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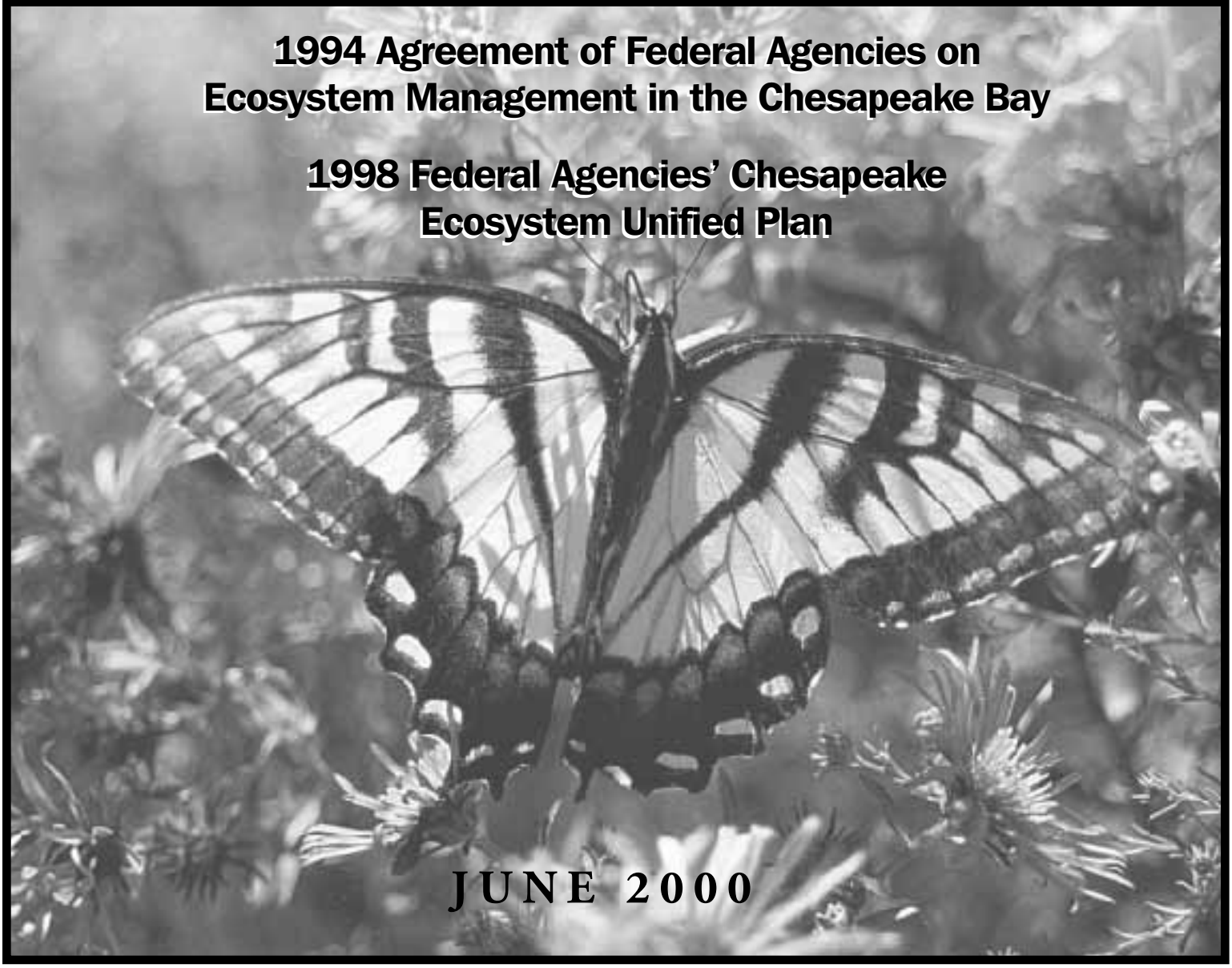
Chesapeake Bay Program

THE THIRD BIENNIAL PROGRESS REPORT OF THE

1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay

1998 Federal Agencies' Chesapeake Ecosystem Unified Plan



JUNE 2000

This is the third biennial report of the progress made by Federal agencies on the commitments made in the *Agreement of Federal Agencies' on Ecosystem Management in the Chesapeake Bay*, signed on July 14, 1994, and the first biennial report of Federal progress on commitment made in the *Federal Agencies Chesapeake Ecosystem Unified Plan*, signed November 5, 1998. It was prepared by the U.S. Environmental Protedtion Agency's Chesapeake Bay Program Office in cooperation with the Federal signatory agencies to these agreements.

THE THIRD BIENNIAL PROGRESS REPORT

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1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay

and the

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PROLOGUE

THE ROLE OF THE FEDERAL GOVERNMENT IN THE CHESAPEAKE BAY PROGRAM

THE CHESAPEAKE BAY PROGRAM

The Chesapeake Bay Program is the nation's premier ecosystem restoration and management effort, focusing on North America's largest estuary. Established in 1983 by the signing of the *Chesapeake Bay Agreement*, the Bay Program is a unique voluntary partnership between the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; and the U.S. Environmental Protection Agency (EPA), representing the Federal government.

The Chesapeake Bay is approximately 200 miles long and varies in width between four and twenty-five miles. Its watershed comprises 64,000 square miles and stretches from Cooperstown, New York, in the north, to Norfolk, Virginia, in the south, where the Bay meets the Atlantic Ocean. The watershed includes some of America's most scenic and historic rivers, including the Susquehanna, Potomac, James, York, and Rappahannock. The estuary, whose name derives from a Native American word meaning "great shellfish waters," is well known for its historically productive waters and for its beauty.

The Chesapeake Bay Program relies on wide public support to carry out its multifaceted missions; employing methods that go beyond environmental laws and regulations by stressing voluntary compliance, strong commitments, and measurable goals. The Bay Program utilizes sound science and innovative methods to address:

- the prevention and abatement of pollution;
- the conservation and restoration of habitat, fish, and wildlife;
- the enhancement of public access to the Bay and its tributaries;
- public education; and
- the overall health of the Bay and its watershed.

Federal agencies play a major role in the protection and restoration of the Bay through the Bay Program. They own and manage over two and a half million acres of land in the region, and provide technical and financial assistance to state and local governments and private landowners. As the lead Federal representative to the Bay Program and a signatory to the *Chesapeake Bay Agreement*, the EPA Administrator represents all Federal agencies and serves on the Chesapeake Executive Council along with the other five signatories: the governors of Maryland, Pennsylvania, and Virginia; the mayor of the District of Columbia; and the chair of the Chesapeake Bay Commission. The Executive Council meets annually to assess programs, set new goals and commitments, and reaffirm existing ones. In the Bay Program, most of the goals and commitments are carried out on non-Federal lands in the Bay's watershed.

THE FEDERAL AGENCIES COMMITTEE

The Chesapeake Bay Program's Federal Agencies Committee was formed in 1984 and meets regularly to share information among the participating agencies and to provide advice and assistance in implementing goals and commitments of the Bay Program. The Committee is chaired by the Director of the EPA's Chesapeake Bay Program office, and has four Workgroups. The Workgroups were created to implement the Bay Program's commitments on more than 2.5 million acres of Federally owned lands within the watershed.

THE FEDERAL AGREEMENT AND PLAN

The 1994 Federal Agreement

On July 14, 1994, the Federal Agencies Committee convened the Chesapeake Bay Federal Summit at the Department of the Interior in Washington, D.C., culminating months of interagency planning and negotiations. Thirty high-level Federal officials, representing twenty-four agencies and departments, assembled to discuss the Federal role in the Chesapeake Bay Program and to sign the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay (1994 Agreement)*.

The *1994 Agreement* was endorsed and signed by all of the Federal participants and, as "observers," by representatives of the states of Maryland, Pennsylvania, Virginia; the District of Columbia; the Chesapeake Bay Commission; and U.S. Senator Paul Sarbanes (D-Md). (See Appendix A)

The *1994 Agreement* formalized the increasing role of Federal agencies in the Bay Program. There have always been many and varied Federal programs and activities that support Bay Program goals, but not necessarily through the Bay Program. Consequently, the commitments established in the *1994 Agreement* do not summarize the total Federal involvement in the Bay Program.

Motivated in part by the Clinton Administration's call for "reinventing government" and in part by a desire to improve interagency ecosystem management and planning, the *1994 Agreement* crystallizes the commitments of each agency in the Chesapeake Bay region. It provides a coordinated and cooperative framework for action with specific commitments for research and data coordination, Anacostia River protection, habitat restoration, nutrient and toxic pollution reduction, and the use of national service opportunities for work on Federal lands.

The *1994 Agreement* sets precedents by establishing certain Federal policies for the Chesapeake Bay watershed that had not been applied elsewhere in the nation. In addition, some of the policies and goals set forth in the *1994 Agreement* have led to similar commitments by the Chesapeake Executive Council. For example, in the *1994 Agreement* the Federal government adopted a policy to favor "the creation of forested buffers along streams, in order to help achieve both nutrient reduction and habitat restoration goals of the Chesapeake Bay Program." This commitment was strengthened a few months later when the states, through the Chesapeake Executive Council, adopted a similar policy, and again in 1996 when the Executive Council adopted a new Riparian Forest Buffer Initiative. The Initiative includes a goal "to increase the use of all riparian buffers and restore riparian forests on 2,010 miles of stream and shoreline in the watershed by the year 2010." The Initiative and its goal are unprecedented in the nation.

In response to the increasing number of military installation closures, the *1994 Agreement* sought to assure that the ecological value of any Federal facilities proposed for closure within the Chesapeake

Bay watershed is addressed in the decision-making process for future land uses. In addition, the *1994 Agreement* formalized the work of the two existing Federal Agencies Committee Workgroups by directing Federal agencies to cooperate with interagency teams doing pollution prevention and habitat restoration site assessments on Federally owned lands. The Nutrient and Toxics Reduction Workgroup, in fact, is committed to performing a minimum of five Nutrient and Toxics Reduction Site Assessments annually on Federal facilities throughout the watershed.

The 1998 Federal Plan

On November 5, 1998, high-ranking officials from 20 Federal agencies met at the U.S. Army's Fort McNair in Washington, D.C., to sign the *Federal Agencies' Chesapeake Ecosystem Unified Plan (FACEUP)*. This new agreement expands current restoration efforts by adding 50 new commitments aimed at protecting the Chesapeake Bay watershed. Following the framework for protecting America's waterways set forward under President Clinton's *Clean Water Action Plan*, these new commitments and initiatives address the Chesapeake Bay's most pressing environmental issues, including *Pfiesteria* monitoring and research, the reduction of harmful nutrients, and pollution prevention. *FACEUP* builds upon the success of the *1994 Agreement*, while creating a renewed Federal emphasis on critical issues such as land use, suburban growth and development, stormwater management, wetlands restoration, and human health protection. Development of *FACEUP* was coordinated by the EPA's Chesapeake Bay Program Office and the agencies that actively participate in the Bay Program.

"Today's announcement renews the Clinton Administration's commitment to protecting public health and the environment throughout the Chesapeake Bay and its many tributaries," said EPA Administrator Carol M. Browner. "This is a significant cooperative effort aimed at preserving one of our greatest national treasures, and we will continue to build on these efforts among Federal agencies which are aimed at carrying out the President's *Clean Water Action Plan* in the Bay region."

FACEUP will benefit the living resources of the Bay by initiating specific habitat restoration projects on Federal lands, and by assisting state and local governments and private landowners with similar efforts. Additionally, the plan targets priority watersheds for special attention, including the Anacostia River and Rock Creek in the District of

EPA Administrator Carol Browner, November 5: "This is a significant cooperative effort aimed at preseving one of our greatest national treasures. . ."

Columbia and Maryland, the Elizabeth River in Virginia, and the two American Heritage Rivers within the Bay region—the Potomac River and the Upper Susquehanna and Lackawanna Rivers.

Specifically, the new *FACEUP* calls for Federal agencies to:

- Target programs and resources, such as funds under the Conservation Reserve Enhancement Program, to the needs of the Bay region;
- Support the restoration of the Bay's living resources and their habitats;
- Meet and maintain the nutrient and toxics prevention and reduction goals of the Bay Program;
- Protect human health;
- Ensure state-of-the-art technical support for the Bay Program partners; and
- Identify and implement new mechanisms to avoid land development patterns that increase pollution.

