67 miles for fish passage to benefit anadromous and resident fish species.	FWS/NOAA
2	Complete VA and PA Fish Passage priritization (deliverable: prioritized list and spatial depiction of MD (from 2011), PA and VA fish barrier removal projects)	FWS/NOAA
3	Develop and implement high priority stream passage and barrier removal projects throughout the watershed, focusing on brook trout habitat. Restore/enhance 10 miles brook trout habitat; consistent with the goals and objectives of the Eastern Brook Trout Joint Venture.	FWS
4	Carryout environmental clearance for providing upstream passage for American Eel at Potomac River dams 4 & 5 along the C&O Canal NHP.	NPS

RH 9. Document return of fish and mussels to opened stream reaches.

Action #	Action Task	Joint Lead(s)
1	Conduct fish and freshwater mussel surveys to monitor the effectiveness of fish passage projects completed in the past 5 years.	FWS
2	Develop standard sampling techniques to assess juvenile recruitment from newly accessible diadromous fish spawning and rearing habitat	FWS

RH 10. Combat invasive species that threaten habitat.

Action #	Action Task	Joint Lead(s)
1	Implement actions in the snakehead management plan, including salinity and temperature tolerance studies, and collaborate with NPS to reduce spread of snakehead through the Chesapeake & Ohio Canal (Fisheries). With the Aquatic Nuisance Species Task Force/Mid-Atlantic Panel, develop and deploy strike team for early detection/rapid response on 11 national wildlife refuges and surrounding private lands (Refuges). Continue eradication of nutria (Ecological Services base funding) and work with USGS	FWS

2	In 2011, Maryland Sea Grant and SERC received funding to investigate the biological and social science dimensions of the live bait worm vector from harvester, through suppliers to angler. Field sampling and interviews of bait harvesters and anglers were conducted, and an outreach and education campaign in the mid-Atlantic region was conducted to promote safe disposal of live bait among anglers. Surveys work and Outreach campaigns will continue in FY 12.	NOAA

RH 11.	Restore forest habitat in priority areas.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete Forest Restoration Strategy.	FS
2	Identify and map targeted areas for restoration. Example: FWS will develop and implement priority projects to meet habitat needs of various migratory birds; restore/enhance 1600 forest acres in VA/MD/DE, including 31 acres at Eastern Neck NWR.	FS/FWS/USGS
3	Target a portion of an existing cooperative grant program to reforest large private lots currently managed as lawn.	FS

RH 12.	Restore living shorelines.	
Action #	**Action Task**	**Joint Lead(s)**
1	Provide technical expertise on specific engineering designs for living shoreline projects and fund living shoreline projects.	FWS/NOAA
2	Develop internal (NOAA) guidance on siting and general design of living shorelines in the Chesapeake Bay, which facilitates conservation of NOAA trust resources. Guidance to be disseminated for use by regulatory and resource agencies, exemplifying a cohesive NOAA position on living shorelines projects.	NOAA
3	Complete living shoreline ecological monitoring (deliverable - report comparing results of living shoreline techniques).	NOAA

RH 13.	Restore island habitats in the Bay.	
Action #	**Action Task**	**Joint Lead(s)**
1	Restore, plant and open 35 acres of wetland and tidal gut habitat to fish and natural tidal flow, allow inflow of dredged material and and begin designs for expansion of the Poplar Island project. Complete the cost estimate update for the Mid Chesapeake Bay Ecosystem Restoration project, Dorchester County, Maryland.	USACE
2	Host and Facilitate monthly educational field trips to Poplar Island.	USACE
3	Restore tidal wetlands. USGS and FWS will assess relative value of poplar island restoration to migratory birds in support of restoration of island habitats.	FWS/USGS

4	USGS will continue monitoring Poplar island waterbird breeding populations.	USGS

RH 14.	Mitigate impacts of highway projects on habitat.	
Action #	**Action Task**	**Joint Lead(s)**
1	Number of plans initiated and number of technical assistance workshops given through webinars. DOT and Eco-Logical partner agencies will continue encouragement of the Eco-Logical approach.	DOT

RH 15.	Improve forest buffer and wetland habitat mapping.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue working with an interagency group of experts to improve the mapping and monitoring of wetlands and streams.	FS
2	Continue to collect and analyze baseline in situ and remotely sensed data to improve calibration.	FS

RH 16.	Provide forest mapping tool to watershed groups and local governments.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete beta test of web-based landcover mapping tool and finalize maintenance needs.	FS

RH 17.	Improve tools for streams and fish passage.	
Action #	**Action Task**	**Joint Lead(s)**
1	Develop a drainage-wide decision support system to help prioritize habitat restoration and AMD mitigation in the upper watershed. Elements will include a stream assessment tool that identifies critical functions of streams and thresholds of fluvial geomorphologic stability and biological health, and an improved rapid method to monitor stream restoration projects; NOAA will assess its programs to determine the best approaches to improve monitoring for habitats, and will provide information on th	FWS

RH 18.	Integrate watershed planning for key tributaries.	
Action #	**Action Task**	**Joint Lead(s)**
1	Sign cost-sharing agreement(s) for the initiation of a watershed feasibility study in the upper Rappahannock River to address multiple aspects of EO 13508. Investigations under this study authority are likely to include sediment, stream bank erosion, water supply issues and fish passage.	USACE
2	Finalize project management plans with Montgomery County, Maryland and Prince George's County, Maryland to study the implementation of habitat restoration projects.	USACE
3	Draft feasibility study to provide for restoration of 94 acres of SAV, 38 acres of wetlands, 32 acres of reef habitat and 22 acres for reintroduction of the bay scallop in the Lynnhaven River watershed.	USACE

4	Execute cost-sharing agreements with Montgomery County, Maryland and Prince George's County, Maryland to study the implementation of habitat restoration projects.	USACE
5	Conduct bathymetric surveys, collect and analyze sediment data, conduct detailed literature searches, assemble water quality data, develop hydraulic and sediment transport models to simulate processes within the reservoirs and riverine system, validate the models, and prepare a hydraulic modeling report for the Lower Susquehanna River watershed.	USACE

