



ARMY CHESAPEAKE BAY STRATEGY

Sustain the Mission
Preserve the Bay
Secure the Future

July 2009





The Army and the Chesapeake Bay: *Sustain the Mission, Preserve the Bay and Secure Our Future*

The Chesapeake Bay is truly one of this Nation's treasures. It is the largest estuary in the United States and one of the most productive estuaries in the world with immense biodiversity that has supported human populations for thousands of years. The Army is a steward of this nationally significant asset. As part of the Army's commitment to protect and conserve the Bay, we are pleased to present *The Army Chesapeake Bay Strategy*.

This strategy sets the Army's direction toward a more sustainable future for the Bay. The many challenges that we collectively face in restoring the Bay can only be successfully met through collaborative efforts and partnerships that remain sharply focused on key issues for the Bay including; nutrient and chemical pollution, stormwater runoff, sedimentation, habitat and fisheries degradation, and loss of coastal wetlands. This strategy defines clear goals and objectives that will assist in our efforts to improve the health of the Bay. The strategy further addresses climate change and the Army's ongoing actions that will help build regional capacity to adapt to the effects of climate change. Looking ahead, the strategy incorporates innovative solutions involving an ecosystem services approach to expand and diversify ways to restore the Bay.

The Army, our Soldiers, Civilians and their Families are part of the vibrant Chesapeake Bay community. This strategy represents our dedication to them, the community that we are a part of and the Nation. Today, more than ever the Army is committed to the protection of this national treasure—the Chesapeake Bay.

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Executive Summary

The Army is the largest Department of Defense landholder in the Chesapeake Bay watershed. The Army recognizes that it has an environmental stewardship obligation to meet while ensuring Army soldiers are prepared for their national defense mission. The purpose of the Army's Chesapeake Bay Strategy is to integrate conservation and protection efforts for the Chesapeake Bay into the Army's national defense activities in partnership with stakeholders.

The Army Chesapeake Bay Strategy is a science-based action agenda that reflects adaptive management principles and contributes to the long-term recovery of the Chesapeake Bay. The strategy contains five clearly defined goals designed to address the priorities established in Chesapeake 2000, the Department of Defense Chesapeake Bay Strategic Action Plan, the Chesapeake Action Plan, and Executive Order 13508, *Chesapeake Bay Protection and Restoration*.

The Army Chesapeake Bay Strategy is a hallmark of the Army's commitment to improve Bay water quality, protect biodiversity, promote sustainable development of Bay watershed communities, and build regional capacity to adapt to the potential effects of climate change. The Army shares the Chesapeake 2000 vision of: *A Chesapeake Bay with abundant, diverse populations of living resources, fed by healthy streams and rivers, sustaining strong local and regional economies, and our unique quality of life.*



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The Chesapeake Bay

The Chesapeake Bay is the nation's largest estuary, covering approximately 2,500 square miles. It is also one of the largest and most biologically productive estuaries in the world. The entire Chesapeake Bay watershed covers 64,000 square miles, including the District of Columbia and large portions of Maryland, Virginia, Pennsylvania, New York, Delaware, and West Virginia. Nearly 17 million people live in the watershed and depend on the Bay and its tributaries as a source of drinking water, food, power, recreation, and jobs. More than 3,600 species of plants and animals rely on the Bay's unique blend of freshwater and saltwater habitats.

Health of the Chesapeake Bay

Scientists first identified a decline in the health of the Bay in the 1960s. In 1965, Congress signed the *Rivers and Harbors Act* assigning the U.S. Army Corps of Engineers (USACE) with the task of studying the physical and hydrodynamic characteristics of the Chesapeake Bay. By the 1970s, Congress directed the Environmental Protection



Cardinal flowers in marsh located on Fort A.P. Hill, VA.

Agency (EPA) to study the Bay and to determine the cause of the decline. These early studies confirmed that a significant source of nutrients, toxins, and sediment delivered to the Bay were from “nonpoint sources,” including stormwater and agricultural runoff. The results of these

studies later contributed to the first Chesapeake Bay Agreement in 1983. This agreement was a cooperative effort to restore the living resources in the Bay and prompted EPA's efforts to establish a Chesapeake Bay Program (CBP).