The *FACEUP* includes commitments to:

- Increase Federal support to the states for *Pfiesteria* research, monitoring and response;
- Integrate *smart growth* principles into the development of Federal lands and facilities in the Bay region;
- Restore a net gain of 100 acres of wetlands annually on Federal lands beginning in 2000;
- Identify additional blockages to migratory fish on Federal land by December 31, 1999, and open priority blockages to 50 miles of streams by December 31, 2003;
- Develop by June 30, 1999, a mechanism to implement wet weather pollution prevention on Federal facilities in the Anacostia and Rock Creek watersheds;
- Implement pollution prevention and related technologies to achieve a 75% voluntary reduction from a 1994 baseline in releases of Chesapeake Bay Toxics of Concern;
- Target priority areas for exotic species control and specifically for nutria impacts on wetlands;
- Support stream corridor protection and restoration, with a specific goal of restoring 200 miles of riparian forest buffers on Federal land by January 1, 2010; and
- Open or enhance public access to 200 additional shoreline miles of the Bay by January 1, 2005.

FEDERAL AGENCIES INVOLVEMENT

Through the actions laid out in the *1994 Agreement* and *FACEUP* and, perhaps most importantly, through the coordination of these actions within the Chesapeake Bay Program, Federal agencies are helping to restore and protect the Chesapeake Bay and make the Bay Program a national model for ecosystem management.

THIS REPORT

This report documents the progress made by Federal agencies on the commitments in the *1994 Agreement* and the *FACEUP* from April 1, 1997 through April 1, 1999. This is the third biennial report on the progress made in implementing the *1994 Agreement*, and the first progress report on *FACEUP*. The format of this biennial report has been modified somewhat from past reports in order to reflect the 50 new commitments of the *FACEUP*, while continuing to track the completion of commitments under the *1994 Agreement*.

COMMITMENT PROGRESS REPORT

FEDERAL PARTNERSHIPS FOR THE BAY

In 1994, Federal agencies committed, through the *1994 Agreement*, to enhance their participation in the Chesapeake Bay restoration, and to encourage other Federal agencies to become participants in the Chesapeake Bay Program.

In 1998, agencies reaffirmed and strengthened their 1994 partnership commitment. *FACEUP* created a Bay Partner Facility program that provides recognition to Federal facilities with a strong program of environmental stewardship. Under the lead of the Department of Agriculture, Federal agencies have committed to use available programs such as the Conservation Reserve Enhancement Program, the Environmental Quality Incentives Program, the Wetlands Reserve Program, and the U.S. Forest Service's Forest Stewardship Program and Forest Legacy Program to help states preserve the ecological integrity of the Bay watershed. Federal agencies have also emphasized the importance of the *Clean Water Action Plan* by committing in 1998 to support the states, through participation in teams of Federal and state officials, in their efforts to meet its key goals.

State-Federal Cooperation

Langley Air Force Base, Naval Surface Warfare Center Dahlgren Division, and other Department of Defense installations in Virginia have developed partnerships with the Virginia Department of Conservation and Recreation in an effort to develop shoreline stabilization and wetland restoration plans and programs. The Air Force and the Navy also continue to partner with the Virginia Institute of Marine Science to identify, monitor, and research specific wetland sites on Langley Air Force Base and Naval Station Norfolk. Through the Riparian Forest Buffer Grant Program, the Air Force has developed a team design approach with the U.S. Army and public schools in York County, Virginia, to design, install, and use for outdoor education a restored riparian area adjacent to the Bethel Reservoir.

Fort Detrick, in Frederick, Maryland, has developed a partnership with the Maryland Department of Natural Resources Forest Service, Alliance for the Chesapeake Bay, and the U.S. Forest Service. The focus of this effort has been to connect forest habitats into larger contiguous areas, and to restore stream corridors with riparian forest buffers.

DOD installations in Maryland continued to work successfully with State cooperative extension offices and field personnel of the USDA Natural Resources Conservation Service for the implementation of a variety of land management and habitat restoration programs. These cooperative relationships are established at the local level, and have proven to be an excellent partnering opportunity for cost efficient technical support and project implementation.

Orphan Osprey Rehabilitation at the U.S. Naval Academy's Greensbury Point.

On July 4, 1998, the DOD and the Commonwealth of Pennsylvania entered into a historic, cooperative, multi-site agreement that addresses the assessment and remediation of selected contaminated DOD sites in Pennsylvania by 2010. The agreement establishes approaches to be used, including cleanup standards, site assessment procedures, liability relief, and the options to use site specific, risk based remediation criteria. The state and Federal partners agreed to voluntarily be bound to a course of conduct that includes mutual incentives, accountability provisions, and a dispute resolution process in place of stipulated penalties or other standard enforcement procedures. Other states have since expressed a strong interest in following Pennsylvania's lead for this groundbreaking Federal partnership.

Federal Partners

The *FACEUP* commits the Federal agencies in the Bay Program to "promote the addition of new Federal partners." and to "strengthen relationships among existing partners through resource sharing and unified program planning and implementation...." At the *FACEUP* signing ceremony in November, 1998, the EPA and the National Aeronautics and Space Administration (NASA) signed a Memorandum of Agreement (MOA) which made NASA the fifteenth formal partner in the Chesapeake Bay Program. In that MOA, NASA committed to transfer remote sensing data and related technologies to Bay Program partners to support Chesapeake Bay restoration and protection actions.

In November 1996, The U.S. Postal Service signed a Memorandum of Understanding (MOU) with the EPA with a number of specific commitments, including the development of an action plan for setting goals. The U.S. Postal Service *Chesapeake Bay Program Action Plan* was released in October 1997, and outlines specific steps that the agency will take to ensure that goals of the 1996 MOU are successfully implemented. In January 1998, the Postal Service and EPA increased the scope of the original MOU to include Postal Service facilities in the Delaware, New York, and West Virginia portions of the Bay watershed. The Postal Service has been very aggressive in implementing their commitments and has established a Chesapeake Bay Program Task Force. This Task Force has successfully integrated many of the Bay Program's goals and commitments into the daily operations of its 2,100 facilities in the Bay watershed.

The National Park Service has also increased its participation in the Bay Program by assigning four staff members directly to the Chesapeake Bay Program Office. The Park Service's Coordinator serves as principal liaison to the Bay Program, and has been joined by a community planner who is engaged full time in community-based planning assistance. The Park Service has designated points-of-contact for each of the 61 national park units within the Chesapeake Bay watershed in order to enhance their integration into Bay Program activities and initiatives. These contacts act as liaisons for their individual parks and coordinate with the National Park Service's Chesapeake Bay Task Force. This Task Force, composed of managers, resource experts and interpreters, serves to facilitate information exchange, decision-making, and staffing of initiatives. The Task Force has organized Workgroups in the areas of communication and education, community assistance, and park management practice to track Park Service involvement in the Bay Program. In the summer of 1998, the Task Force initiated a *Park Needs Survey* to identify initiatives of the Chesapeake Bay Program that had the strongest correlation to critical park resource management issues. This survey has helped park staff identify areas where technical assistance and training are most needed to improve management practices to protect the Bay.

RESEARCH, ASSESSMENT, AND NEW TECHNOLOGIES

1994 Agreement Commitments

The Federal Bay Program Partners agreed in 1994 to coordinate their research agendas in consultation with the Bay Program's Scientific and Technical Advisory Committee (STAC), and to address atmospheric deposition of nutrient and toxic pollution. Since these commitments were made, Federal agencies have improved their coordination with the STAC, and have begun a dialogue with other Federal, state, and local agencies about Federally supported science projects and their applicability to the Chesapeake Bay Program.

Federal Science Conference

In November 1998, the Federal Science Coordination Workgroup of the Bay Program, together with the STAC, organized the Federally Supported Science and the Chesapeake Bay Program conference, with three main objectives. First, the conference was to establish a continuing forum for communicating scientific results from Bay scientists and engineers. Second, the conference was to serve as a vehicle for sharing science-based information with resource managers. Third, the conference was designed to provide mechanisms for identifying emerging science needs and opportunities for technology transfer. Over 200 Chesapeake Bay scientists, engineers, and natural resource managers attended the event, held at the Patuxent National Wildlife Visitor Center in Laurel, Maryland. A number of themes emerged:

- Science-based research in the Bay watershed must develop the capacity to incorporate and utilize ecosystem perspectives rather than focus on isolated components of the system.
- Institutions and agencies must lead in nurturing and promoting interdisciplinary approaches to research.
- Improved coordination and joint priority setting between scientists and resource managers is critical to achieve effective restoration and protection goals in the Chesapeake Bay watershed.
- Broader recognition must be given to the importance and utilization of science-based solutions for restoring and protecting the Chesapeake Bay. A particular emphasis must be placed on improving the ability to predict the impact or outcomes of even the simplest management practices.
- The scientific community should seek answers to the following questions: "What are we managing the Bay for? What do we want the Bay to look like?"
- Scientists must define and understand the priorities of citizens in the Chesapeake Bay watershed, and develop the ability to describe lifestyle changes necessary to achieve those priorities.

Tiger Swallowtail Butterfly—U.S. Naval Academy

FACEUP Commitments

When *FACEUP* was signed in 1998, Federal signatories promised to renew their efforts to provide the research, assessment, and state-of-the-art technical support necessary to accomplish the goals and objectives of the Chesapeake Bay Program. Agencies agreed to improve data and information sharing with other Bay Program partners. They also agreed to complete a number of inventories and assessments that address a variety of research areas, including nutrient loadings, water quality parameters, habitat, submerged aquatic vegetation, nitrogen compound emissions from agriculture, groundwater lag times, river flow effects, and long term changes in water quality, living resources, and sea-level rise.

CIMS Agreements

The *FACEUP* prescribed a new tool for the formalized coordination of data among Federal agencies: the Chesapeake Information Management System (CIMS) agreement. The CIMS agreements encourage signatory agencies to work with Bay Program partners to implement a regional distributed information system to make data and information readily available using Internet technology. In 1998, the U.S Geological Survey (USGS) signed a CIMS Agreement with the Chesapeake Bay Program, becoming the first Federal agency to formally participate in the CIMS partnership. The USGS specifically agreed to provide data and information for publication on a publicly accessible Internet website (http://chesapeake.usgs.gov/chesbay) which is continuously operational, and to provide metadata to be linked to each dataset that is published on the Internet.

Nutrient Research

Nutrient Areas of Concern

The *FACEUP* commits the USGS to complete a Bay-wide assessment of potential nutrient loadings and water quality parameters that "support the identification of Nutrient Areas of Concern and serve as a basis for strengthening the ability of local and state jurisdictions to achieve their tributary basins' nutrient reduction goals...." Toward that end, the USGS is relating nutrient sources to delivered nutrient loads by using a statistical modeling technique called SPAtially Referenced Regressions of Contaminant Transport on Watershed Attributes (SPARROW). The SPARROW model divides the Bay watershed into about 1,400 segments, and is being adopted by the Bay Program as one of the tools to identify Nutrient Areas of Concern. An initial version of the model was completed to provide the spatial resolution needed to help the Bay Program and local governments develop preliminary Priority Areas. SPARROW will also be used to help explain the trend results and link nutrient sources to groundwater loads and their delivery to surface water.

Nutrient Lag Times

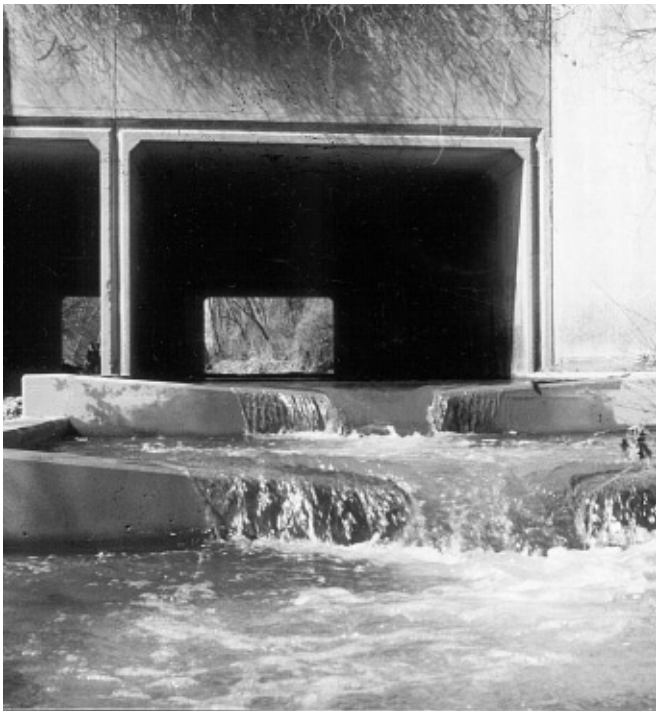
The *FACEUP* also requires that the USGS prepare an assessment of "the amount of nutrients and associated lag times in groundwater, and of implications for adjustments to tributary strategies' nutrient reduction goals...." The USGS has estimated the number of years it takes to measure water quality improvements after implementation of specific nutrient-reduction practices. Different surface and subsurface characteristics of the Bay watershed have led to a scientifically predictable "lag time" between the implementation of nutrient-management practices and improvements in surface water quality. The USGS estimates half of the water and nutrient load entering the Bay tributaries travels through the groundwater system.