RH 19.	Improve monitoring of habitats.	
Action #	**Action Task**	**Joint Lead(s)**
1	FWS will develop an improved rapid method to monitor stream restoration projects; NOAA will assess its programs to determine the best approaches to improve monitoring for habitats, and will provide information on those programs and their capabilities to the Chesapeake Monitoring Alliance.*Suggest incorporating action into RH 17.	FWS/NOAA
2	NOAA will establish monitoring programs to assess changes in vegetative communities, focusing on programs in the VA and MD National Estuarine Research Reserves (see action CC-7, regarding the estuarine monitoring network).	NOAA
3	Work with the Susquehanna River Basin Commission and/or other watershed commissions or agencies to improve monitoring of the Susquehanna River, Potomac River, and Annacostia River, and other Chesapeake Bay tributaries (for example, by deploying real-time water quality monitoring stations, etc.).	USACE
4	Complete five year monitoring of Heritage Island wetland restoration project at National Capital Parks East.	NPS

RH 20.	Improve tracking of wetland restoration.	
Action #	**Action Task**	**Joint Lead(s)**
1	Collect and analyze baseline in situ and remotely sensed data to train staff and bolster the calibration and initial validation of map products.	EPA/FWS

RH 21.	Improve baseline data for wetlands.	
Action #	**Action Task**	**Joint Lead(s)**
1	Update the Chesapeake Bay watershed NWI maps to the National Wetlands Mapping Standard, beginning with targeted watersheds	FWS

RH 22.	Predict impacts of stressors at the land-water interface.	
Action #	**Action Task**	**Joint Lead(s)**

1	Complete year 2 field sampling effort (sub-estuarine field sites for Submerged Aquatic Vegetation, Phragmites, macrofauna). Note: sampling started in FY 2010, FY 12 is the second year of the project .	NOAA
2	Continue to share the information derived from the sampling efforts with natural resource management representatives and other interested stakeholders, to gain input regarding the development of appropriate research products.	NOAA
3	USGS will continue surveys of Bay shorelines for breeding waterbirds as part of NOAA funded shoreline development assessment project.	USGS
4	Chesapeake Bay sub-estuary health assessment. In FY12, NCCOS/COL will continue research designed to quantitatively characterize the health of 6 sub-estuaries of Chesapeake Bay. In 2011, health was characterized by measuring a variety of ecological indicators associated with 'fishable' and 'swimmable' properties of the Chesapeake. The studied watersheds were strategically chosen so that this study has the opportunity to differentiate the estuarine health conditions associated with major land u	NOAA

RH 23.	Evaluate use of Coastal and Marine Spatial Planning in the Bay.	
Action #	**Action Task**	**Joint Lead(s)**
1	Develop a GIS to prioritize oyster restoration, aquaculture, fish passage, and wetland restoration and protection projects throughout the Bay.	NOAA

RH 24.	Evaluate impacts of river flow and sediment build-up on habitat.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will provide results from a project on the potential changes to sediment in the Susquehanna basin due to climate change and land-use change in the Bay watershed(see CC11).	USGS

Strategy Goal:	*Fish & Wildlife*	
FW 1.	Launch a Bay-wide oyster strategy using scientific support for decision making.	
Action #	**Action Task**	**Joint Lead(s)**
1	Engage appropriate federal and state agencies in a bay-wide oyster strategy that will result in an agreed-upon list of 4-6 target tributaries for large-scale oyster restoration. The strategy is a phased approach for developing tributary-scale restoration 'blueprints',including reef site selection, monitoring and performance evaluation. Oyster restoration performance metrics adopted by the Sustainable Fisheries GIT will be used to guide these blueprints.	NOAA/USACE
2	Finalize the Native Oyster Restoration Master Plan.	USACE

3	In Harris Creek- tributary of Choptank River on eastern shore of MD, restore approximately 22 acres using granite and clam shell across 9 distinct sites. All sites will be constructed to 1 foot elevation off bottom. Construction is currently planned for late winter. USACE non-federal sponsor is Maryland Department of Natural Resources (MD DNR).The Fisheries GIT will continue to adopt and apply oyster restoration performance metrics to existing projects in the Great Wicomico and Lynnhaven rivers	NOAA/USACE

FW 2.	Restore priority tributaries and support enforcement.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete pre-restoration seafloor mapping and habitat assessment operations for locations in 2-3 tributaries for oyster restoration projects, working with Maryland MGS, USACE, and VMRC	NOAA
2	Deploy additional reef ball materials at MD and VA (Lafayette) sites for habitat benefit and harvest protection.*	NOAA
3	NOAA and USACE will continue restoration in the Great Wicomico, Lynnhaven rivers and Harris Creek and begin planning and restoration in two to three additional bay tributaries by 2013 (including, but not limited to, Cox Creek, Little Choptank River and Lafayette rivers). The first several years will focus more heavily on establishing standardized assessment protocols and developing tributary restoration plans with accelerated implementation of in-water restoration expected in the outyears	NOAA/USACE

FW 3.	Expand commercial aquaculture.	
Action #	**Action Task**	**Joint Lead(s)**
1	The NOAA Aquaculture Office and the NMFS Northeast Regional Office Aquaculture Coordinator will continue to identify pertinent programs that can benefit the area and to let shellfish aquaculture interests know of these possibilities. Currently the Sea Grant program has continued to identify aquaculture as an area of interest. Those involved are working towards reducing the constrains in place, however much of these require legislative changes.	NOAA
2	The NOAA Aquaculture Office, NOAA Sea Grant and the NERO Aquaculture Coordinator are actively involved in any appropriate grant program to ensure that the priorities are pertinent to the needs of the industry. This activity will continue as new grants programs are funded.	NOAA

3	The Northeast Fisheries Science Center at Milford CT is actively involved in assisting shellfish hatcheries and growers in the Chesapeake bay. They are also collaborating with researchers at the University of Maryland and Virginia Institute of Marine Science on issues ranging across the spectrum of concern to the area. This activity will continue as will research carried out in other regions that will have implications for shellfish culture in the bay. Additionally the NOAA Aquaculture Office	NOAA

FW 4.	Support continued inter-jurisdictional blue crab management.	
Action #	**Action Task**	**Joint Lead(s)**
1	Final recommendations based on 2011 benchmark assessment will be provided to fishery managers (i.e. GIT Executive Committee) in October 2011 for adoption at December 2011 Full Goal Implementation Team meeting. (would recur every 5-7 years each time a new benchmark assessment is conducted).	NOAA
2	Assess the extent to which the population is sustainable (i.e. between the abundance and exploitation targets and thresholds) by preparing and delivering the Blue Crab Advisory report annually (2012 and 2013) and convening the Sustainable Fisheries Goal Implementation Team to discuss the report and adapt management approaches when necessary. (NOAA)	NOAA
3	Identify the critical factors affecting the abundance of blue crab in the Bay to support ecosystem-based decision making and fisheries management. CBSAC will establish an approach to developing ecological reference points by June 2012	NOAA
4	New baywide abundance and exploitation targets and thresholds for blue crabs recommended by the Chesapeake Bay Stock Assessment Committee and adopted by the states in 2012. (NOAA)	NOAA