The CBP remains a partnership of federal, state, and local governments, non-governmental organizations, academic

institutions, and other entities aimed to restore and protect the Chesapeake Bay and its watershed. The CBP conducts an annual assessment of key Bay health indicators. The most recent assessment—*Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008*—was released in March 2009. It indicates that although substantial effort and small successes have occurred in certain parts of the ecosystem and specific geographic areas, the Bay’s overall health remains degraded.

The Bay continues to have poor water quality, degraded habitats, and low populations of many species of fish and shellfish. Progress however is evident in several key areas. For example, growth and expansion of submerged aquatic vegetation in the Bay has increased 18 percent from the previous year. These grasses filter excess nutrients from the water and provide some of the most important habitat for crabs, fish, and waterfowl.

Despite on-going progress in some areas, the Bay’s most pressing health issues today are: nutrient and sediment pollution, toxic chemical contaminants, habitat loss and over-harvesting of fish and shellfish. The Army Chesapeake Bay Strategy is designed to help address these critical issues for Bay conservation.

The Army and the Chesapeake Bay

Currently, the Army operates 19 major installations totaling more than 220,000 acres in the Chesapeake Bay watershed, with wetlands collectively covering more than 26,000 acres (See Appendix A, “Army Installations and U.S. Army Corps of Engineers.”) Five installations actively use the Bay and its tributaries for training and testing in water settings.¹ Additionally, many smaller Army Reserve and Army National Guard properties are also located within the Bay.

The Chesapeake Bay has been an important military asset since the Revolutionary War. Throughout our nation’s history, the Bay and its watershed have been a food source for soldiers, a vital military transportation route, and a platform for training soldiers and testing military equipment and weapons systems. The Army conserves natural and cultural resources within its installation boundaries to

¹ Fort Story, VA; Fort Eustis, VA; Fort Lee, VA; Fort A.P. Hill, VA; and Aberdeen Proving Ground, MD.

ensure realistic training and testing capabilities are sustained and to achieve our environmental stewardship responsibilities.

The Army also conserves natural and cultural resources outside its installation's boundaries. Through the Army Compatible Use Buffer (ACUB) program, the Army contributes funds towards a partners' purchase of conservation easements for properties outside of its installations to reduce or prevent incompatible land use and protect natural and cultural resources. To date, the Army has protected more than 4,600 acres of land in the Chesapeake Bay watershed outside of installation boundaries. Conserving land both on its installations and outside their boundaries enables the Army to sustain both its military mission and Bay ecosystems.



Soldiers at Fort Story use the Chesapeake Bay for training.

The USACE Civil Works program plans, designs, and constructs projects related to ecosystem restoration, navigation, and flood risk management with support from non-federal sponsors (Appendix A, "Army Installations and U.S. Army Corps of Engineers"). USACE is responsible for dams and reservoirs in the Chesapeake Bay watershed that control flooding for roughly 3,430 square miles of land. USACE maintains major navigation channels to the ports of Norfolk and Baltimore, as well as numerous small navigation channels throughout the Chesapeake Bay. The USACE Regulatory Permit program provides protection of the Bay watershed by regulating placement of dredged or fill materials into the Bay and its tributaries, both tidal and non-tidal, including wetlands.

Purpose and Vision

The purpose of the Army Chesapeake Bay Strategy is to integrate conservation and protection efforts for the Chesapeake Bay into the Army's national defense activities in partnership with governmental entities, non-governmental organizations, and the community. The strategy contains five goals and associated objectives and targets. The strategy sets forth the Army's measurable indicators that will be monitored and assessed annually. The five goals are based on the priorities established in the 2008 Chesapeake Action Plan, the DoD Chesapeake Bay Strategic Action Plan and Executive Order 13508, *Chesapeake Bay Protection and Restoration*. The Army strategy shares the Chesapeake 2000 vision of: *A Chesapeake Bay with abundant, diverse populations of living resources, fed by healthy streams and rivers, sustaining strong local and regional economies, and our unique quality of life.*



Snowy Egret, Fort Eustis, VA.