The USGS has also identified the effect that major hydrogeomorphic regions, which are different areas of rock and watershed characteristics, have on groundwater discharge and nutrient load. Although data indicates that nutrients may take up to 60 years to move through shallow aquifers before discharging to rivers, most groundwater residence times are about 10 years. The USGS also finds that there may not be a significant difference between residence times in different hydrogeomorphic regions. Consequently, the Bay Program is formulating strategies to target further reductions of nutrients based on the characteristics of the groundwater and its relation to hydrogeomorphic regions. In addition, the Bay Program is working to understand the magnitude of direct discharges to the Bay, the role of groundwater discharge for sustaining aquatic health in streams, and the effect of high nutrient concentrations in groundwater on human health.

Long-Term Changes in Water Quality

The *FACEUP* commits the USGS to develop "tools to document the long-term changes in water quality, living resources, and sea-level rise.…" The USGS has found that population growth, and its impacts on land use, has caused the most dramatic changes in the Bay ecosystem. For this reason, the USGS is currently examining the land use changes in the Bay watershed that may have affected the ecosystem over several time scales, including the last several decades and centuries. Preliminary findings from the Baltimore-Washington area indicate that deforestation began around 1600, and peaked around the time of the Civil War in the 1860s. Agricultural use has decreased since the early 1900s, and has been replaced by primarily urban land uses.

Stress on the Bay ecosystem from human activities over the last 300 years, compared to long-term natural variation in ecosystem functions, has raised questions about the relevance of current Bay ecosystem restoration goals. Therefore, the USGS analyzed ecosystem indicator changes in salinity and dissolved oxygen in the mesohaline portion of the Bay. Preliminary results indicate that salinity changes and periods of anoxia have been occurring in the Bay for the last 1,000 years, and are related to changes in climate and river flow. However, the variation in salinity and anoxia increased greatly in the mid-to-late 1800s, as forests were cleared and agricultural land use peaked in the watershed. Additionally, anoxia has reached record high levels in the 20th century. This is due in part to periods of wetter weather, which cause increased river flow and increased delivery of nutrients to the Bay. The data collected by USGS is valuable to the Chesapeake Bay Program, as it will help the Bay Program revise Bay restoration goals to more adequately reflect changes in the system due to natural variability versus historical land use changes.



Fish passage constructed pathway

DATA COORDINATION

The *1994 Agreement* established a Workgroup under the FAC to "assess and evaluate existing ecological resource inventories used by Federal agencies, and to make recommendations to improve coordination, compatibility, standardization, GIS-based data layers and interagency transfer of information...." The Federal Science Coordination Workgroup provides direction and defines the scientific and research needs of the Bay Program as they relate to the capabilities and priorities of Federal agency research programs. The Workgroup also works closely with the Scientific and Technical Advisory Committee to ensure that Federal research efforts are concentrated on Bay Program priorities. Recent activities of the Workgroup are outlined on page 7.

PRIORITY WATERSHEDS

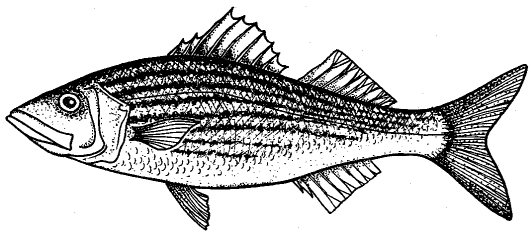
In addition to the renewed Federal commitment in the Anacostia watershed, *FACEUP* committed to provide increased protection and support to other priority watersheds. Chesapeake Bay sub-watersheds designated by states as needing protection and restoration action under the *Clean Water Action Plan* will be supported by Federal programs and resources. These watersheds include the Elizabeth River, the Upper Susquehanna and Lackawanna Rivers, and the Potomac River.

Anacostia River and Rock Creek

The Anacostia River, in Washington, D.C., and Maryland, is one of the best-studied watersheds within the Chesapeake Bay watershed. In the *1994 Agreement*, Federal agencies committed to support the Anacostia River Demonstration Project and to create the first *Biennial Federal Workplan for the Anacostia River Watershed (Workplan)* in 1997. The *Workplan* provides a historical account of the ecology of the Anacostia watershed, an overview of current Federal efforts to improve this ecosystem, and recommendations for future Federal action. The *Workplan* is designed to be updated every two years. The second *Workplan*, scheduled for completion this year, expands on the first *Workplan* and focuses on three specific areas: stormwater management, chemical contamination and toxics, and stream corridor restoration. These are the most pressing environmental problems for the watershed, and are a high priority within the Anacostia Watershed Restoration Committee and the Chesapeake Bay Program. Topics to be covered in the 1999 *Workplan* include low-impact development, contamination issues for targeting stormwater management priority areas, and *BayScaping* opportunities. The 1999 *Workplan* will identify priority areas and alternatives for action.

In the *FACEUP*, Federal agencies reaffirmed their commitment to the Anacostia River by agreeing to address wet weather pollution on Federal lands in the Anacostia and Rock Creek watersheds. In February 1998, the Federal Agencies Committee convened a Special Panel on Combined Sewer Overflows and Stormwater Management in the District of Columbia. The Panel was composed of representatives from 27 separate Federal, state, and local agencies, and local nonprofit environmental groups.

The Special Panel released a set of recommendations for immediate action in September 1998, with a special section directed at Federal agencies with building and land management responsibilities in the Anacostia River and Rock Creek water-



Striped Bass

sheds. The Panel concluded that a strong emphasis on Federal agency action is a critical step in meeting watershed restoration goals.

Four specific recommendations were made to ensure that agencies take action:

1) *Accelerate wet weather pollution prevention and control on Federal lands and at Federal buildings and associated facilities*. Federal agencies were asked to: (a) meet legal requirements for stormwater pollution prevention and control; (b) complete stormwater management plans; (c) provide input to the District of Columbia Water and Sewer Authority's Long Term Control Plan for combined sewer overflows; and (d) implement stormwater management controls.

2) *Focus Federal financial support and other assistance on wet weather pollution prevention and control priorities*. Federal agencies were asked to identify their regulatory, financial assistance, research, and other programs pertinent to wet weather pollution control in the District of Columbia and Maryland. Agencies will then compare the recommendations in the final Panel Report with these activities, and seek ways to facilitate their accomplishment.

3) *Convene a Federal Workgroup to facilitate communication and provide leadership*. Federal agencies were asked to form a Federal Wet Weather Workgroup in order to: (a) coordinate and support the implementation of priority stormwater activities; (b) facilitate communication among Federal, state, and local agencies; (c) provide leadership to Federal agencies on stormwater management planning; (d) provide technical expertise on the development of comprehensive stormwater management plans; and (e) assess sources of funding and assist agencies in obtaining resources for implementation.

4) *Develop a strategy to brief agencies, the White House, and Congress on the need for a coordinated planning effort.*

In response to the recommendations of the Special Panel, a Federal Wet Weather Workgroup was formed in late 1998 and incorporated into the Bay Program's Federal Agencies Committee. This Workgroup is chaired by the U.S. Army Corps of Engineers (Corps), and has met three times to develop a mechanism to implement stormwater management in the Anacostia and Rock Creek watersheds. This information was used as the foundation to update the stormwater portions of the 1999 *Workplan*.

In addition to the *Workplan* and related efforts, the Corps has undertaken three separate studies of the Anacostia watershed since 1994. The first of these studies identified 13 restoration projects within the watershed, which are currently scheduled for construction between 1999 and 2001. These projects will restore 80 acres of wetlands, five miles of streams, and 33 acres of riparian buffers. The second study focuses on the Northwest Branch tributary to the Anacostia. The preliminary report for the Northwest Branch identified the need to address the degradation of 2,600 acres of wetland, 500 acres of aquatic habitat, and 800 acres of riparian buffers in this subwatershed. The Corps is currently working on designing and comparing restoration alternatives for these sites. The third study focuses on the environmental effects of modifying an existing local flood protection project in Prince George's County, Maryland. The result of this study will be construction to improve local flood protection while providing environmental restoration including wetland creation, terrestrial habitat improvement, and instream habitat enhancement.

The EPA has continued and expanded its leadership role in the Anacostia. The EPA Anacostia Community Liaison has had a strong focus on education and was stationed at Anacostia High School as the manager of its Environmental Science and Computer Technology Academy. The Anacostia Liaison has also assisted the District of Columbia with the implementation of the Bay Program's 1998 Education Initiative.

In 1998, the EPA officially joined the Anacostia Watershed Restoration Committee as a voting member, which allowed the agency to take a more active role in framing regional policy. Also in 1998, EPA designated a portion of the Anacostia Community in the District as a *Children's Health Champion Community*, one of only ten designations nationally. EPA has provided funding to support this designation.

EPA has also been a sponsor of the Kingman Lake Restoration Project. And in 1999, EPA Region III adopted a PCB Reduction Initiative for the Anacostia to focus existing programs on reducing and eliminating PCB discharges in the Anacostia basin. This was in response to the *FACEUP* commitment for increased support for Toxics Regions of Concern, which includes the Anacostia River.

Elizabeth River

The Elizabeth River watershed includes portions of the Tidewater, Virginia cities of Norfolk, Portsmouth, Chesapeake, and Virginia Beach. The *FACEUP* agreement commits the Federal agencies to "support the 18-point restoration plan for the Elizabeth River through active participation in the programs and projects of the Elizabeth River Coalition...." The Naval Station Norfolk has represented the Navy on the Elizabeth River Project board since 1991, and the Norfolk District of the Corps became a signatory to the Elizabeth River Restoration Action Plan in 1998.

The Navy's support of the Elizabeth River Project is recognized through designation of the three large Naval installations in the watershed as "River Stars", a program recognizing business and government facilities committed to pollution prevention and habitat enhancement:

The Commander, Navy Region Mid-Atlantic, located at Naval Station Norfolk, was awarded the first Model Level River Star. This designation is reserved for entities that serve as community leaders in environmental stewardship with exceptional pollution prevention or wildlife habitat results. Naval Station Norfolk provided community outreach to share recycling and pollution prevention strategies for operations, product development, and purchasing.

Naval Station Norfolk has conducted habitat restoration through community outreach work, assessed auxiliary Navy properties along the Elizabeth River for potential to participate in riparian forest buffer restoration, and established a fishing pier to promote access to the River. The Commander, Navy Region Mid-Atlantic also serves as the coordinator for thousands of military volunteers annually for the Hampton Roads-wide Clean the Bay Day effort.

Great blue heron
(Ardea Herodias)

Naval Medical Center Portsmouth obtained River Star Achievement Level in 1999, specializing in low-impact development techniques for new buildings, including conservation landscape design and stormwater improvements. Extensive shoreline stabilization also has been conducted along the Elizabeth on Medical Center property.

Norfolk Naval Shipyard, a primarily industrial installation, has reached the Commitment Level of the River Stars program, agreeing to develop goals and document successful program implementation.

As the major Federal presence in the Elizabeth River watershed, the Navy and the Corps will continue to be integral parts of the Elizabeth River restoration efforts, including as members of various Elizabeth River Project action teams.

Potomac River and Upper Susquehanna and Lackawanna Rivers

FACEUP commits Federal agencies to fully participate in the American Heritage Rivers Program for the Potomac and Upper Susquehanna and Lackawanna Rivers. Federal agencies have already accomplished one of their commitments in this area by identifying all relevant Federal landholdings within these two watersheds, and providing GIS maps of those holdings to the Federal River Navigators.

CHESAPEAKE BAY LIVING RESOURCES AND HABITATS

In the *1994 Agreement*, the Federal government pledged to support the Chesapeake Bay Program's Habitat Restoration Strategy and related plans. Federal agencies have committed to develop a priority projects list for habitat restoration on Federal lands, and to use innovative funding sources to accomplish these projects. Federal agencies agreed to fully implement all authorities to restore aquatic, riparian, and upland habitats, and to assure the beneficial use of clean dredged material to support habitat restoration. The *1994 Agreement* committed Federal agencies to support a policy to protect and restore riparian forest buffers, and to provide technical assistance in the restoration of habitat for anadromous fish.

In 1998, the Federal partners of the Chesapeake Bay Program agreed to a new round of commitments for the Bay's living resources and habitats in *FACEUP*. This renewed effort took the form of nine ambitious tasks. Agencies recommitted to preparing an annual list of priority projects for habitat restoration, and to complete at least two of these projects each year beginning in 2000. Federal agencies agreed to establish demonstration sites for stream corridor restoration technologies on three facilities by December 1999, and to restore 200 miles of riparian forest buffers on Federal land by 2010. Federal agencies committed to a wetland restoration goal for Federal facilities of 100 acres per year beginning in 2000, and also agreed to open priority fish passage blockages to 50 miles of streams by December 31, 2003. Under *FACEUP*, conservation landscaping will become a higher priority with the development of a guide for use by Federal facilities, and with the integration of these techniques into Federal specifications and design criteria by July 31, 2001.