FW 5.	Revise blue crab population rebuilding target.	
Action #	**Action Task**	**Joint Lead(s)**
1	Note - for FY 2011 Action Plan, NOAA actions for FW4 and FW5 are combined; see FW 4 for FY 2011 actions.	NOAA

FW 6.	Restore stream habitat through partnerships.	
Action #	**Action Task**	**Joint Lead(s)**
1	Develop and implement high priority stream passage and riparian restoration projects throughout the watershed, focusing on brook trout habitat, water quality objectives and restoring natural stream function and structure in 5 sub-watersheds.	FWS
2	Develop a database and framework to identify and prioritize site specific brook trout restoration and conservation projects	FWS

3	USACE to continue advance partnerships with River Basin Commissions, states, counties and nonprofits in support of stream habitat restoration.	USACE
4	Forest Service will continue to lead science assessment of brook trout priorities to support EBTJV.	FS

FW 7.	Consider climate change in prioritizing sub-watersheds for restoration.	
Action #	**Action Task**	**Joint Lead(s)**
1	This action has been incorporated into FW 6.	FWS

FW 8.	Restore black duck habitat.	
Action #	**Action Task**	**Joint Lead(s)**
1	Lead cooperative effort to translate black duck population goal into energetic capacity goal (determine how much habitat needed to support population). Initiate research project to determine energetic carrying capacity of Chesapeake basin habitats necessary to restore wintering black duck population	FWS

FW 9.	Increase nutrient sources on refuge lands.	
Action #	**Action Task**	**Joint Lead(s)**
1	Restore and stabilize emergent wetlands at the Barbados Island portion of Blackwater NWR, and expand and create new high quality moist soil impoundments at Blackwater and Eastern Neck NWRs	FWS

FW 10.	Facilitate interjurisdictional, ecosystem-based fisheries management.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete, adopt, and apply oyster restoration performance metrics via the Sustainable Fisheries Goal Implementation Team. Complete and adopt baywide invasie catfish policy. Develop scientific consensus points on the status of the oyster fishery by 2012.	NOAA
2	Evaluate current fisheries surveys to identify the need for enhancements to support management objectives of the Sustainable Fisheries GIT.	NOAA
3	Strengthen coordination of regional efforts with national policies and programs (e.g., participation in Atlantic States Marine Fisheries Commission process).	NOAA
4	NOAA, in coordination with the Fisheries GIT, will provide information on the status of blue crab and oyster populations through Chesapeake Stat.	NOAA

FW 11.	Consider alternative fisheries management approaches.	
Action #	**Action Task**	**Joint Lead(s)**
1	Identify and evaluate current management strategies in the Bay and use Sustainable Fisheries Goal Implementation Team to establish alternative approaches where applicable.	NOAA

FW 12.	Support the Atlantic Coastal Fish Habitat Partnership (ACFHP)	
Action #	**Action Task**	**Joint Lead(s)**

1	Develop a coastal decision support (prioritization) framework focused on habitat restoration for diadromous species. *Recommend eliminating action as redundant with RH actions. Refer to RH actions.	FWS

FW 14. Improve scientific information on selected freshwater species.

Action #	Action Task	Joint Lead(s)
1	USGS will continue studies of factors causing fish kills in the Bay watershed. USGS is focused in 2012 on identifying parasites, bacterial and viral pathogens associated with fish mortalities (with FWS) and occurrence with different types of land-use. The USGS will continue limited sampling of fish health conditions and supporting modular analysis. Findings from these studies will also contribute to a report on the extent and seriousness of toxic contaminants in the Bay watershed (see WQ 8). A b	USGS
2	Conduct drainage-level assessments of genetic differentiation (shad, brook trout, freshwater mussels) to help identify appropriate management units, which in turn guide restoration strategies in terms of location and scale	FWS
3	Assess the vulnerability of sensitive karst habitats containing rare, threatened or endangered groundwater species (in 2011 in C&O Canal NHP).	NPS
4	Propagation of native freshwater mussels to restore freshwater bivalve communities critical to maintaining water quality and habitat in tributaries of the Bay	FWS

FW 15. Improve scientific information to support Bay-wide restoration efforts.

Action #	Action Task	Joint Lead(s)
1	Continue development of the fisheries science program by setting key research priorities, creating an announcement of opportunity, and reviewing proposals. Suppport research projects that complement the key interests of select Goal Implementation Teams.	FWS/NOAA/USACE
2	USACE to contribute data on oyster status and trends from its restoration sites. FWS to assess the impacts of pathogens, parasites and toxic contaminants on fish kills and intersex conditions in the Potomac watershed. FWS will monitor Atlantic sturgeon to determine preferred habitats and population trends; assess habitat suitability via side-scan sonar mapping of river bottoms	FWS/USACE
3	To advance development of a plankton survey that contributes information to resource managers, a review of survey design and processing options will be completed with the intent of potentially recommending activities for FY13. NOAA's Cooperative Oxford Lab will continue zooplankton sampling in 2012 to supply observations that support NOAA and community research projects into climate efects on fisheries habitat	NOAA

FW 16.	Establish watershed program for brook trout monitoring.	
Action #	**Action Task**	**Joint Lead(s)**
1	Work with EBTJV to establish program for brook trout monitoring in the watershed. Coordinate habitat assessment, stream surveys, and long-term monitoring	FWS/USGS
2	USGS will work with FWS to determine if existing stream monitoring can be enhanced to address monitoring of habitat conditions for brook trout.	USGS

FW 17.	Improve monitoring of black duck food sources.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will work with FWS and the Black Duck Joint Venture to evaluate additional science needed for Chesapeake Bay. USGS will continue assessment of factors affecting seaducks in Chesapeake Bay.	USGS