Roles and Responsibilities

The Deputy Assistant Secretary of the Army for Environment Safety and Occupational Health (DASA ESOH) provides Headquarters, Department of the Army policy and oversight for the Army Chesapeake Bay Strategy. With the release of this strategy, the DASA ESOH Office of Regional Environmental and Government Affairs–Northern (OREGA-N), located on the Chesapeake Bay at Aberdeen Proving Ground, Maryland, will provide the direct oversight function. The OREGA-N will serve as the Army interface between the Department of Defense (DoD), the Department of the Navy as the DoD Executive Agent for the DoD Chesapeake Bay Program, the Department of the Air Force, USACE, and our Bay partners.



Maryland elected officials join forces with Aberdeen Proving Ground personnel to plant a BayScapes garden.

OREGA-N is responsible for ensuring that the Army Chesapeake Bay Strategy is coordinated with Bay partners, maintained, and updated. The office sustains and strengthens partnerships with federal agencies, state and municipal governments, and non-governmental organizations. OREGA-N encourages political, public, and Army support for the Chesapeake Bay Program by sharing and publicizing the involvement and contributions of Army installations in achieving the strategy goals. OREGA-N participates in the development of strategies and program plans with Bay partners. It will also sponsor an Army Chesapeake Bay Program workshop. OREGA-N and the Office of the Assistant Chief of Staff for Installation Management (OACSIM) will work in close cooperation to achieve the goals of this strategy.

The OACSIM is the Army Staff proponent for the Army Chesapeake Bay Strategy. As such, the OACSIM will develop and implement an *Annual Army Chesapeake Bay Action Plan (Action Plan)*. The *Action Plan* provides the Army guidance used by Army Commands, installations, and facilities to meet the goals of this strategy. Implementation of the strategy will be accomplished through execution of the *Action Plan*, which establishes responsibilities and identifies performance metrics to measure Army progress toward achieving the strategy goals and objectives.

Each Army Command assigns a Chesapeake Bay Program Manager to coordinate with subordinate installations and facilities in the watershed. The OACSIM ensures that Army Chesapeake Bay Program Managers and others submit annual data for updating to the DoD Chesapeake Bay Program database, and track and report on all installation projects, accomplishments, and expenditures aimed at meeting strategy goals and action plan metrics. The OACSIM will summarize these data and prepare an *Annual Army Chesapeake Bay Progress Report* that provides an evaluation of the Army's Bay conservation activities, an assessment of action plan implementation, and monitors and reports on progress in meeting the Army Chesapeake Bay Strategy goals. Each Commander is responsible for striving to achieve the applicable goals and objectives of this strategy through execution of the action plan and for reporting action plan results through their chain of command.

By October of each fiscal year and beginning in October 2009, the *Action Plan* will be completed and resources budgeted for execution. Beginning in October 2010 and annually thereafter, the OACSIM will prepare the *Annual Army Chesapeake Bay Progress Report* and provide that report to OREGA-N for action.

Similarly, USACE executes action plans in the Chesapeake Bay watershed that further the five goals of this strategy. USACE played an important role in the preparation of the Chesapeake Action Plan as part of a cadre of federal agencies aimed at setting a new and collaborative direction for the CBP. USACE and Army representatives will continue participation in the CBP with strategic planning, priority setting, and development of operational guidance.

The USACE North Atlantic Division (NAD) Commander along with senior Army military leadership will participate at the appropriate levels when relevant issues arise. Two USACE NAD Civil Works Districts (Baltimore and Norfolk) execute projects and programs that address the five goals of this strategy. The Districts are responsible for the study, design, and implementation of USACE water resources



USACE Native Oyster Recovery Program in the Lynnhaven River.

projects such as habitat and oyster restoration, and sediment management in the Bay watershed and its tributaries. The Baltimore and Norfolk Districts work cooperatively on Civil Works projects and programs within the Chesapeake Bay, which transcend

jurisdictional and organizational boundaries. USACE is uniquely qualified, and congressionally mandated to accomplish the construction of large-scale ecosystem restoration projects in partnership with multiple stakeholders, that provide sustainable benefits to the Chesapeake Bay ecosystem.