Inventory of Restoration Priority Areas

Through its *Park Needs Survey*, the National Park Service Chesapeake Bay Task Force has identified projects at 12 different parks that resource managers proposed for inclusion on the Habitat Restoration Priority List.

Beneficial Use of Dredged Material

Under the *1994 Agreement*, the U.S. Army Corps of Engineers has the lead to find beneficial uses for material dredged from the Bay and its tributaries. Four beneficial use projects were undertaken by the Corps in the Chesapeake Bay in 1997, 1998, and early 1999. The best known of these projects is the Poplar Island Environmental Restoration Project. This project, designed to use dredge material to restore over 1,000 acres of Poplar Island, Maryland, as a wetland and waterbird sanctuary, began construction in 1998. The construction is anticipated to continue in phases into the future, as suitable material becomes available.

The Corps is also in the process of creating 335 acres of wetlands, upland, island, and aquatic habitat at Hart-Miller Island, Baltimore, Maryland.

Poplar Island-A Beneficial Use Project

Currently, design is underway for a bird habitat at the island that includes approximately 20 acres of freshwater ponds, one acre of island-type nesting, 200 acres of wetland and mudflats, and 90 acres of upland songbird habitat, using clean dredged material from navigation projects around Baltimore County and Baltimore City. Construction is anticipated to begin in the near future.

Corps operations projects with benefits to the Chesapeake Bay also include smaller projects that use sediment dredged from small Federal navigation projects. Two projects dredged in 1998, the Honga River and Fishing Bay channels, provided beach nourishment benefits during disposal. Approximately 30 acres of beach were restored along the Bay as a result of these projects.

Forested Buffers

The *1994 Agreement* requires Federal agencies to improve habitat by "supporting development in the Bay watershed of a policy favoring the creation of forested buffers along streams...." In 1996, with the leadership and coordination of the U.S. Forest Service, Northeastern Area, State and Private Forestry, the Chesapeake Bay Riparian Forest Buffer Initiative was adopted for the Chesapeake Bay signatory states and District of Columbia. Implementation of the Initiative began that year. This initiative calls for the restoration of 2,010 miles of riparian forest buffers by the year 2010. Federal agencies are committed to restoring 200 of those 2,010 miles. As of April 1, 1999, riparian forest restoration has occurred along 59 miles of streams, rivers, and shoreline on Federal lands. Numerous projects have been initiated in the watershed in support of the riparian forest goal.

Between 1997 and 1999, the Corps restored approximately three shoreline miles of riparian forest buffer at Raystown Lake, Pennsylvania. Restoration measures include shoreline restoration, old field plantings, and new mowing restrictions.

These efforts provide two major benefits: first, the shoreline stabilization reduces erosion and concomitant water quality effects, and second, the restored buffer provides wildlife habitat and encourages increased biodiversity.

The Air Force planted 750 trees along tidal ditches and the banks of the Back River during 1998 in an effort to restore native riparian buffers at Langley Air Force Base. Under a Riparian Forest Buffer Habitat Grant from the Bay Program, the Air Force has cleaned up an old concrete landfill and connected two forest fragments at Langley. Native shrub and tree species have been installed, as well as a native forage grass seed mix.

Federal agencies that are not major landholders in the Chesapeake Bay watershed have also committed themselves to the implementation of the Riparian Forest Buffer Initiative. For example, the U.S. Geological Survey National Mapping Division has committed to provide complete base cartographic data, including Digital Orthophoto Quadrangles at 1 meter resolution for the entire Bay watershed, so that Bay Program partners can use this information as a planning and landscape analysis tool for riparian forest buffers. The National Mapping Division and the Water Resources Division will also provide information on stream sediment and groundwater flow, water quality, and characteristics loads for selected reaches in the Bay watershed.

Partially buffered stream at the U.S. Naval Academy Dairy Farm

The USGS Biological Resources Division provides assistance with land cover mapping and information on species diversity, invasive species, and habitats. The Geologic Division continues to provide information on surface and bedrock geology, and several divisions have committed technical resources for the development and tracking of forest buffers within the watershed.

The USDA Natural Resources Conservation Service (NRCS) owns two miles of streams on its plant materials facilities: one in Beltsville, Maryland and the other in New York. In addition to maintaining buffers along these streams (at least 100 feet of trees, shrubs, or grasses), the NRCS assists private landowners with the establishment of riparian buffers through a number of programs, including the Conservation Reserve Program/Conservation Reserve Enhancement Program, the Wildlife Habitat Incentive Program, the Forestry Incentives Program, the Wetland Reserve Program, and the National Conservation Buffer Initiative.

In addition to these specific activities and projects, a number of Federal agencies have adopted riparian forest buffer implementation plans. These plans are meant to assist agency property managers in implementing the Riparian Forest Buffer Initiative. The chart on Page 16 tracks the miles of buffer established in the 1997-1999 timeframe, by agency.

RESTORED RIPARIAN FOREST BUFFERS, BY AGENCY, 1996-1999

Agency	Miles of Restored Buffers	NOTES
Army Corps of Engineers	10.7	Includes the Anacostia River and Raystown Lake projects
Department of Defense	21.2	
US. Forest Service	24.3	
US. Fish and Wildlife Service	0.0	Approximately 9.4 miles of land on the Eastern Neck, Presquile, Woodbridge, and Rappahannock Refuges have been identified as having restoration opportunities due to current management practices for feed crops for waterfowl and other birds.
National Park Service	0.8	A recent survey determined that of the 1,020 miles of intermittent and perennial streams that are on Park Service lands within the Bay watershed, approximately 23.3 miles have restoration potential.
Natural Resources Conservation Service	2.0	Continuous conservation
TOTAL (1996 to early 1999)	59.0	32.7 planned for the near future. The total mileage, 91.7 miles, is 118.3 miles short of the restoration initiative annual goal.

Fish Passage and Habitat

National Park Service resource management staff at Colonial National Historical Park are working with state and local agencies to complete fishery inventories and establish baseline water quality monitoring programs at the Park.

Fish passage construction at the Little Falls Dam on the Potomac River

Wetlands, Submerged Aquatic Vegetation, and Vernal Pools

The Air Force recently received all required permits to begin construction on 1,300 linear feet of shoreline stabilization and wetland restoration project in the Back River portion of Langley Air Force Base. The purpose of this project is to improve eroding shorelines while restoring a native wetland marsh fringe at the site.

Since 1997, the DOD Legacy Resource Management Program has supported a multi-year effort for the monitoring and restoration of submerged aquatic vegetation along DOD shorelines. The prototype for DOD involvement with the SAV program was initiated at the U.S. Army's Aberdeen Proving Ground in Maryland. Installation natural resources management personnel actively conducted on-site water quality monitoring and assessment of existing SAV beds under a cooperative agreement with the Alliance for the Chesapeake Bay (ACB) and with the support of the National Aquarium in Baltimore, University of Maryland's Chesapeake Biological Laboratory, and the Virginia Institute for Marine Science. Active duty military divers and volunteer DOD civilian divers have also participated in the SAV planting and monitoring activities.

Installations that have participated in the Legacy program include the U.S. Naval Academy (Annapolis, MD), the Naval Surface Warfare Center Indian Head Division (Indian Head, MD), Naval Surface Warfare Center Dahlgren Division (Dahlgren, VA), Naval Amphibious Base Little Creek (Norfolk, VA), Langley Air Force Base (Hampton, VA), Fort Eustis (Newport News, VA), Fort Monroe (Hampton Roads, VA), Navy Solomons Complex (Solomons Island, MD), Bolling Air Force Base (Washington, DC), U.S. Army Blossom Point Facility (Blossom Point, MD), and Naval Weapons Station Yorktown (Yorktown, VA). This major DOD cooperative effort in support of the Bay Program's SAV goals has expanded to include work with ACB and the US Fish and Wildlife Service for production of a revised SAV identification and restoration guide, scheduled for completion in Summer 2000. Under a separate Legacy grant, two Navy installations also are working with the ACB to study the utilization of restored SAV beds by fish species, contributing to the science of Bay habitat restoration.

The Air Force's incorporation of SAV restoration with other shoreline management planning at Langley Air Force Base provides an excellent example of the success of DOD SAV efforts. The work at Langley required six months of water quality testing at four potential sites to determine which site(s) was suitable for planting. In the end, only one site, located adjacent to an airfield, qualified. Test plots were planted at the selected site in

October 1998, and this site will likely be targeted for large-scale SAV restoration in 2000. The Air Force will monitor the health and progress of these beds with the assistance of the Alliance for the Chesapeake Bay.

The National Park Service has had three major projects over the past two years.

- Rock Creek Park, in Washington, D.C., with support and funding from the U.S. Geological Survey and the Chesapeake Bay Program, has conducted field inventories of potential vernal pool restoration sites. Plans and designs are currently being developed to facilitate park staff in constructing several of these pools to sustain habitat requirements of herpetological species.
- The National Park Service is also initiating a cooperative cleanup of the restored marsh adjacent to the Fort McHenry National Monument in Baltimore, Maryland, in order to enhance its ecological function and appearance. The Park is working with the National Aquarium in Baltimore to establish a monitoring program in advance of further restoration activities.
- The National Capital Parks—East resource management staff is working toward the reestablishment of native species habitat at Kingman Lake and the Kenilworth Marsh in Washington, D.C.

Saltmarsh cordgrass plantings at the U.S. Naval Academy's Greenbury Point.

Stream Restoration

In 1996 and 1997, the U.S. Fish and Wildlife Service (USFWS) designed and constructed a stream and riparian restoration project at the Agriculture Research Service's Beltsville Agricultural Research Center. The project site, located on a tributary to the Little Paint Branch, suffered severe erosion due to previous ditching and increased runoff from upstream development. The project transformed approximately 2,000 feet of a rapidly eroding entrenched channel with little or no habitat value into a more stable stream with greater flood protection, increased quantity of riffle and pool habitats, and decreased sediment loading. Riparian and upland trees were planted to restore a 2.5-acre buffer strip providing additional streambank stability, shade, and wildlife habitat. The Agriculture Research Service, USFWS, and EPA provided funds for equipment and materials. USFWS, with assistance from the Natural Resources Conservation Service and Maryland's Department of Natural Resources, designed the project and supervised all phases of construction, while the Agriculture Research Service provided a significant amount of in-kind support, including labor and construction equipment. The project has been used as a stream and riparian restoration demonstration site for numerous training workshops, and was featured in a stream restoration tour organized by the Natural Resources Conservation Service for the Ecosystem Conservation Society of Japan.

The USFWS conducted a pilot stream channel assessment project at the Naval Air Station, Patuxent River in 1998. Results of the assessment are being evaluated and protocols are being revised to provide Federal facility resource managers with the information required to target priority projects for stream corridor protection and restoration plans.

The Maryland Department of Natural Resources (DNR) is working in cooperation with the Army Environmental Center and the Naval Facilities Engineering Command to assess stream miles on approximately 15 DOD facilities in Maryland. A grant from the DOD Legacy Resource Management Program is supporting DNR's innovative approach, in which Maryland Conservation Corps members are trained to conduct initial assessments and documentation of stream conditions. This statewide study will allow DOD to target continuing partnership opportunities with the state and other Federal resource agencies to prioritize detailed analyses and stream restoration programs. The findings of this study will be available in 2000. The Baltimore District of the Army Corps of Engineers has also conducted more detailed stream corridor assessments for selected installations. The combined results from these assessments can be used to provide a snapshot of the overall condition and continuing management needs for streams on Federal lands in the Bay watershed.

Aquatic Reefs

The Corps has committed to an effort to restore oyster populations in Maryland through the Chesapeake Bay Oyster Recovery project. This project, initiated in 1997, includes the construction of disease-free oyster bars, rehabilitation of unproductive oyster bars, and construction and operation of oyster nurseries for disease-free production. Initial shell placement and "seeding" with disease-free spat was undertaken in 1997 at sites in Kedges Strait, Choptank River, and Patuxent River. Shell placement and seeding at several locations in the Chester River was finished in 1998, and in the Patuxent, Magothy, and Severn Rivers in 1999. Construction of a seed bar was also finished in Eastern Bay during 1999. Construction is scheduled to continue through September 2000.

Naval installations located along large tidal tributaries and the Bay shoreline also have supported creation of oyster reefs. Naval Weapons Station Yorktown partnered with the Virginia Marine Resources Commission for installation of a three-dimensional oyster reef along the York River near the mouth of Felgates Creek. Under the leadership of the Naval Facilities Engineering Command, oyster habitat creation work also has been conducted at the Naval District Washington's Solomon's Complex, MD, in partnership with NOAA, the Maryland Department of Natural Resources, and the Virginia Marine Resources Commission. This project incorporated an aquatic reef as a component of an integrated shoreline management program.