FW 19.	Develop ecosystem models to support decision making.	
Action #	**Action Task**	**Joint Lead(s)**
1	Chesapeake Bay Pathogen forecast modeling project. In FY11 work continued to refine the climate driven Chesapeake Bay pathogen modeling suite. This modeling project provides detailed spatially-resolved Bay-wide pathogen abundance values based upon water quality and hydrographic variables determined to influence pathogens capable of causing disease in humans, fish, and shellfish. Collaborations with state of MD and VA Departments of health, human hygene, environment, and fisheries are ongoing	NOAA
2	Develop ecosystem models on oyster populations to gauge impacts of restoration efforts and water quality. Model runs should be deisgned to inform agencies about the multitude of factors that might affect restoration success (e.g, oxygen levels, salinity, currents, sedimentation)	NOAA

FW 20.	Evaluate native bivalve restoration for water quality improvement.	
Action #	**Action Task**	**Joint Lead(s)**
1	Conduct habitat assessment and characterization work to quantify the relationship between habitat and living resources and to assign ecological value.	NOAA
2	NOAA to identify possible pilot studies to test feasibility of different grow-out methods and for estuarine bivalve species.	NOAA

FW 21.	Assess quality of Black Duck habitat.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS will work with FWS and the Black Duck Joint Venture to evaluate additional science needed for Chesapeake Bay including validating methods and estimates of energetic carrying capacity.. USGS will continue assessment of factors affecting seaducks in Chesapeake Bay.	FWS/USGS

2	USGS will complete paper summarizing results from USGS studies of habitat needed to support waterfowl with emphasis on black ducks to support FWS and Black Duck Joint Venture (BDJV) assessment of restoration of habitat to increase black duck populations. USGS will continue to support the determination of the existing quality and quantity of available habitat for wintering black ducks within the refuges of the Bay. Once complete, this information, depending upon additional funding, will be incorp	USGS

Strategy Goal:	*Conserve Land*
CL 1.a	Increase Land & Water Conservation Fund allocations.

Action #	Action Task	Joint Lead(s)
1	Federal agencies will allocate final LWCF appropriations once Congress has completed action on the increases proposed in the President's FY2012 and FY2013 budgets.	NPS

CL 2.	Coordinate and target federal land conservation funding.

Action #	Action Task	Joint Lead(s)
1	NPS will meet with federal and state land conservation program fund managers to coordiante and seek opportunities for collaborative land conservation opportunities and extend assistance to local government, land trusts, etc.	NPS
2	Use the USDA Farm and Ranch Lands Protection Program in partnership with state, local, and tribal governments and non-governmental organizations to preserve working agricultural lands in the Chesapeake Bay Watershed.	NRCS

CL 2.b	Encourage consideration of Transportation Enhancements, Scenic Byways, and Recreational Trails programs to support land conservation.

Action #	Action Task	Joint Lead(s)
1	DOT will continue to work with state agencies administering Transportation Enhancements, Scenic Byways, and Recreational Trails programs to enhance understanding of program provisions and procedures, and eligibility requirements. DOT will work with NPS and other partners to ensure conservation approaches and priorities are shared and coordinated in the Chesapeake Bay watershed.	DOT

CL 2.c	Conserve priority landscapes around defense installations.

Action #	Action Task	Joint Lead(s)
1	Identify locations where land conservation priorities of military bases, National Wildlife Refuges, National Parks and National Trails overlap and develop coordinated land conservation strategies.	NPS

2	Revise guidance for the DOD Readiness and Environmental Protection Initiative program in 2011 to ensure Chesapeake Bay projects receive the extra credit for proposed projects that result in a title fee or easement purchase of significant landscape and areas of ecological and/or cultural value.	DOD-Services
3	Implement efforts to obtain conservation easements through DoD encroachment programs and other mechanisms such as mitigation projects that protects the ecosystem, historic resources and water quality while sustaining the military mission.	DOD-Services

CL 3.	Conserve landscapes through National Park Service partnership areas.	
Action #	**Action Task**	**Joint Lead(s)**
1	Collect existing data about identified high priority landscapes within national heritage areas and around units of the national park system. This information will be incorporated into the watershed-wide GIS system (CL.9).	NPS
2	Protect lands within existing units of the National Park System.	NPS

CL 3.a	Consider a new unit of the National Park System for Chesapeake Bay & Rivers.	
Action #	**Action Task**	**Joint Lead(s)**
1	Identify opportunities for furthering secretary's commitment to establishing a new unit.	NPS

CL 3.b	Identify high priority landscapes along National Trails.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue to identify high priority landscapes along the route of CAJO, STSB, and the Potomac Heritage Trail as a focus for land conservation efforts through land protection plans, comprehensive management plans, etc.	NPS

CL 3.c	Coordinate NPS conservation actions with FWS refuge partnerships.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue coordination between NPS and FWS for national wildlife refuge conservation partnerships and along national historic trails, particulary along the James and Nanticoke.	NPS

CL 4.	Achieve mutual conservation goals through National Wildlife Refuge partnerships.	
Action #	**Action Task**	**Joint Lead(s)**
2	Implement approved land conservation strategies, using new and existing partnerships, along the Nanticoke River in Maryland and the Rappahannock River in Virginia. Acquire up to 1200 acres in fee title and through wildlife conservation easements.	FWS

3	Fund one FTE at Potomac Refuge complex to work with partners along the Potomac River in Virginia to develop conservation corridors, plan for sustainable shorelines, plan/mplement forest management practices	FWS

CL 5.	Develop a Bay wide strategy to reduce the loss of farms and forests.	
Action #	**Action Task**	**Joint Lead(s)**
1	See item CL 5.a	NRCS

CL 5.a	Develop a strategy to consider incentives for preservation of agricultural land and forest land	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete working land conservation strategy with states and other partners.	FS
2	NRCS, USFS, and NPS, in concert with the states and other partners, will lead an analysis that identifies optimum locations for conservation easements on working lands. The analysis will consider where easements should be located to obtain the biggest environmental benefit. This work will be coordinated with actions CL 8 and CL 9, ultimately integrating priorities into the watershed-wide land conservation system (CL9).	NRCS
3	Work with states and Forest Legacy to align forest conservation priorities for Chesapeake.	FS

CL 7.	Provide community assistance for landscape conservation.	
Action #	**Action Task**	**Joint Lead(s)**
1	Deliver coordinated community assistance for identification, assessment and conservation of priority landscapes along the John Smith Trail. (See CL2 1.)	NPS

CL 8.	Identify culturally significant and ecologically important landscapes.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue to meet with federal and state local partners to further identify criteria and methodology for identifying indigenous cultural landscapes (ICL) and initiate intial pilots.	NPS

CL 9.	Establish watershed-wide GIS-based land conservation targeting system.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue, in partnership with federal agency partners, states and non-governmental organizations, to develop watershed-wide GIS-based land conservation targeting system.	NPS