USACE NAD has oversight for the USACE Regulatory program in the Chesapeake Bay. USACE Regulatory field offices in the Bay watershed are satellites of the Baltimore, Norfolk, Buffalo, Pittsburgh, New York, and Philadelphia Districts. OREGA-N and USACE NAD will work closely to ensure that there is coordination and synchronization of Army efforts to further the goals of this strategy.

Goals, Objectives and Targets

The Army Chesapeake Bay Strategy is a science-based action agenda that contributes to the long-term recovery of the Chesapeake Bay. It establishes goals and objectives that address nutrients, toxics, and sediment reduction; habitat and living resources protection; community outreach and engagement; stormwater management and watershed partnerships.

The five goals in this strategy are to:

1. Contribute to restoring and sustaining the water quality of the Chesapeake Bay and its tributaries,
2. Restore and sustain living resources and healthy habitats on Army installations,
3. Support the implementation of ecosystem-based fisheries management,
4. Strengthen stormwater management practices and maintain healthy watersheds, and
5. Foster Chesapeake Bay stewardship.

To achieve the five goals of the Army Chesapeake Bay Strategy, the Army will seek funding and strive to attain the subordinate objectives and targets to the maximum extent possible with the financial and human resources that are available.

In order for the Army to fully achieve the goals and objectives in this strategy, certain baseline assumptions must be met, including that sufficient funding levels will be available to support implementation, staffing levels will be stable and the *Action Plan* will be prepared and implemented.



Great Blue Heron.

Goal 1. Contribute to restoring and sustaining the water quality of the Chesapeake Bay and its tributaries.

Objective 1.1. Reduce point and nonpoint source water pollution.

Targets

- a. Minimize pollution from nitrogen and phosphorus sources associated with agriculture, construction, turf, golf courses, recreation, and developed lands.
- b. Operate and maintain Army marinas in accordance with established pollution prevention standards and best management practices (BMPs).
- c. Participate with partners in the development of new water pollution control strategies.

Objective 1.2. Buffer stream and shoreline riparian areas to minimize erosion and reduce nonpoint source water and air pollution.

Targets

- a. Protect and sustain existing riparian areas and shorelines.
- b. Establish vegetation where needed in riparian areas and shorelines.

Goal 2. Restore and sustain living resources and healthy habitats on Army installations.

Objective 2.1. Preserve, maintain, restore, and enhance wetland habitats.

Target: Increase acreage and enhance the function of wetlands as consistent with mission requirements.

Objective 2.2. Maximize the occurrence and distribution of submerged aquatic vegetation (SAV).

Targets

- a. Maintain beds of existing SAV.
- b. Support establishment of new beds of SAV in suitable habitats on or adjacent to areas that historically supported SAV.

Objective 2.3. Reduce invasive species.

Targets

- a. Determine prevalence of invasive species.
- b. Monitor and control invasive species that pose the greatest threat to Bay conservation efforts and the Army mission.

Goal 3. Support the implementation of ecosystem-based fisheries management.

Objective 3.1. Maximize anadromous fish and oyster production to the extent feasible.

Targets

- a. Identify remaining barriers to anadromous fish migration.
- b. Identify installations that have suitable and feasible waters for oyster restoration.
- c. Partner with stakeholders for oyster restoration where feasible.

Goal 4. Strengthen stormwater management practices and maintain healthy watersheds.

Objective 4.1. Incorporate and implement LID, conservation landscaping, and environmentally sensitive design principles into installation watershed planning, master planning, installation design guides, and site plans.

Targets

- a. Incorporate LID designs into appropriate Army plans and processes.
- b. Identify and monitor effectiveness of Army LID projects.
- c. Support development of and participation in emerging ecosystem services banking and trading opportunities within the Bay watershed.

Objective 4.2. Reduce stormwater runoff and promote infiltration in developed areas.