Invasive Species

The U.S. Fish and Wildlife Service (USFWS) has implemented invasive species controls on Service lands. The USFWS has worked with state, Federal, and private partners to manage populations of non-indigenous species in Chesapeake Bay, including nutria, mute swans, *Phragmites*, and non-native live bait. Nutria, a large fur-bearing rodent native to South America, was introduced to Maryland decades ago for the fur trade. Populations have expanded dramatically, particularly on the lower Eastern Shore, and the foraging of these animals has contributed to the loss of up to 5,000 acres of marshland in Maryland. To help reverse this impact, the USFWS is conducting a pilot study of methods to eradicate nutria and

Waist-high Kudzu at Fort Story, Virginia

restore marsh habitats in Blackwater National Wildlife Refuge. This project, being done in partnership with over 20 organizations, will use clean dredged material to restore marsh substrates at the Refuge.

The mute swan population in the Bay has grown dramatically since their introduction in the late 1960s. This highly territorial, exotic species outcompetes native birds for nest sites and brood-rearing habitat in Bay marshes. Mute swans also damage submerged aquatic vegetation by eating the tender shoots of many of these plant species. The USFWS, in conjunction with the Maryland Department f Natural Resources and the Virginia Department of Game and Inland Fisheries, has been conducting late-summer surveys of swan brood distribution in order to assess reproduction rates and habitat use by these animals. These aerial surveys use global positioning systems to accurately map the distribution of the birds and identify suitable sites for swan control.

Marshes throughout the Chesapeake Bay have also been invaded by *Phragmites* plants. *Phragmites* is a perennial species that forms dense stands, often eliminating native plant communities and dramatically reducing the value of marshes as fish and wildlife habitat. In order to assist in *Phragmites* control, the USFWS has conducted a Bay-wide aerial survey to determine the distribution of *Phragmites* and allow identification of vulnerable marshes.

In partnership with Anne Arundel Community College (AACC) and under a grant received from the DOD Legacy Resource Management Program, the Department of Defense has conducted *Phragmites* management investigations at several installations. The focus of AACC's and DOD's work has been to identify priority areas for *Phragmites* control. This multi-service initiative is being managed by the Navy, and surveys have been conducted at the U.S. Army Adelphi Lab (Adelphi, MD); Naval Surface Warfare Center Dahlgren Division; the U.S. Naval Academy; Naval Surface Warfare Center Indian Head Division; Naval Air Station Patuxent River (Lexington Park, MD); Fort Eustis; Fort Belvoir (Alexandria, VA), Fort Story (Virginia Beach, VA), Naval Amphibious Base Little Creek; Naval Air Station Oceana (Virginia Beach, VA); Naval Station Norfolk (Norfolk, VA); Dam Neck; Langley Air Force Base; and Fort Monroe. In addi-

Phragmites along a nature trail at Little Creek Amphibious Base

tion to the site investigations for *Phragmites*, AACC also has conducted two related training workshops for DOD natural resources and pest management personnel, and will be presenting preliminary findings regarding the *Phragmites* work and other priority invasive species identified at mid-Atlantic DOD installations at a summer, 2000 workshop.

The Fish and Wildlife Service has also initiated a two-year study of the potential for introduction of non-indigenous species to Chesapeake Bay waters through international trade in live bait. The results of the study will aid in describing and controlling a potential source of non-indigenous species introductions.

Conservation Landscaping

BayScapes

The USFWS, as the lead agency for *BayScapes*, has moved forward in implementing the *BayScapes* Program on Federal lands. The *1994 Agreement* called for the use of *BayScapes* to "expedite compliance with the President's directive on environmentally and economically beneficial landscaping practices on Federal facilities in the Bay watershed." From the spring of 1997 through the end of 1998, the USFWS completed 21 demonstration projects totaling five acres on Federal and non-Federal facilities. Funding for several of the projects completed on non-Federal lands was provided through a grant from the Chesapeake Bay Program. Implementation involved approximately 700 citizen volunteers and numerous government and non-government partners, thus providing an educational opportunity for local citizens.

BayScapes installed on Federal sites included a showcase garden at the Fish and Wildlife Service Chesapeake Bay Field Office in Annapolis, Maryland; a "rain garden" landscaped stormwater bioretention area at the Burger King restaurant on U.S. Army Fort George G. Meade, Maryland; and a wetland garden at the new wing of the NOAA and DNR Laboratory in Oxford, Maryland. The Fort Meade planting event was honored by speakers from several agencies and the Bay Program, attended by 150 volunteers, and highlighted by local television and print news media. As a follow-up on this effort, EPA's new laboratory at Fort Meade was redesigned using *BayScapes* principles. The USFWS is also working with the Maryland State Highway Administration to plan a two-acre demonstration *BayScape* planting at the Maryland Welcome Center on I-95 in Laurel, Maryland, which receives two million visitors annually.

In addition to actual plantings, the USFWS has participated in *BayScapes* educational opportunities over the past two years. *BayScapes* presentations were given by USFWS staff at several workshops to promote the use of *BayScapes* at Federal sites. The Federal Highway Administration's Eastern Resource Center, along with the Maryland State Highway Administration and the Chesapeake Bay Program, sponsored a workshop entitled

Volunteers do a Bayscapes planting.

New Approaches for Utilizing Native Plants on Roadsides: Tools for Developing a Practical, Environmentally Friendly Roadside Vegetation Strategy. The workshop examined techniques for creating more environmentally friendly roadsides, and examined issues such as the creation of a Chesapeake Corridor that would create a unique educational experience along highways in the watershed.

Moving to meet commitments under the *FACE-UP*, the Federal Highway Administration dedicated $12,000 through an interagency agreement with USFWS to develop a guide to *BayScaping* on Federal facilities. The guide is scheduled for release in 2000.

The U.S. Postal Service (USPS) has begun implementing *BayScapes* agency-wide, by producing a Grounds Management Plan to guide *BayScaping* on their facilities in the watershed. USPS is also developing new specifications to direct contractors in designing beneficial landscaping at all new facilities in the region. The USPS has already completed a number of *BayScapes* projects at their facilities throughout the Bay watershed, including Easton, Maryland; Binghamton, New York; Oxford, New York; Manassas, Virginia; Colonial Heights, Virginia; Forest Hills, Pennsylvania; and Washington, D.C. In addition, there are plans for *BayScapes* projects at ten more facilities throughout the watershed, including Lynnhaven/Virginia Beach, and Williamsburg, Virginia; and Altoona, Harrisburg, Millersburg and Milton, Pennsylvania. The Fish and Wildlife Service will work to assist other agencies in following the USPS example, by July 2001, as called for in the *FACEUP* agreement.

The U.S. Coast Guard has developed two *BayScapes* projects in the past two years. At Coast Guard Station Crisfield on Maryland's Eastern Shore, approximately two acres were landscaped with vegetated islands and a butterfly garden through a partnership with the Alliance for the Chesapeake Bay, and was completed in September 1998. At the Coast Guard TISCOM facility in northern Virginia, 400 trees were planted on five acres through a partnership with the Fairfax ReLeaf program. This project, completed in April 1998, utilized over 40 volunteers from three separate Coast Guard units, and built upon the Coast Guard Unit Master Plan.

In October 1998, the U.S. Coast Guard Portsmouth Industrial Support Center completed a large BayScaping project. The facility purchased and planted 450 native trees and shrubs on a 4.5 acre piece of lawn. The project was accomplished in cooperation with the Elizabeth River Project, which provided the project design and participated in the planting along with more than 100 youth volunteers. The facility continues to scope out areas for additional planting projects, and plans to host a nutrient reduction site visit from the Federal Agencies Committee. The Coast Guard also continues publication of its quarterly newsletter, *The Chesapeake Chronicle*, to keep all personnel in the Chesapeake Bay watershed informed about events such as *BayScapes* projects.

Other Efforts

At Langley Air Force Base (AFB) in Hampton, Virginia, the game warden has planted clover, persimmon, indigobush, and graystem dogwood on the base to improve wildlife habitat. In addition, students from Bethel Manor Elementary School constructed 50 bluebird houses made of recycled materials for use on the Base.

National Park Service staff from Fredericksburg and Spottsylvania National Battlefield Park are working with the Fish and Wildlife Foundation to restore native grass habitat to enhance quail

populations, and are working with Mary Washington College to complete a fish inventory of the Park.

NUTRIENT AND TOXICS PREVENTION AND REDUCTION

Federal partners in the Bay Program have made a commitment to meet and maintain the Bay Program's nutrient and toxics reduction goals, which have been the cornerstone of Bay protection efforts since the Bay Program was first established. In 1994, Federal agencies committed to support the Bay Program's Tributary Strategies, and to develop a *Special Tributary Strategy for Federal Lands in the District of Columbia*. They also agreed to provide Federal assistance with non-point sources of pollution, and to upgrade Federal wastewater facilities.

In 1998, Federal agencies created new commitments for the prevention and reduction of pollutants. Under these new commitments, nutrient management plans for Federal lands within the watershed will be developed by 2001. These plans will focus on nutrients from agricultural land, construction activities, turf areas, golf course and other recreation areas, and developed lands. Agencies agreed to adopt plans for the prioritized improvements of septic systems on Federal lands by December 31, 2000. Federal partners agreed to ensure that personnel are trained to implement Integrated Pest Management (IPM) on 75 percent of Federally-owned lands by December 31, 2000. Agencies will establish a peer review panel to evaluate at least five Federal IPM plans each year beginning in 2001. Federal agencies have agreed to employ pollution prevention technologies to achieve a 75 percent voluntary reduction from a 1994 baseline in releases of the Chesapeake Bay Toxics of Concern and chemicals required for reporting under section 313(c) of the Emergency Planning and Community Right-to-Know Act. Agencies also agreed to establish 30 Federal facilities as mentors in the Chesapeake Bay Program's *Businesses for the Bay* program by January 1, 2000.

Source Reduction

The U.S. Coast Guard has made toxics control a high priority over the past two years, incorporating pollution prevention principles into activities at its facilities. The Portsmouth Industrial Support Center was a Coast Guard pollution prevention award winner over the past two years. The facility instituted a program of pollution prevention and reduction that included the refurbishing of Building 33 into a "green building." Other efforts include the use of recycled carpets, installed without adhesive, and the installation of low-use water fixtures, windows with non-reflective heat mirrored glass, skylights, and room occupancy sensors.

The National Park Service continued its efforts to meet Bay Program nutrient and toxics reduction goals in 1997 and 1998.

- A three-year effort to clean up polychlorinated biphenyl (PCB)-contaminated soil and restore riparian habitat in Glover Archibold Park in Washington, D.C. was recently completed.

Drainage from a U.S. Navy facility had historically contaminated portions of the park and Foundry Branch, a tributary of the Potomac River. National Park Service staff from Rock Creek Park and the National Capital Region worked closely with the Navy, District of Columbia, and community representatives to remove over 2,000 tons of contaminated soil and to restore riparian habitat in the excavated area. Repairs to several chronic sanitary and storm sewer problems were made as well. This major collaborative effort resulted in eliminating a point source of PCB pollution to the Chesapeake Bay and increasing the limited riparian habitat in Washington, D.C.

- National Park Service staff also completed annual dry weather surveys of 75 stormwater outfalls in the Rock Creek drainage to identify, trace, and repair illegal stream discharges. Visual inspections were performed for 55 sanitary sewer stream crossings and exposures to discover and report leakage repair and stabilization needs. The park also worked with the D.C. Government and a local developer to initiate major repairs and internal lining of a deteriorated sanitary sewer that was a chronic source of sewage leaks to local streams. The National Park Service continues, as it has since 1978, to integrate IPM practices into park management programs.
- In March 1998, after seven months of intense National Park Service review and comment, mounting public opposition, and, ultimately, state elected official opposition, the Cardinal FG Glass Plant withdrew their permit application to construct a major new source of air pollution (including 867 tons per year of nitrogen oxides) in close proximity to Shenandoah National Park. The proposed Kernstown, Virginia, site is in the Chesapeake Bay watershed and airshed, so the permit withdrawal eliminated a potential new source of nitrogen loading into the Bay. Subsequently, the NPS and the U.S. Forest Service collaborated to offer review comments to the Virginia Department of Environmental Quality (Virginia DEQ) regarding their proposal to substantially weaken their minor new source (of air pollution) review regulations. In November 1998, Virginia DEQ withdrew their proposal in response to adverse public comment, thus reducing the potential for increased nitrogen deposition into the Bay from numerous proposed minor sources.
- Rock Creek Park contracted for site investigations to identify potential pollution sources at facilities throughout the park. These evaluations were completed at three horse stables, an 18-hole golf course, the central maintenance yard and associated material storage areas, and 14 miles of park roads with adjoining parking lots. The project report describes pollution and stormwater problems and recommends repairs and best management practices (BMPs) for each site to mitigate water quality and quantity concerns.