2	Establish watershed-wide GIS-based land conservation targeting system): USGS will work with NPS to revise and enhance its Chesapeake Land Conservation Prioritization System (CLCPS), bringing in results from USGS Chesapeake Land-Change model to help assess vulnerability of lands to future development. USGS and NPS will continue current discussions with NatureServe and NPS to explore the potential for integration of the CLCPS with NatureServe's LandScope. USGS will work with partners to develop im	USGS

CL 10.	Develop integrated transportation, land use, housing and water infrastructure plans setting forth smart growth and environmental stewardship visions.	
Action #	**Action Task**	**Joint Lead(s)**
1	Work with partners and provide continued technical assistance to further promote environmentally sustainable transportation and development as part of integrated regional planning. Number of plans initiated, TIGER grants, HUD Sustainable Communities Planning Grants or EPA Smart Growth awards.	DOT

CL 11.	Develop a plan to expand public access.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete public access plan, develop funding strategy and identify key projects for potential funding. Includes identification of public access needs and opportunities along CAJO, STSB and the Potomac Heritage National Scenic Trail	NPS

CL 12	Prioritize funding for public access development.	
Action #	**Action Task**	**Joint Lead(s)**
1	Issue, in 2012, an RFP for public access grants.	NPS

Strategy Goal:	*Citizen Stewardship*	
CS 1.	Expand Chesapeake conservation corps workforces.	
Action #	**Action Task**	**Joint Lead(s)**
1	Complete strategy including funding strategy, coordinate development of projects on the trails and with other federal agencies. Seek funding to develop chesapeake conservation corps network.	NPS

CS 2.	Expand master watershed stewards program.	
Action #	**Action Task**	**Joint Lead(s)**
1	Expand master watershed stewards programs.	NPS

CS 4.	Expand outreach to private forest landowners.	
Action #	**Action Task**	**Joint Lead(s)**
1	Work through state partners to expand forest stewardship outreach to citizens in targeted areas.	FS

CS 5.	Enhance visitor experiences and stewardship.	
Action #	**Action Task**	**Joint Lead(s)**

1	Create new interpretive, educational, and wildlife observation opportunities at four Chesapeake Bay refuges (Eastern Shore of VA, Mason Neck, Rappahannock, and Blackwater)	FWS
3	Continue to work with state and local partners to develop orientation and interpretive media along Captain John Smith Chesapeake NHT and Star-Spangled Banner NHT.	NPS

CS 6.	Build long-term local partnerships for engaging communities and citizens along national trails.	
Action #	**Action Task**	**Joint Lead(s)**
1	Continue to work with state and local partners to develop orientation and interpretive media along Captain John Smith Chesapeake NHT and Star-Spangled Banner NHT.	NPS

CS 7.	Initiate robust elementary and secondary environmental literacy initiative.	
Action #	**Action Task**	**Joint Lead(s)**
1	Conduct informal public review and finalize Mid-Atlantic Environmental Literacy Strategy.	NOAA
2	Convene the 2011 Environmental Literacy Summit to advance policy discussions related to environmental and science education in the region.	NOAA
3	Support model systemic K-12 environmental literacy programs through grant funding and technical assistance.	NOAA

CS 7.a	Support and enhance outdoor student environmental education programs.	
Action #	**Action Task**	**Joint Lead(s)**
1	Conduct a series of workshops on keystone fisheries species for informal environmental educators at the NOAA Environmental Science Training Center.	NOAA
2	Provide assistance on the development of education programing along the Star-Spangled Banner NHT.	NPS

CS 7.b	Provide high-quality professional development, tools, and resources for educators.	
Action #	**Action Task**	**Joint Lead(s)**
2	NPS and partners will continue to provide multiple professional development sessions with the introduction of new tools and resources related to the Chesapeake Campaign of the War of 1812.	NPS

CS 7.c	Encourage the creation and maintenance of green schools, including schoolyard habitat and green facilities programs.	
Action #	**Action Task**	**Joint Lead(s)**
1	Reinvigorate FWS schoolyard habitat program throughout the Chesapeake Bay by leveraging increased investment with other partners	FWS

2	Provide unique environmental education opportunities for students at Presquile NWR in partnership with James River Association. Create new overnight educational facilities using green infrastructure concepts, and work with schools to translate learning accomplished on the refuge with projects on school grounds, such as recycling, energy conservation, and creating habitat	FWS

Strategy Goal:	*Environmental Markets*
EM 1.	Establish a market for trading pollutant reduction credits for nutrients and sediments in support of the water quality goals in the TMDL.

Action #	Action Task	Joint Lead(s)
1	Support improvement and expansion of Trading mechanism for existing discharges of N and P to meet load and wasteload allocations established in Bay TMDL.	EPA

EM 2.	USDA will lead, in coordination with EPA and other federal agencies, an interdepartmental Environmental Market Team to coordinate efforts in establishing an environmental market infrastructure for the Chesapeake Bay.

Action #	Action Task	Joint Lead(s)
1	Environmental Markets Team: Lead interdepartmental team to develop protocols, tools and guidance for the establishment of water quality and other environmental markets.	OEM
2	Market Demand: Analyze emerging market demand and identify potential federal investment strategies and mechanisms that could be used to support environmental market development and catalyze their use in meeting Chesapeake Bay water quality goals.	OEM
3	Credit supply: Work with key stakeholders to identify opportunities for local capacity building to facilitate participation in environmental markets. Outreach and education efforts could potentially include workshops, training sessions and defining new ways of improving access to existing information, databases, registries, and other resources.	OEM

Strategy Goal:	*Climate*
CC 1.	Identify communities that are vulnerable to the impacts of climate change.

Action #	Action Task	Joint Lead(s)
1	NOAA will continue working with Talbot county, and preparing to work with either Prince Georges or Edmonston county, depending on the results of stakeholder meetings. A request for proposals was issued to seek proposals from additoinal communities in 2012.	NOAA

CC 2.	Demonstrate and implement effective restoration planning in face of land elevation change and sea level rise.

Action #	Action Task	Joint Lead(s)

1	Provide modernized heights completed for Poplar Island, update tidal datums for Poplar Island and functional nested 3D circulation model for Poplar Island. USGS/FWS will summarize results from Blackwater Refuge to show how sea-level rise projections were used for wetland planning. (USGS funding reflected in CC3)	FWS/NOAA/USGS
2	USACE to use climate change simulations to address issues related to potential impacts of sea level rise and changing precipitation patterns. Use monitoring data from Poplar Island and Mid-Bay to assist in identifying and assessing risks.	USACE

CC 3.	Identify and assess risk to key tidal and coastal habitats from potential impacts of changing climatic conditions and rising sea level.