Targets

- a. Apply conservation landscaping principles and practices at Army construction sites and in existing developed areas.
- b. Minimize the percentage of impervious surface on developed portions of installations.
- c. Implement stormwater practices in response to current and emerging requirements.

Objective 4.3. Partner and participate in conservation initiatives outside Army boundaries.

Targets

- a. Participate in local watershed planning, management, and restoration initiatives.
- b. Use the ACUB program to obtain conservation easements on property outside Army installations consistent with mission requirements.

Goal 5. Foster Chesapeake Bay stewardship.

Objective 5.1. Increase awareness and support for Army Chesapeake Bay Strategy and ensure that Army Chesapeake Bay Program Managers and others are informed on Chesapeake Bay Program goals, commitments, and funding opportunities.

Targets

- a. Continue outreach program for Army installations in the Chesapeake Bay watershed and increase awareness of local conservation projects.
- b. Provide ongoing, timely, and relevant program information and materials to Chesapeake Bay Program Managers and others.
- c. Capture resources to facilitate implementation of the Army Chesapeake Bay Strategy.
- d. Ensure consistency in budget submittals through implementation of the *Annual Army Chesapeake Bay Action Plan*.

- e. Sponsor the Army Chesapeake Bay Program workshop.
- f. Establish an Army Chesapeake Bay Stewardship Award program for installations, facilities, activities, and individuals in the Bay watershed.

Objective 5.2. Encourage political, public, and Army support for the Army Chesapeake Bay Strategy by fully capturing, reporting, and publicizing the involvement and contributions of Army installations in achieving the strategy goals.

Targets

- a. Develop and implement the *Annual Army Chesapeake Bay Action Plan* by October of each year beginning in October 2009.
- b. Implement the *Annual Army Chesapeake Bay Action Plan* and annually account for projects, accomplishments, and expenditures for implementation.
- c. Prepare the *Annual Army Chesapeake Bay Progress Report* by October of each year beginning in October 2010 reporting Army progress in meeting the strategy and action plan.
- d. Ensure continued public access for educational and recreational purposes to the extent possible consistent with the military mission.

Commitment to Protecting the Chesapeake Bay

The Army's commitment to protecting and conserving the integrity of the land and water on which it trains and tests in the Chesapeake Bay watershed has been well documented and demonstrated over four decades through formal agreements, studies, projects, and partnerships with federal, state, and local agencies and non-governmental organizations. (See Appendix B, "Chesapeake Bay Agreements and Partnerships.") Looking forward, the Army will build on these successes with added efforts and focus on implementing this strategy.

The following list contains examples of new and existing commitments and accomplishments that Army installations and USACE have made toward protecting and conserving the Chesapeake Bay watershed.

- ◆ Multiple LID projects
- ◆ Chesapeake Bay education programs
- ◆ Deer management programs
- ◆ Submerged aquatic vegetation research and demonstrations of invasive species monitoring
- ◆ Nutrient management plans
- ◆ Watershed studies and wetland surveys
- ◆ Clean marina programs
- ◆ Regional sediment management
- ◆ Shoreline restoration
- ◆ ACUB program
- ◆ Native oyster restoration
- ◆ Chesapeake Bay Oyster Restoration Programmatic Environmental Impact Statement
- ◆ Island restoration using dredged material
- ◆ Chesapeake Bay environmental modeling
- ◆ Elizabeth River, VA, environmental restoration
- ◆ Sustainable river flows

Climate Change and the Chesapeake Bay

According to the Intergovernmental Panel on Climate Change (IPCC), the combination of increasing air and ocean temperatures,



Fort Detrick, MD receives a commendation for reforesting a riparian corridor.

widespread melting of snow and ice, and the rise of global sea levels are clear and unequivocal indicators of a warming global climate. Additionally, there is a growing body of evidence that indicates greenhouse gas emissions from human activities into the earth's atmosphere, including carbon dioxide, methane, and nitrous oxide are significant factors contributing to global climate

warming. The IPCC further notes that many natural systems at a regional level are being affected by climate change, particularly by the increases in air and water temperatures, rising sea levels, and

changes in precipitation patterns, among other effects. The existing stresses on ecosystems from pollution, human settlement, land use changes, and invasion of non-native species could be exacerbated by stresses caused by climate change, which could substantially damage or significantly alter the current structure and function of the Chesapeake Bay.