The U.S. Air Force also continues its efforts to address nutrient and toxic releases from its facilities at Langley Air Force Base in Virginia.

- Currently, the animal waste disposal process is being evaluated and alternative disposal options will be offered to the Langley Saddle Club, in collaboration with the Virginia Cooperative Extension Program.
- Langley's antiquated sanitary sewer system will be overhauled. One aspect of this overhaul is a

project to upgrade the primary sanitary sewer lift station. The construction contract will be awarded in the near future to complete the repairs, thus eliminating numerous discharges.

- The Air Force is also negotiating a design project to replace approximately 17,700 linear feet of sanitary sewer lines. The service area is in one of the oldest portions of the installation, and numerous cross-connections between the storm sewer and sanitary sewer system are believed to exist. The repair construction project will begin during Fiscal Year 2000.
- The sanitary sewer infrastructure maps at Langley are also being updated to help the base focus repair efforts on problem areas that are subject to excessive inflow and infiltration, which result in discharges.
- The Air Force intends to award a construction project to complete Phase 2 of sanitary sewer system repairs and to have continuous infrastructure repairs programmed and scheduled annually through Fiscal Year 2005.
- The Langley Entomology Shop has researched and evaluated the use of the hot water weed treatment on large concrete surfaces to reduce the amount of herbicide used during weed control operations. Langley's Entomology Shop is also in the process of purchasing "Weed Seeker" nozzles that only allow spraying to occur when a weed is sensed. The equipment allows 85 percent chemical reduction and a more efficient use of spray time.

Monitoring

Appomattox Court House National Historical Park, with assistance from the USGS, has established water quality monitoring stations on the portions of the Appomattox River and Plain Run that run through the Park. Quarterly analysis of sampling data from these stations will assist Park managers in developing methods to improve or protect these Bay tributaries.

Several DOD installations are also involved in water quality monitoring activities. Ongoing water quality monitoring is being conducted under the Legacy Program at Bolling Air Force Base, Langley Air Force Base, Army Adelphi Lab—Blossom Point, Yorktown Naval Weapons Station, and Naval Air Base Little Creek. Langley Air Force Base continues to monitor the health and progress of *Spartina* test beds with the assistance of the Alliance for the Chesapeake Bay. Meanwhile, Bolling Air Force Base recently completed a study of the dry weather flows from its 37 storm drainage sheds that discharge directly into the Potomac River, and also analyzed the discharge into a retention pond from a parking area. In each study, the Base detected no significant pollution.

Site Assessment and Education

The Nutrient and Toxics Reduction Workgroup continues to perform five site visits each year at Federal facilities that are willing to host an assessment, in accordance with the *1994 Agreement* and 1998 *FACEUP*. The Workgroup has found that nutrient pollution is still a problem on Federal lands, but there is an increasing concern over issues relating to toxic releases. Stormwater pollution prevention and integrated pest management are specific topics of concern for land and facilities managers. For these reasons, the protocol for the nutrient reduction site assessments has been revised to account for this change in emphasis.

In November 1998, the U.S. Army Northern Regional Environmental Office and the U.S. Army's Chesapeake Bay Program hosted a workshop on stormwater management for Federal facilities in EPA Regions I, II, III, and IV. This workshop served as a forum for the communication of regulatory and non-regulatory approaches that

Federal facilities can take to control stormwater, and had presentations on riparian buffers, conservation landscaping, low-impact development techniques for stormwater control, and various other methods and examples of stormwater control and treatment technologies.

FEDERAL FACILITIES

The *1994 Agreement* commits the signatories to "assure that the ecological value of any Federal facilities proposed for closure within the Chesapeake Bay watershed is addressed in the decision-making process for future land uses." and assigns the lead in this effort to DOD. Since signing this agreement, DOD has come out with several iterations of its Base Realignment and Closure (BRAC) protocols and directives. These requirements, applicable to all BRAC installations and facilities in DOD, include the consideration of the ecological value of lands to be transferred and the value of future land uses at those sites after privatization.

NATIONAL SERVICE

The *1994 Agreement* lays out the basis to "provide mutual benefits to the Bay and to national service through environmental improvement training and project proposals and other opportunities to work with the .National Civilian Community Corps, as well as with other initiatives of the Corporation for National and Community Service." Toward that end, numerous projects have been undertaken by the National Civilian Community Corps (NCCC) within the Bay watershed on behalf of various Federal agencies.

The National Park Service has received assistance from NCCC on several occasions during the 1997-1999 period. In November 1998, the NCCC assisted with forest fighting, including removing hazardous debris, stamping out "hot spots" and clearing fire lines during the Swan fire in Buena Vista, Virginia. The second occasion was the restoration and repair of hiking trails at Catoctin Mountain Park in Thurmont, Maryland. Next was an ecosystem restoration project in December 1999 at Harper's Ferry National Historic Park in West Virginia. There, the NCCC team removed exotic vegetation while repairing trails and fences. In April and May 1999, several NCCC members were stationed at Prince William Forest Park, in Triangle, Virginia and at Shenandoah National Park in Luray, Virginia, assisting in forest fire fuel reduction and controlled burns at the parks. Another NCCC team was stationed at Harper's Ferry National Historic Park for construction and repair activities, and planted native trees, constructed a stone wall, and repaired damaged trails and a historic structure.

Other NCCC projects included renovation of trails, removal of exotic species, and development of a community participation plan for the U.S. National Arboretum in Washington, D.C. The

Bridge Piers, Harpers Ferry, WV—the Shenandoah River

NCCC also partners with non-Federal entities to perform restoration, environmental, and emergency assistance throughout the watershed. Some non-Federal partners include the 4-H Club; Fairfax County Park Authority; Kimberton Hills, Inc.; the Lackawanna River Corridor Association; the Maryland Department of Natural Resources; the Maryland - National Capital Parks and Planning Commission; the Nature Conservancy; and Otsego (NY) Emergency Services.

HUMAN HEALTH PROTECTION

The outbreaks of *Pfiesteria* and similar toxic organisms in 1997 highlighted the connection between environmental protection and human health. *Pfiesteria* has been studied for possible effects on human health from direct exposure to toxins produced as the organism attacks fish. In addition, there are threats to human health, such as pollution to drinking water from both nutrients and toxics, the accumulation of toxic substances in fish and shellfish and the pollution of water used for recreational purposes.

In *FACEUP*, Federal agencies committed to renew their efforts to protect human health from pollutants that enter the Bay. Federal agencies have agreed to several new efforts which will help ensure that people who live within the watershed and those who utilize the Bay and its resources will not experience adverse health impacts. These efforts include the coordination of Federal funding, research, monitoring, and response to harmful algal blooms and the effect of *Pfiesteria* and similar harmful organisms on human health, finfish, and shellfish. Federal agencies also agreed to begin identifying high levels of nitrate in groundwater. Federal agencies agreed to identify and help reopen closed shellfish beds adjacent to Federal facilities, and to address release of toxics from their facilities that affect fish for consumption. Finally, Federal agencies promised to address storm drain outfalls on Federal lands that may threaten human health through exposure to pollutants by inhalation, ingestion, or body contact.

In addition to contributions of research and assessment on *Pfiesteria* and other harmful microorganisms, Federal agencies also coordinate with each other to improve their response to threatened resources. As an example, when fish lesions were reported at the Big Bethel Reservoir near Langley Air Force Base, Langley collaborated with natural resource staff from the U.S. Army's Ft. Monroe on a fish habitat study and potential restocking program.

The U.S. Geological Survey has conducted preliminary health assessments of fish health related to Pfiesteria. Fish kills related to *Pfiesteria* caused the closure of some fisheries and affected human health along the eastern seaboard in 1997 and to a lesser degree in 1998. Lesions on fish are one of the criteria used to close fisheries because they can be related to *Pfiesteria*. The USGS has conducted preliminary health assessments of fish with lesions and found an invasive fungus associated with the lesions. Therefore, further work is being conducted to determine the relation between the invasive *Pfiesteria*, and other environmental factors that may weaken the immune system of the fish. This information is needed to determine management options.

SMART GROWTH

The Federal Agencies Committee, responding to recent state and Federal initiatives relating to growth and development within the Chesapeake Bay watershed, included a section on Smart Growth in the 1998 *FACEUP*. This section has commitments to identify and implement new ways to prevent pollution from development, encourage

redevelopment of urban areas, and raise the quality of life. Specifically, these commitments address vehicle miles traveled, road and highway construction, reuse and recycling of brownfield sites, stormwater management, low impact and energy efficient construction design, *BayScaping* and conservation landscaping, Federal facility relocation or expansion, and public access to the Bay.

The Federal Agencies Committee has created a Workgroup to help manage and track the accomplishment of this new round of commitments. The Smart Growth Workgroup will meet regularly to discuss this section of *FACEUP*, and will periodically report to the Federal Agencies Committee on progress made toward completion of these tasks by their respective deadlines.

REPORTING

The Federal Agencies Committee commits to continue with biennial progress reporting on both the *1994 Agreement* and *FACEUP*.

APPENDICES

APPENDIX A:
1994 Agreement of Federal Agencies on
Ecosystem Management in the Chesapeake Bay

APPENDIX B:
Federal Agencies' Chesapeake Ecosystem Unified Plan

APPENDIX C:
Federal Funding Support for the Bay Program, FY99

APPENDIX D:
Major Federal Landholdings in the Chesapeake Bay Watershed

APPENDIX A:

AGREEMENT OF FEDERAL AGENCIES ON ECOSYSTEM MANAGEMENT IN THE CHESAPEAKE BAY

July 14, 1994

WHEREAS, the National Performance Review under the direction of the Vice President has called upon Federal agencies to develop cross-agency ecosystem planning and management; and

WHEREAS, the restoration of the Chesapeake Bay is a readily accessible example of ecosystem management carried out by a partnership of State and Federal agencies engaged in the integrated management of the waters, the air, the living resources, and human dimensions of the landscapes of the Bay Region, all with the common goal of restoring the Chesapeake watershed to a healthy ecosystem; and

WHEREAS, this partnership is embodied in the *1987 Chesapeake Bay Agreement*, signed by the States of Maryland, Pennsylvania and Virginia, the District of Columbia, the Chesapeake Bay Commission, and the Federal Government, which reaffirms the commitments of all parties "to restore and protect the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system;" and

WHEREAS, the thirteen Federal agencies which have signed formal agreements to be part of the Chesapeake Bay Program manage public lands, support state implementation through cooperative programs, and bring a broad range of expertise in land, water, air, and living resource management to the restoration effort, and believe the Bay partnership can provide even greater opportunities to achieve ecosystem-based planning and management; and

WHEREAS, the Chesapeake Bay Program is a national leader in the use of sound science to set clear goals and to measure progress in such areas as reductions in nutrient and toxic loadings to the Bay and its tributaries, the recovery of underwater grasses, and the removal of blockages to migratory fish; and

WHEREAS, the Federal Agencies Committee of the Chesapeake Bay Program has supported these efforts through, among other actions, the establishment of Work Groups on Nutrient Reduction and Habitat Restoration, which have initiated a program of nutrient and habitat assessments of major Federal facilities in the Bay watershed; and

WHEREAS, the President, in a Memorandum of April 26, 1994, for the Heads of Executive Departments and Agencies, has directed agencies to adopt environmentally and economically beneficial practices on Federal landscaped grounds, which practices are in many cases similar to those already being proposed in the facility assessments being undertaken by the Chesapeake Bay Federal Agencies Committee; and

WHEREAS, toxic emissions and releases from private industry to the Chesapeake Bay have been reduced by over 50% in five years, and the President, in Executive Order #12856 has recently called for a similar 50% reduction in toxic releases from Federal facilities by 1999, along with progress reporting to begin July 1, 1995; and

WHEREAS, the President with the support of Congress, has established the Corporation for National and Community Service under the National and Community Service Trust Act, under which the National Civilian Community Corps has established its first Operations and Training Center at Aberdeen Proving Ground, on the Chesapeake.