Action #	Action Task	Joint Lead(s)
1	USGS will monitor and model sea-level rise along the Atlantic Coast which includes some areas within the Chesapeake Bay. USGS will continue monitoring sea-level rise near Blackwater Refuge and summarize results. If USGS receives additional funds proposed in the President's 2012 budget, we will begin a vulnerability assessment of the coastal wetlands for the entire Bay (2012-2016). The USGS will coordinate with NOAA and FWS on this proposed study.	USGS
2	NOAA issued a grant to the National Wildlife Federation (NWF) for activities to occur in FY 12. NWF will work with NOAA and make recommendations on climate change adaptation strategies to be integrated into restoration and conservation techniques and programs at the watershed and subwatershed level in the Chesapeake Bay region. Workshops will be developed that will include experts from NOAA, state and local governments, and NGOs to understand the vulnerabilities of the Chesapeake Bay region and	NOAA
3	USACE to use climate change simulations to address issues related to potential impacts of sea level rise and changing precipitation patterns. Use monitoring data from Poplar Island and Mid-Bay to assist in identifying and assessing risks.	USACE
4	Model coastal vulnerability for freshwater tidal reaches of the Potomac and Anacostia Rivers.	NPS

CC 4.	Identify and assess risk to key watershed habitats from potential impacts of climate and land change.

Action #	Action Task	Joint Lead(s)

2	USGS will complete an assessment of the combined impacts of land and climate change on stream flow in the Bay watershed. The USGS will produce reports on changes in streamflow at long term (80 yrs +) in the Bay watershed and the potential changes in streamflow that might occur as a result of climate and land use change across the watershed. The findings will also contribute to future work on assessing potential impacts to TMDL (WQ18). The USGS will enhance Chesapeake Land-Change Model to simulat	USGS
3	The Northern Forest Futures project will provide modeled impacts of climate and land use change on forested landscapes, including impacts and interaction of global change/ forest stressors (elevated CO2, N deposition, Ozone, Climate, Land use) on forest ecosystems in CBW using predictive modeling.	FS
4	NPS is funding a project to be led by the Smithsonian Insititution to develop vulnerability models for birds in the Northeast and Chesapeake Bay Region (*Carried out with FY10 Funds)	NPS

CC 5.a	Provide land use change data. [Land cover change data]

Action #	Action Task	Joint Lead(s)
1	Updated 2011 C-CAP (Coastal Change Analysis Program) land cover analysis for the Chesapeake Bay coastal counties will be distributed (along with 1996, 2001, and 2006 analyses) through NOAA's Digital Coast.	NOAA

CC 6.	Develop tools and training to provide states, local communities, and resource managers with effective climate adaptation planning and implementation resources.

Action #	Action Task	Joint Lead(s)
1	NOAA funding will be used by Virginia Sea Grant to support the competitively selected "Community Adaptation to Sea-Level Rise" project (PI: LaPorte), which will evaluate: how deliberative experiences influence the policy preferences of distinct audiences; the extent to which online data visualization facilitates individuals' awareness of sea-level rise and inundation risks and understanding of policy responses; and how policymakers response to the policy preferences expressed by the community	NOAA
2	NOAA is providing funding to inventory LiDAR data for Maryland, Virginia and other Mid-Atlantic states, as well as condition the data so it came be used for the Sea Level Rise and Coastal Flooding Impacts Viewer (http://www.csc.noaa.gov/digitalcoast/tools/slrviewer/). Project should be completed by the 3rd quarter of FY 2012.	NOAA

CC 6.a	Strategic land use decision support

Action #	Action Task	Joint Lead(s)

1	Conduct pilot evaluation of wetlands, forests and streams to identify protection and restoration opportunities.	EPA

CC 6.b	Adapting wetland restoration techniques.	
Action #	**Action Task**	**Joint Lead(s)**
1	NOAA will continue work with the University of Maryland for the 2nd year of the project, "Integrating Climate Change into the Restoration of the Chesapeake Bay and Watershed." Among other project components, UMBC and UMD Center for Env. Science will continue investigating sediment and nutrient impacts on Chesapeake Bay tidal marshes in response to land use and climate change. The work includes site-specific sediment and nutrient input-output studies, plot-level measurements of sedimentation/eros	NOAA
2	NOAA to work with existing partners at Poplar Island (Habitat Subgroup) to develop a technical workshop on how the tidal and geodetic infrastructure and data can be applied to support sustainable wetland restoration.	NOAA/USACE

CC 7	Improve monitoring of climate change impacts in the Bay and watershed.	
Action #	**Action Task**	**Joint Lead(s)**
1	FS will examine climate change impacts on landscapes and human health, including urban to rural gradient studies, climate change plots, carbon flux information, and pollen studies.	FS

CC 7.b	Develop monitoring framework for streams.	
Action #	**Action Task**	**Joint Lead(s)**
1	Maintain the current Chesapeake Bay watershed-wide nontidal water quality monitoring network to track status and trends in nutrients and sediment contamination in the Chesapeake Bay watershed. Implement new network stations in FY12 for a total of 120 stations watershed-wide.	EPA

CC 7.c	Develop a complementary estuarine monitoring network.	
Action #	**Action Task**	**Joint Lead(s)**
1	Begin work on a a Cheapeake Bay sentinel site ocoperative, focused on SLR. A workshop with Chesapeake represenatives and representatives from other newly-established sentinel sites (part of the Sentinel Site Cooperatives) will be held to identify priorities and determine how to address local sea level gaps with existing resources.	NOAA
2	NOAA, USGS, and NPS will coordinate publication of guidelines for monitoring wetland surface elevation change using Surface Elevation Table technology	NOAA

CC 8.	Ensure monitoring results are integrated and available to assess effectiveness and adjust management actions as necessary.	
Action #	**Action Task**	**Joint Lead(s)**

1	NOAA will hold a workshop to conduct knowledge assessments on drought and the Chesapeake Bay. These assessments will serve as the basis for establishing a Chesapeake Bay Regional Drought Early Warning Information System (Chesapeake - RDEWS).	NOAA

CC 9. Integrate climate change adaptation into the Chesapeake Bay Program.