In the second half of the 20th century, the Chesapeake Bay water level has risen an average of 3.5 mm annually, through a combination of sea-level rise, a relatively flat topography, and a naturally subsiding land mass. Additionally, the National Oceanic and Atmospheric Administration has identified some of the changes that could accompany rising water temperatures and sea level rise in the Chesapeake Bay. They include accelerated erosion of shorelines, loss and decline of local fisheries due to warmer waters, intrusion of non-native species, increased nutrient and sediment load pollution, and loss of coastal habitats and wetlands. Coastal wetlands improve water quality, dissipate storm surges, and provide wildlife habitat. Already sharply reduced in acreage, the Chesapeake Bay coastal wetlands are especially vulnerable to sea level rise.

Undeveloped forested lands in the Chesapeake Bay watershed have been reduced to roughly 58 percent of their original acreage. Forests are the most beneficial land use for protecting water quality, due to their ability to capture, filter, and retain water, as well as absorbing greenhouse gases from the air. As areas protected from outside development, Army installations in the Bay watershed contain thousands of undeveloped, forested acres and wetlands. The forests, wetlands, and riparian areas on Army installations in the Chesapeake Bay watershed serve as “carbon sinks” and act to capture or “sequester” carbon dioxide, one of the primary greenhouse gases. Preliminary carbon footprint and sequestration estimates for Army installations in the Bay watershed indicate that most of the Army’s carbon dioxide emissions in the Bay watershed are sequestered, captured by the Army’s extensive installation ecosystems. Army forests are enduring terrestrial pools in the Chesapeake Bay watershed that help remove greenhouse gases from the atmosphere. Additionally, seven of the major Army installations in the Bay watershed have initiated long-term “sustainability planning” that includes alternative energy sources and greater energy efficiency,

more efficient use of fuels, and alternative/hybrid fueled vehicles that will also help to reduce the Army's overall carbon footprint.²

The Army Chesapeake Bay Strategy contains actions that may serve as climate change adaptation and mitigation for Army installations in the Bay watershed. Protecting and sustaining riparian buffer zones and forested areas, increasing and enhancing wetlands, encouraging native SAV, reducing invasive species, supporting ecosystem-based fisheries management, and reducing nutrient pollution and stormwater runoff are essential components of the Army's Chesapeake Bay ecosystem management efforts. These actions, along with the Army's sustainability planning initiatives, help build regional capacity to adapt to and mitigate the effects of climate change.

Looking Ahead: Ecosystem Services

The Army relies heavily on the services that ecosystems provide, including wetlands for flood control, grasslands and riparian areas for water filtration and water quality, and forests for climate regulation. The Army also recognizes the importance of these ecosystem services in providing and maintaining a realistic natural landscape on which soldiers can effectively train and test.

In the Chesapeake Bay watershed, increased development has placed added pressure on Army installations to protect the values of their ecosystems. This challenge, coupled with the Army's growing and more complex mission



The Chesapeake Bay.

² Fort Indiantown Gap, PA; Letterkenny Army Depot, PA; Fort Detrick, MD; Fort A.P. Hill, VA.; Fort Eustis, Fort Monroe, VA; and Fort Story, VA.

requirements, has prompted the Army to look for new and innovative ways to manage ecosystems on its installations.

Looking ahead, the Army plans to consider the value of ecosystem services in the context of innovative solutions such as banking, crediting, and trading of ecosystem values (credits and offsets) on and off Army installations. A broad spectrum ecosystem market for the Bay watershed could expand the marketplace for mitigation banking and credit trade in ecosystem services such as carbon emissions, forestland conservation, endangered species habitat conservation, nutrients, water quality, and wetlands. An ecosystem marketplace of this nature could provide an improved means to link the Army to state and local stakeholders and private sector landowners interested in enterprise partnering with the Army for banking and trading ecosystem services.