Now, therefore, we, the undersigned representatives of the participating Federal agencies, commit ourselves to managing the Chesapeake Bay watershed as a cohesive ecosystem, and recommit to working together and with the states and other parties to achieve the goals of the *Chesapeake Bay Agreement*. Specifically, we agree to:

partnership
- work to bring all our programs into the partnership for Chesapeake Bay ecosystem management, and to urge other Federal agencies to become participants with us, where appropriate;

research
- coordinate our research agendas in consultation with the Bay Program's Scientific and Technical Advisory Committee, to address priority management needs for restoration of the Chesapeake Bay; initially including the role of atmospheric deposition in nutrient and toxic pollution of the Bay and the impact on the natural system (NOAA lead);

data coordination
- establish a Work Group under the Federal Agencies Committee to assess and evaluate existing ecological resource inventories used by Federal agencies, and to make recommendations to improve coordination,

compatibility, standardization, GIS-based data layers and interagency transfer of information by December 31, 1995 (EPA lead);

Anacostia River

- provide full support to the Anacostia River Demonstration Project as an opportunity to apply ecosystem management concepts in an urban environment, through a coordinated biennial Federal workplan beginning in FY 1995, in concert with the Anacostia Watershed Restoration Committee (Corps of Engineers lead);

habitat restoration

- support full implementation of the Bay Program's Habitat Restoration Strategy and related plans by:
  (1) including innovative use of public and private funding sources, restoration of habitat at Federal facilities, and development annually of a list of priority projects for habitat restoration on Federal lands in the watershed (FWS lead);
  (2) fully implementing all habitat restoration authorities to improve the condition of aquatic, riparian and upland fish and wildlife habitat and assuring beneficial use of clean dredged material to support fish, migratory waterfowl, and other wildlife habitat in the Bay (Corps of Engineers lead);
  (3) supporting development in the Bay watershed of a policy favoring the creation of forested buffers along streams, in order to help achieve both nutrient reduction and habitat restoration goals of the Chesapeake Bay Program (USFS lead); and
  (4) providing technical assistance in fish passage design, providing stock for restoring newly opened spawning habitat, and determining needs for restoring upstream spawning habitat (NOAA lead);

nutrient reduction

- commit to do our share to meet the goal to reduce by 40% the loadings of nutrients to the Bay by 2000 through:
  (1) supporting the goals and action items of the tributary strategies as they are affected by Federal lands and programs;
  (2) developing by December 31, 1995, a Special Tributary Strategy for Federal lands in the District of Columbia, where the Federal Government is a major landholder (EPA lead);
  (3) delivery of Federal assistance by integrated resources planning on a watershed basis to deal with nonpoint sources of pollution, consistent with the 1993 Agreement between the USDA and the Bay Program (SCS lead);
  (4) completing upgrades of wastewater treatment facilities to remove nutrients at Federal facilities, with priority on facilities in excess of 0.5m gallons per day being upgraded by January 31, 2000, to levels consistent with the applicable tributary strategy (DOD lead);
  (5) completing demonstration site assessments for nutrient management using interagency teams on at least one Federal facility in each of the four jurisdictions (DC, MD, PA, VA) by December 31, 1994 (EPA lead); and
  (6) development of an assessment protocol based upon these demonstration projects for use in completing at least five additional assessments annually at Federal facilities in the Basin until September 30, 2000 (EPA lead);

toxic reductions

- aid in the reduction of toxic loadings to the Chesapeake and its tributaries by:
  (1) significantly increasing the adoption of Integrated Pest Management in the watershed consistent with the Administration's commitment to having Integrated Pest Management implemented on 75% of the country's agricultural lands by the year 2000 (USDA lead);
  (2) using the existing "BayScapes" and other successful programs to expedite compliance with the President's directive on environmentally and economically beneficial landscaping practices on Federal facilities in the Bay watershed (FWS lead); and
  (3) highlighting releases of the Bay's priority *Toxics of Concern* from Federal facilities in reports under Executive Order #12856 (EPA lead);

federal facilities

- assure that the ecological value of any Federal facilities proposed for closure within the Chesapeake Bay watershed is addressed in the decision-making process for future land uses (DOD lead);

national service

- provide mutual benefits to the Bay and to national service through environmental improvement training and project proposals and other opportunities to work with the 250 Corps members and 45 staff being located in Aberdeen as part of the National Civilian Community Corps, as well as with other initiatives of the Corporation for National and Community Service (NCCC lead).

Finally, we agree to report biennially on progress in the implementation of this agreement, beginning April 1, 1995 (EPA lead).

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

Carol M. Browner, *Administrator*

Robert Perciasepe, *Assistant Administrator for Water*

Peter H. Kostmayer, *Regional Administrator, Region III*

William Matuszeski, *Director, Chesapeake Bay Program Office*

FOR THE DEPARTMENT OF THE INTERIOR

Bruce Babbitt, *Secretary*

George T. Frampton, Jr., *Assistant Secretary for Fish & Wildlife & Parks*

Elizabeth Ann Rieke, *Assistant Secretary for Water & Science*

FOR THE U.S. FISH & WILDLIFE SERVICE

Mollie Beattie, *Director*

FOR THE U.S. GEOLOGICAL SURVEY

Gordon P. Eaton, *Director*

FOR THE NATIONAL PARK SERVICE

Roger G. Kennedy, *Director*

FOR THE NATIONAL BIOLOGICAL SURVEY

Dr. Ronald Pulliam, *Director*

FOR THE DEPARTMENT OF AGRICULTURE

Richard E. Rominger, *Deputy Secretary*

James R. Lyons, *Assistant Secretary for Natural Resources and Environment*

FOR THE U.S. FOREST SERVICE

Jack Ward Thomas, *Chief*

FOR THE SOIL CONSERVATION SERVICE

Paul W. Johnson, *Chief*

FOR THE EXTENSION SERVICE

Dr. Leodrey Williams, *Acting Administrator*

FOR THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Grant Buntrock, *Administrator*

FOR THE DEPARTMENT OF DEFENSE

Sherri Wasserman Goodman, *Deputy Under Secretary of Defense (Environmental Security)*

FOR THE DEPARTMENT OF THE NAVY

Robert Pirie, Jr., *Assistant Secretary for Installations and Environment*

FOR THE DEPARTMENT OF THE ARMY

Robert M. Walker, *Assistant Secretary for Installations, Logistics and Environment*

FOR THE DEPARTMENT OF THE ARMY

John H. Zirschky, *Acting Assistant Secretary for Civil Works*

FOR THE DEPARTMENT OF THE AIR FORCE

Rodney A. Coleman, *Assistant Secretary for Manpower, Reserve Affairs, Installations, and Environment*

FOR THE DEFENSE LOGISTICS AGENCY

Vice Admiral Edward M. Straw, *Director*

FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

D. James Baker, *Under Secretary for Oceans and Atmosphere and Administrator*

FOR THE U.S. COAST GUARD

Rear Admiral William J. Ecker, *Commander, Fifth District*

FOR THE FEDERAL HIGHWAY ADMINISTRATION

Jane Garvey, *Deputy Administrator*

FOR THE CORPORATION FOR NATIONAL AND COMMUNITY SERVICE

Eli Segal, *President and Executive Officer*

FOR THE NATIONAL CIVILIAN COMMUNITY CORPS

Brigadier General Donald L. Scott, *Director*

FOR THE SUSQUEHANNA RIVER BASIN COMMISSION

Ken Cole, *Federal Member, U.S. Commissioner*

Observers:
FOR THE SMITHSONIAN INSTITUTION

Robert McC Adams, *The Secretary*

FOR THE COMMONWEALTH OF PENNSYLVANIA

FOR THE COMMONWEALTH OF VIRGINIA

FOR THE STATE OF MARYLAND

FOR THE DISTRICT OF COLUMBIA

FOR THE CHESAPEAKE BAY COMMISSION

U.S. SENATOR PAUL SARBANES

APPENDIX B:

Chesapeake Bay Program

FEDERAL AGENCIES' CHESAPEAKE ECOSYSTEM UNIFIED PLAN

NOVEMBER 5, 1998

WHEREAS, the *Clean Water Action Plan* charts a course toward fulfilling the original goals of the *Clean Water Act* and calls upon Federal agencies to develop a unified policy to enhance watershed management in which Federal, state, and local governments and the public work together to identify critical problems, focus resources, recognize waters of exceptional value, include watershed goals in Federal planning, and implement effective strategies to solve problems; and

WHEREAS, as reported in the April 1997 *Second Biennial Progress Report* of the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay*, the Federal agency partners of the Chesapeake Bay Program have accomplished, and are committed to accomplish, the numerous goals of that 1994 Agreement; and

WHEREAS, the community of Federal agencies with signed formal Chesapeake Bay partnership agreements has expanded to include 15 agencies dedicated to enhancing stewardship on Federally-managed public lands, supporting cooperative state and community implementation, and contributing expertise in resource management, science and planning to achieve ecosystem-based management; and

WHEREAS, the Chesapeake Bay Program's directives on Nutrient Reduction, Habitat Restoration, Wetlands, and Riparian Forest Buffers, and its Local Government Participation Action Plan and Community Watershed Initiative continue to advance the Program as a national leader in the use of partnerships and sound science for targeting, developing and implementing restoration and protection programs.

Now, therefore, we the undersigned representatives of the participating Federal agencies, establish the following unified plan to meet the goals of the *1987 Chesapeake Bay Agreement* and subsequent amendments and directives, and to build on the achievements of the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay*, consistent with our missions and our success in securing the necessary resources. Specifically, we further agree to be:

PARTNERS FOR THE CHESAPEAKE

creating new opportunities for Federal agencies to work with states to carry out the commitments of the Clean Water Action Plan. We commit to:

1. target Conservation Reserve Enhancement funds to Bay watershed states in support of efforts to protect farmland and forests and reduce nutrient inputs to the Chesapeake Bay (USDA lead);
2. work to integrate opportunities to benefit the Bay through existing Federal initiatives such as USDA's Environmental Quality Incentives Program and the Wetlands Reserve program (USDA lead);
3. support the development of state Unified Watershed Assessments and Action Plans for Priority Watersheds;
4. encourage the development of permanent teams within each Bay watershed state, comprised of Federal and state officials with responsibilities for implementing the Clean Water Action Plan;
5. promote the addition of new Federal partners, including agencies that deal with transportation and other infrastructure; establish or update memoranda of understanding with all Federal partners; and strengthen relationships among existing partners through resource sharing and unified program planning and implementation; and
6. develop and adopt a Bay Partner Facility program by March 1, 1999, and seek the designation of at least 30 Federal facilities as partners by December 31, 2000, and 60 Federal facilities by December 31, 2005.

PROTECTORS OF PRIORITY WATERSHEDS

targeting various Federal programs and resources to meet the needs of priority watersheds, particularly those designated by states under the Clean Water Action Plan. We commit to:

1. support geographically-specific programs, such as the Chesapeake Bay Program's Regions of Concern for toxics and Nutrient Areas of Concern;
2. develop, by June 30, 1999, a mechanism to implement wet weather pollution prevention on Federal facilities in the Anacostia River and Rock Creek watersheds and transfer these technologies to other appropriate Federal facilities and urban areas (EPA lead);
3. implement the Biennial Federal Workplan for the Anacostia River Watershed and provide biennial updates beginning in June 30, 1999 (COE lead);
4. support the 18-point restoration plan for the Elizabeth River through active participation in the programs and projects of the Elizabeth River Coalition (COE lead); and
5. participate fully in the American Heritage Rivers Program for the Potomac and Upper Susquehanna/Lackawanna Rivers by: a) identifying relevant Federal landholdings by December 31, 1998; b) establishing partnership agreements with community-based efforts in the Heritage Rivers watersheds by April 30, 1999; c) and supporting directed application of technical and funding resources to aid revitalization efforts (EPA lead).

STEWARDS OF THE BAY'S LIVING RESOURCES AND HABITATS

supporting the restoration of Chesapeake Bay living resources and their habitats by fully implementing fish and wildlife conservation efforts and all habitat restoration authorities on all lands, including Federal lands, in the Bay watershed. We commit to:

1. develop an inventory of habitat restoration needs on Federal lands in the Chesapeake Bay watershed to aid in the creation of an annual list of restoration priority areas, from which two projects will be completed each year beginning in 2000 (NOAA lead);
2. support the Chesapeake Bay Program's Wetlands Directive by assisting states in implementation of their strategies for net gain of wetlands and establishing a restoration goal for Federal facilities of 100 acres per year beginning in 2000 (EPA lead);
3. support conservation and restoration of stream corridors on Federal lands by: a) establishing demonstration sites and implementing restoration technology on three Federal facilities by December 31, 1999 (USFWS lead); b) adopting riparian area conservation policies for Federal lands by September 30, 2000 (USFS lead); c) adopting a stream assessment and inventory protocol for Federal lands by May 31, 2000 and an inventory of stream systems on Federal lands by January 1, 2005 (USFWS lead); and d) restoring 200 miles of riparian forest buffers on Federal lands by January 1, 2010 (USFS lead);
4. identify additional blockages to anadromous fish on Federal lands by December 31, 1999, and open priority blockages to 50 miles of streams by December 31, 2003 (NOAA lead);
5. identify 4 areas for aquatic reef siting at near shore areas adjacent to Federal facilities, in accordance with the Chesapeake Bay Program's Framework for Habitat Restoration and the Aquatic Reef Habitat Plan, by December 31, 1999 (NOAA lead);
6. target priority areas for terrestrial and aquatic invasive species control on Federal facilities by January 1, 2000 and implement controls on priority sites (USFWS lead);
7. expand conservation landscaping on Federal facilities, in keeping with the Presidential directive on beneficial landscaping, by: a) completing a Conservation Landscaping and BayScapes Guide for Federal Land Managers by January 1, 2000; and b) integrating conservation landscaping into Federal agency specifications and design criteria by July 31, 2001 (USFWS lead);
8. develop model lease provisions by September 30, 1999 for facilities, outleases, rights-of-way, and other Federal actions to provide a means for Chesapeake Bay stewardship goals to be considered in the issuance of leases by or to Federal agencies within the watershed (GSA lead); and
9. work with state conservation agencies to determine the effects of nutria on tidal wetland loss and to evaluate methods of controlling this exotic species (USGS lead).