Action #	Action Task	Joint Lead(s)
1	If USGS get additional funds proposed in the President's 2012 budget we will support integration of climate information by hiring a climate coordinator. The coordinator will help form a CBP entity (workgroup) that will work to supply information to CBP Goal Teams and develop synthesis products of selected findings to provide implications for CBP goals. In addition, NOAA will establish a detailee position to coordinate within NOAA and contribute to overall interagency climate coordination for the	NOAA/USGS
2	On a part-time basis, a represenatitve from the NOAA Office of Atmospheric Research Climate Program Office will coordinate with USGS and others in FY 2012 to revise, prioritize and coordinate NOAA's climate efforts in the Chesapeake.	NOAA
3	Connect the work of the NSF-funded Maryland and Delaware Climate Change Education, Assessment, and Research (MADE CLEAR) to the regional climate literacy effort and the citizen stewardship components of the Chesapeake Bay Program	NOAA

CC 11. Predict potential changes in pollution loads due to climate change.

Action #	Action Task	Joint Lead(s)
1	In FY2011 USGS will focus on integrating results of climate change scenarios on water streamflow in the Bay watershed. (see WQ 18 and CC4)	USGS

CC 12. Develop adaptation strategies to manage vulnerable habitats and public infrastructure on federal lands to increase resiliency to climate change impacts.

Action #	Action Task	Joint Lead(s)
1	Develop watershed management plan for the Blackwater River in Maryland in partnership with Maryland Audubon Society in conjunction with ongoing watershed management planning on the Transquaking River. The focus will be on increasing adaption and resilience of watershed habitats and wildlife to sea level rise, and improving the quality of water entering the Bay	FWS

2	NPS will hire two climate change adaption coordinators in FY11 that will devote a portion of their duties to collaborate with other federal, state and NGO partners in developing adaptation strategies to deal with climate change issues impacting the natural and cultural resources throughout the Chesapeake watershed, including in urban landscapes. The positions will work in collaboration with the North Atlantic LCC, USGS Climate Science Center and NCR Center for Urban Ecology and climate change co	NPS

CC 14.	Coordinate with other national initiatives to enhance federal mitigation efforts in the Bay watershed.

Action #	Action Task	Joint Lead(s)
1	Create a Bay-watershed subset of emissions data collected by large emitters of greenhouse gases.	EPA

Strategy Goal:	*Science*
SS 1.	Expand scientific coordination and capabilities of the Chesapeake Bay Program.

Action #	Action Task	Joint Lead(s)
1	USGS will help improve coordination of science activities through CBP Scientific Technical, Reporting, and Assessment (STAR) team by interacting with federal, states and academic institutions to improve coordination of technical activities. This also includes coordination of federal science activities to support preparation of the Annual EO action plan and progress report; and implementing adaptive management in the CBP.	USGS

SS 3.	Improve communication products.

Action #	Action Task	Joint Lead(s)
1	USGS will summarize findings from USGS reports and journal articles and provide the implications to federal and state partners. Water-quality summaries include trends in nutrient and sediment, sediment sources, and nutrient results from the SPARROW model. Fish and wildlife summaries will include the occurrence of “emerging” chemicals and their sources, biological response in fish and wildlife, and habitat suitability for Black Ducks. Land and climate summaries will focus on sea-level rise and we	USGS
2	Work with the University of Maryland's EcoCheck program to demonstrate capabilities in science communications to Chesapeake Bay Program partners to better leverage partnership. EcoCheck reporting will continue in 2012.	NOAA
3	Convene Blue Planet forums to educate and engage citizens on scientifically-based envrionmental issues	NOAA

SS 4.	Review and improve CBP science approaches.

Action #	Action Task	Joint Lead(s)

1	Support for CBP Scientific and Technical Advisory Committee to review key science approaches and recommend improved science activities.	EPA
2	EPA will establish a Chesapeake Bay Analysis and Synthesis Center to facilitate the formation of synthesis teams of scientists and managers to focus on addressing key environmental issues in the Bay and watershed and providing answers to the most pressing problems facing the Bay	EPA

SS 5. USGS and NOAA will ensure scientific tools, data, and computer model results are available.

Action #	Action Task	Joint Lead(s)
1	The USGS will enhance several decision support tools including the Forest Conservation Mapper and the Chesapeake Land Conservation Prioritization System. The USGS will also provide results of the new USGS SPARROW nutrient models and results of nutrient and sediment loads and trends	USGS
2	NOAA Chesapeake Atlas: A project launched in FY2011 that leverages the Chesapeake Bay Program's >25 years of water quality, hydrography, plankton, and fish data to provide a quantitative and spatially resolved representation of Chesapeake Bay ecosystem dynamics, processes. Because this estuarine system is so strongly driven by climate, we are also utilizing climate data to explain the implications of climate variability and climate changes for the Chesapeake system and the for the delivery of e	NOAA
3	EPA will make the underlying computer code for all its Bay TMDL related models and tools readily accessible to partners and stakeholders through the Chesapeake Community Modeling Program website.	EPA

SS 6. EPA, working with Chesapeake Bay Program partners, will establish ChesapeakeStat.

Action #	Action Task	Joint Lead(s)
1	EPA, working with our partners, will continue to reflect the PSC adopted decision framework adaptive management process through the ChesapeakeStat website and explore options to better integrate EO actions and funding information.	EPA

SS 7. Improve modeling used for restoration activities and assessing impacts of climate change.

Action #	Action Task	Joint Lead(s)

1	USGS is improving SPARROW models for water quality (see WQ10). Initial recommendations to improve models for impacts of climate change will be in the STAR report and addressed under USGS climate vulnerability studies. This will include definition of priority model needs for other CBP goals (Fish, Wildlife, Habitat) [USGS funds reflected under WQ10] and working to improve land-change model (funds under WQ 1c).	USGS
2	FWS will develop bird population-habitat models to assess current capability to support bird populations	FWS

SS 8.	Establish a Chesapeake Monitoring Alliance.	
Action #	**Action Task**	**Joint Lead(s)**
1	The approach for establishing a monitoring alliance will be implemented under the STAR report recommendations.	EPA/NOAA/USGS
2	The USGS, EPA, and NOAA will support the alliance by approaching national programs within their respective agencies and non-traditional partners to have enhanced aspects of programs carried out within Chesapeake Bay and its watershed (see next action). The agencies will coordinate on how information from the monitoring alliance will be stored in the Data Enterprise (action SS 13).	EPA/NOAA/USGS
3	The USGS is working to help implement the initial focus of the monitoring alliance to develop more recent land-cover data (working with NOAA). USGS will work with EPA to identify additional "nontraditional" monitoring programs that will help address water quality (nutrients and sediment) in the watershed.If USGS receives additional funds proposed in the President's 2012 budget, we would improve land-use monitoring in small watershed where we are working to explain water-quality change	USGS
4	Continue long-term monitoring of indicator species at National Parks in the Chesapeake Watershed; work with monitoring alliance to share monitoring data.	NPS