LEADERS IN NUTRIENT AND TOXICS PREVENTION AND REDUCTION ON FEDERAL LANDS AND FACILITIES

working to meet and maintain the nutrient and toxics prevention and reduction goals of the Chesapeake Bay Program, with an emphasis on non-point source controls, and extending our efforts beyond year 2000. We commit to:

1. provide technical assistance and training for Federal landholders for development of nutrient management plans by December 31, 1999 (NRCS lead), and develop nutrient management plans for Federal lands within the watershed by December 31, 2000, emphasizing agricultural, construction, turf, golf course and recreation, and developed lands;
2. assess the performance of Federal on-site septic systems and adopt management plans for priority improvements by December 31, 2000 (USPS lead);
3. expand our existing Chesapeake Bay Program Federal facility site assessment protocol beyond nutrients to include toxics reduction and habitat restoration opportunities, and continue to complete at least five such assessments annually within the Bay watershed (NRCS lead);
4. ensure, by December 31, 2000, that personnel are trained to strengthen and implement comprehensive Integrated Pest Management (IPM) on 75% of all Federally-owned lands in the watershed, and establish a peer review panel to evaluate at least five Federal IPM plans annually (USDA lead);
5. implement pollution prevention and related technologies to achieve, by January 1, 2000, a 75% voluntary reduction from a 1994 baseline in releases of Chesapeake Bay Toxics of Concern and chemicals required for reporting under section 313(c) of the Emergency Planning and Community Right-to-Know Act for Federal facilities in the Chesapeake Bay basin (EPA lead);
6. establish, by January 1, 2000, participation of 30 Federal facilities as mentors in the Chesapeake Bay Program's Businesses for the Bay to implement pollution prevention initiatives (DoD lead); and
7. compile and provide information on the reported occurrence of toxics in wildlife in the Bay ecosystem by January 1, 2003 (USGS lead).

GUARDIANS OF HUMAN HEALTH

focusing renewed efforts on the protection of human health through actions we take to control the effects of harmful pollutants in the Bay watershed. We commit to:

1. coordinate Federal funding and response systems in support of state and local efforts in the Chesapeake Bay watershed for major events, including Pfiesteria-type outbreaks and other harmful algal blooms (NOAA lead);
2. support and target research and monitoring efforts on the relation of harmful microorganisms such as Pfiesteria to aquatic resources and human health (NOAA lead) and the effects of other physical and biological stressors on fin fish and shellfish (USGS lead);

3. provide preliminary identification of nitrate levels over the maximum drinking water contaminant level in shallow aquifers throughout the watershed by January 1, 2001 (USGS lead);
4. identify closed shellfish beds adjacent to Federal lands in the Chesapeake Bay watershed by December 31, 1998 and participate in re-opening priority areas by January 1, 2005 (NOAA lead);
5. locate releases of toxics from Federal facilities in the Chesapeake Bay watershed, with priority on drainage areas where fish consumption advisories exist, and work cooperatively to address these releases by December 31, 2000 (EPA lead); and
6. work with local governments to address pollution from storm drain outfalls on Federal lands that pose a human health risk through exposure by inhalation, ingestion, or body contact such as swimming (EPA lead).

PROVIDERS OF RESEARCH, ASSESSMENT, AND NEW TECHNOLOGIES

assuring "state-of-the-art" technical support for Chesapeake Bay Program partners, ranking research needs, and identifying requirements to develop new technologies. We commit to:

1. sign Memoranda of Agreements to make Chesapeake Bay-related data and information Internet accessible by all Bay Program partners through the Chesapeake Information Management System by July 1, 1999 (EPA lead);
2. complete, by March 1, 1999, a Bay watershed-wide assessment of potential levels of nutrient loadings (USDA lead) and water quality parameters (USGS lead) that support the identification of Nutrient Areas of Concern and serve as a basis for strengthening the ability of local and state jurisdictions to achieve their tributary basins' nutrient reduction goals;
3. complete an inventory, by January 1, 2000, of current science-based technology available for implementation to achieve the agricultural component of Bay nutrient reduction goals (USDA lead), and identify the sources that restrict the production of submerged aquatic vegetation and associated habitat in the middle and upper Bay and tidal tributaries (USGS lead);
4. define and assess, by January 1, 2003, the contribution and implications of nitrogen compound emissions (e.g., ammonia) from agricultural activities; and develop models that characterize the transport of emissions and deposition of these compounds (NOAA lead);
5. provide an assessment, by July 1, 2000, of the amount of nutrients and associated lag times in ground water, and of implications for adjustments to tributary strategies' nutrient reduction goals, and identify follow-up research needs to further address management needs by January 1, 2002 (USGS lead);
6. develop an index of river flow, by January 1, 2001, and other tools to document the long-term changes in water quality, living resources, and sea-level rise (USGS lead);
7. develop an index that demonstrates the changes in climate affecting the Chesapeake Bay ecosystem, as needed to refine restoration strategies by January 1, 2003 (NOAA lead);
8. conduct research and provide information needed to identify species and habitats on Federal lands in need of special management efforts to maintain biodiversity and the integrity of the Chesapeake ecosystem by January 1, 2003 (USGS lead); and
9. complete an analysis of forest distribution and condition in the Chesapeake Bay watershed and host a regional conference to discuss issues related to fragmentation of forest landscape by January 1, 2000 (USFS lead).

SUPPORTERS OF SMART GROWTH

identifying and implementing new mechanisms to avoid development patterns that increase pollution problems, to encourage redevelopment of urban areas, and to raise the quality of life. We commit to:

1. evaluate and implement alternative work practices and other policies of Federal agencies in the watershed to reduce vehicle miles traveled (EPA lead);
2. promote funding for research into the effects of road and highway construction on growth and development within the Chesapeake Bay watershed, and on increasing storm water flow and inputs of nutrients and toxics to the Bay and its tributaries, including air pollution and land use changes (FHWA lead);
3. give preference to re-use and recycling of Federal brownfield sites, and discourage development in greenfield sites (EPA lead);
4. fully cooperate with local governments, states, and other Federal agencies in carrying out voluntary and mandatory actions to comply with the management of storm water (EPA lead);
5. encourage construction design that: a) minimizes natural area loss on new and rehabilitated Federal facilities; b) adopts low impact development and best management technologies for storm water, sediment and erosion control, and reduces impervious surfaces; c) utilizes energy efficient technologies; and d) considers the Conservation Landscaping and Bay-Scapes Guide for Federal Land Managers (GSA lead);
6. develop, by January 1, 2000, a protocol by which Federal facilities proposed for relocation or major expansion within the Chesapeake Bay watershed will assess the direct and secondary ecological, economic, and community effects (DoD lead);
7. increase public access to the Chesapeake Bay, with at least 200 additional miles of Federally-owned shoreline and tidal waters opened or enhanced for public access by January 1, 2005, and participate in the development of water trails to improve access and appreciation of the Bay and its resources (NPS lead); and
8. establish annual meetings, beginning in 1999, with the Office of Management and Budget to assess regional impacts associated with major Federally-funded actions in the Chesapeake Bay watershed (EPA lead).

Finally, we agree to supplement our biennial reporting on the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay* with progress in the implementation of this new unified plan, beginning April 1, 1999 (EPA lead).

FOR THE DEPARTMENT OF DEFENSE

Sherri W. Goodman, *Deputy Under Secretary of Defense for Environmental Security*

FOR THE DEPARTMENT OF THE NAVY

Robert B. Pirie, Jr., *Assistant Secretary for Installations and Environment*

FOR THE DEPARTMENT OF THE ARMY

Joseph W. Westphal, *Assistant Secretary for Civil Works*

Malcolm Apgar IV, *Assistant Secretary for Installations, Logistics and Environment*

FOR THE DEPARTMENT OF THE AIR FORCE

Ruby B. DeMesme, *Assistant Secretary for Manpower, Reserve Affairs, Installations, and Environment*

FOR THE DEFENSE LOGISTICS AGENCY

Lt. Gen. Henry T. Glisson, *Director*

FOR THE DEPARTMENT OF TRANSPORTATION

Rodney E. Slater, *Secretary*

FOR THE U.S. COAST GUARD

Admiral James M. Loy, *Commandant*

FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

D. James Baker, *Administrator*

FOR THE DEPARTMENT OF AGRICULTURE

James R. Lyons, *Under Secretary for Natural Resources & Environment*

FOR THE FARM SERVICE AGENCY

Keith C. Kelly, *Administrator*

FOR THE U.S. FOREST SERVICE

Michael P. Dombeck, *Chief*

FOR THE NATURAL RESOURCES CONSERVATION SERVICE

Pearlie S. Reed, *Chief*

FOR THE GENERAL SERVICES ADMINISTRATION

David J. Barram, *Administrator*

FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Daniel S. Goldin, *Administrator*

FOR THE U.S. POSTAL SERVICE

William J. Henderson, *Postmaster General and Chief Executive Officer*

FOR THE NATIONAL CAPITAL PLANNING COMMISSION

Harvey B. Gantt, *Chairman*

FOR THE SMITHSONIAN INSTITUTION

I. Michael Heyman, *The Secretary*

OBSERVERS:

U.S. Senator Paul S. Sarbanes

Congresswoman Eleanor Holmes Norton

For the State of Maryland

For the District of Columbia

For the Chesapeake Bay Commission

APPENDIX C:

FEDERAL FUNDING SUPPORT FOR THE CHESAPEAKE BAY PROGRAM, FY99

SOURCE	Million $$
Natural Resources Conservation Service	$4.8
National Oceanic & Atmospheric Administration	$4.2
US Geological Survey	$3.4
US Fish & Wildlife Service	$1.5
National Park Service	$0.9
US Army Corps of Engineers	$0.6
Department of the Navy	$0.5
US Forest Service	$0.4
US Postal Service	$0.2
Subtotal (FY 99)	**$16.5**
EPA Chesapeake Bay Program Funds (FY 99)	$18.9
Total Funds from Federal Agencies (FY 99)	**$35.4**

This table accounts for funding used in direct support of the Bay Program. These federal agencies contribute additional funds that provide indirect support.

APPENDIX D:

MAJOR FEDERAL LANDHOLDINGS IN THE CHESAPEAKE BAY WATERSHED

Department	Agency	Number of Facilities[1]	Acreage[1]
AGRICULTURE	Agricultural Research Service	8	8,126
	Natural Resources Conservation Service	2	803
	U.S. Forest Service	3	1,440,726
Total, Agriculture		*13*	*1,449,655*
COMMERCE	National Oceanic and Atmospheric Administration	3	435
DEFENSE	U.S. Air Force	3	10,880
	U.S. Army	21	206,315
	U.S. Army Corps of Engineers	18	80,296
	Defense Logistics Agency	2	1,485
	U.S. Navy[2]	40	129,019
Total, Defense		*84*	*427,383*
HEALTH AND HUMAN SERVICES	National Institutes of Health	3	989
INTERIOR	U.S. Fish and Wildlife Service	16	332,844
	National Park Service	61	305,058
Total, Interior		*77*	*637,902*
TRANSPORTATION	U.S. Coast Guard	11	706
	Federal Highway Administration	1	118
	Federal Railroad Administration	1	49
Total, Transportation		*13*	*873*
VETERANS AFFAIRS	U.S. Soldiers Home	1	319
INDEPENDENT AGENCIES	Architect of the Capitol	2	262
	Central Intelligence Agency	1	294
	General Services Administration	3	967
	National Aeronautics and Space Administration	2	1,927
	U.S. Postal Service[3]	2,127	--
	Smithsonian Institution	3	2,875
Total, Independent Agencies		2,138	*6,325*
GRAND TOTAL			**2,523,881**

[1]Does not represent total Federal facilities or acreage amounts as not all Federal agencies have comprehensive facility/acreage totals available.
[2]Includes the U.S. Marine Corps Base, Quantico, VA
[3]The U.S. Postal Service is working to compile baseline information on the total area of facilities within the Chesapeake Bay watershed.