SS 9.	Coordinate regional water monitoring with national networks.	
Action #	**Action Task**	**Joint Lead(s)**
1	NOAA and USGS will approach the Integrated Ocean Observing System (IOOS) and associated programs will coordinated through the alliance. USGS will also focus on increased coordination for monitoring with USGS National Steam Information Program, National Water-Quality Assessment Program, and Toxics Substances Hydrology. Note for NOAA that this coordination with IOOS will be conducted via action SS8.	USGS
2	EPA will ensure national survey work is coordinated with regional and state efforts.	EPA

SS 10.	Increase monitoring by state, local, and non-governmental partners.	
Action #	**Action Task**	**Joint Lead(s)**
1	EPA will provide expanded grant, technical, and program development support to state programs and others as resources are available, to systematically expand their tidal and watershed monitoring networks.	EPA
2	EPA will develop partnership guidance documents that define quality assurance requirements for a monitoring program to become a partner in the Monitoring Alliance.	EPA

SS 11.	Improve monitoring of climate change impacts.	
Action #	**Action Task**	**Joint Lead(s)**
1	USGS and NOAA will interact with proposed agency activities to improve climate monitoring in the bay and its watershed. USGS will work with the DOI Climate Effects network to assess potential for increased monitoring within the Bay watershed and NOAA will approach programs in the proposed NOAA Climate Service. [USGS funds reflected under CC7]	USGS
2	NOAA, USGS, and NPS will coordinate publication of guidelines for monitoring wetland surface elevation change using Surface Elevation Table technology (aligns with actions in CC7).	NOAA/NPS/USGS
3	Explore development of coordinated Chesapeake Bay climate change data. Provide initial scoping study on feasibility of Chesapeake Bay-wide coastal climate change data (cross-referenced with CC7c)	NOAA

SS 13.	Improve management of environmental information through a Data Enterprise.	
Action #	**Action Task**	**Joint Lead(s)**
1	Initiate the design and development of the Chesapeake Bay Data Enterprise system to share scientific data between partners.	EPA
2	NOAA will work USGS, EPA, DNR, and VDCR to make dissolved oxygen, sediment, and nutrient data from tidal, non-tidal, and main-stem monitoring stations easily available and standardized for analysis.	NOAA
3	The USGS is providing support to EPA through an action team to focus on water-quality information for the Chesapeake Data Enterprise. The USGS is also working with projects and national programs to improve access to our data through the USGS Chesapeake Bay WWW site.	USGS

SS 14.	Improve indicators of environmental conditions.	
Action #	**Action Task**	**Joint Lead(s)**

1	Chesapeake Bay Program (CBP) Goal Implementation Teams (GITs) need to evaluate and describe their work using the categories described in the Decision Framework (DF). The Decision Framework Implementation Workgroup will assist GITs in this process and will review the logic connecting the information to ensure it is clearly articulated in the ChesapeakeStat website, and is consistent with the elements of the DF. The Scientific and Technical Analysis and Reporting (STAR) Team will assist GITs in	EPA

SS 15.	Create case studies of targeted restoration activities.

Action #	Action Task	Joint Lead(s)
1	USGS and NOAA will begin to synthesize information on selected restoration studies. USGS will focus 2011 and 2012 efforts on water quality studies in small watersheds to help information the TMDL implementation. (FY 2012 - Combined wtih FW2 for NOAA.)	NOAA/USGS
2	USGS will contribute to a report summarizing water quality changes in watersheds.	USGS

SS 16.	Explain the factors affecting progress toward restoration goals and the effects of management actions.

Action #	Action Task	Joint Lead(s)
1	USGS and EPA will begin analysis to explain water quality on the Potomac River in 2011 and expand to other basins in 2012-2016.[USGS funds reflected under WQ17] (see water quality actions for more details).	USGS
2	NOAA will assess conditions affecting navigation and maritime trade. Contingent on final allocation of ship resources and funding, NOAA will acquire 32 snm miles of hydrographic data off the coast of Cape Charles in to update NOAA nautical charts and support safe navigation. NOAA will also initiate a new hydrographic survey effort north of the Chesapeake entrance.	NOAA

SS 17.	Assess new threats to the Bay and its watershed.

Action #	Action Task	Joint Lead(s)
1	USGS will focus on new threats from emerging contaminants (see FW14, WQ8) and combined impacts of land use and climate change on water quality in the watershed habitats (see CC 4). [USGS funds reflected under WQ8, FW14]	USGS

Strategy Goal:	*Implementation & Accountability*
IA 2.	Develop Federal Milestones to Track Progress Toward Goals

Action #	Action Task	Joint Lead(s)

1	Federal agencies will also consult and collaborate with the states and District to develop appropriate two-year milestones for the outcomes outlined in this strategy beyond those for water quality.	EPA

IA 3.	Develop Annual Action Plan	
Action #	**Action Task**	**Joint Lead(s)**
1	The FLC will develop the fiscal year 2012 action plan based on funding proposed in the President's Budget for fiscal year 2012.	EPA

IA 4.	Develop Annual Progress Report	
Action #	**Action Task**	**Joint Lead(s)**
1	The FLC will develop tracking mechanisms for reporting on progress made during fiscal year 2011 to support the Fiscal Year 2011 Progress Report, which will be prepared and published in early 2012.	EPA

IA 5.	Establish Independent Evaluation	
Action #	**Action Task**	**Joint Lead(s)**
1	Develop a process that will include independent evaluation mechanisms as part of the adaptive management cycle and annual progress report.	EPA

IA 6.	Institute Adaptive Management	
Action #	**Action Task**	**Joint Lead(s)**
1	Establish a regular cycle for reviewing activities, progress against goals and timelines outlined in the strategy.	EPA
2	USGS will work with NOAA and other agencies to employ ecosystem-based adpative management to provide science for targeting, monitoring, and evaluation of management actions and ecosystem improvements (see stregthen science section for more information and funding).	USGS