Existing federal authorities allow some participation by the Army in wetland mitigation and conservation banking programs. These programs can provide the Army with flexible alternatives and greater conservation benefit outcomes. Banking and trading in a broad spectrum of ecosystem services represents an emerging opportunity that, combined with the Army's ongoing efforts to reduce pollution, improve water quality, protect habitat, and conserve natural resources, may further assist in improving the health of the Chesapeake Bay.

Conclusion

Lessons learned from the first 25 years of concerted action to improve the health of the Bay indicates that a more collaborative approach and accelerated efforts, at a system-wide watershed level, could result in greater success. As the organizational structure of the Bay partnership continues to evolve, it is expected that the changes will accelerate overall improvement in the key indicators of Bay health. The Army will engage the new CBP organizational structure and participate in strategic planning to ensure that the Army Chesapeake Bay Strategy and the *Action Plan* synchronize with current and emerging priorities.

Progress toward restoration of the health of the Chesapeake Bay will require renewed stewardship commitments, as represented by the strategy and will depend on the support and partnership at all levels from federal agencies, state and local governments, non-governmental organizations, and the private sector. The Army is a committed partner in this critical effort to protect, restore and sustain the health, heritage, biodiversity, and economic value of this Nation's largest estuarine ecosystem. Through this strategy and our continued cooperative efforts, the Army believes that the Chesapeake Bay vision we share with our partners will be achieved.

References

1. Chesapeake 2000, The Renewed Bay Agreement, Maryland Department of Natural Resources, http://dnrweb.dnr.state.md.us/bay/res_protect/c2k/agreement.asp.
2. Chesapeake Bay Foundation, <http://www.cbf.org/>.
3. Chesapeake Bay Program, *Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008*, March 2009, http://www.chesapeakebay.net/content/publications/cbp_34915.pdf.
4. Chesapeake Bay Program, *Report to Congress: Strengthening the Management, Coordination, and Accountability of the Chesapeake Bay Program*, U.S. Environmental Protection Agency, Region 3, July 14, 2008, <http://cap.chesapeakebay.net/rtc.htm>.
5. Chesapeake Bay Program, 2008 Chesapeake Action Plan, <http://cap.chesapeakebay.net/actionplan.htm>.
6. Chesapeake Bay Program, *Chesapeake Bay 2007 Health and Restoration Assessment, A Report to the Citizens of the Bay Region*, CBP/TRS-291-08, EPA-903-R-08-002, March 2008, http://www.chesapeakebay.net/content/publications/cbp_26038.pdf.
7. Department of Defense Chesapeake Bay Strategic Action Plan—DoD’s Blueprint for the Bay (2009–2013), November 7, 2008, <http://baycommanders.com/assets/pdfs/Final%20DoD%20CB%20SAP8.Signatures.12%20Nov%202008.pdf>.
8. Executive Order 13508 dated May 12, 2009, Chesapeake Bay Protection and Restoration, The White House Office of the Press Secretary.
9. Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007*, <http://www.ipcc.ch/>.

10. Karl, T.R, Melillo, J.M., and Peterson, T.C. 2009, *Global Climate Change Impacts in the United States*. A State of Knowledge Report from the U.S. Global Change Research Program. Cambridge University Press.
<http://www.globalchange.gov/usimpacts>.
11. Pyke, C.R., R. G. Najjar, M. B. Adams, D. Breitburg, M. Kemp, C. Hershner, R. Howarth, M. Paolisso, D. Wardrop, and R. Wood. September 2008, *Climate Change and the Chesapeake Bay: State-of-the-Science-Review and Recommendations*. A Report from the Chesapeake Bay Program Science and Technical Advisory Committee (STAC), Annapolis, MD.
12. Shuyler, Lynn R., 1993, Non-point source programs and progress in the Chesapeake Bay, *Agriculture, Ecosystems & Environment*, 46 (1-4): 217–222.

Appendix A. Army Installations and U.S. Army Corps of Engineers of Engineers

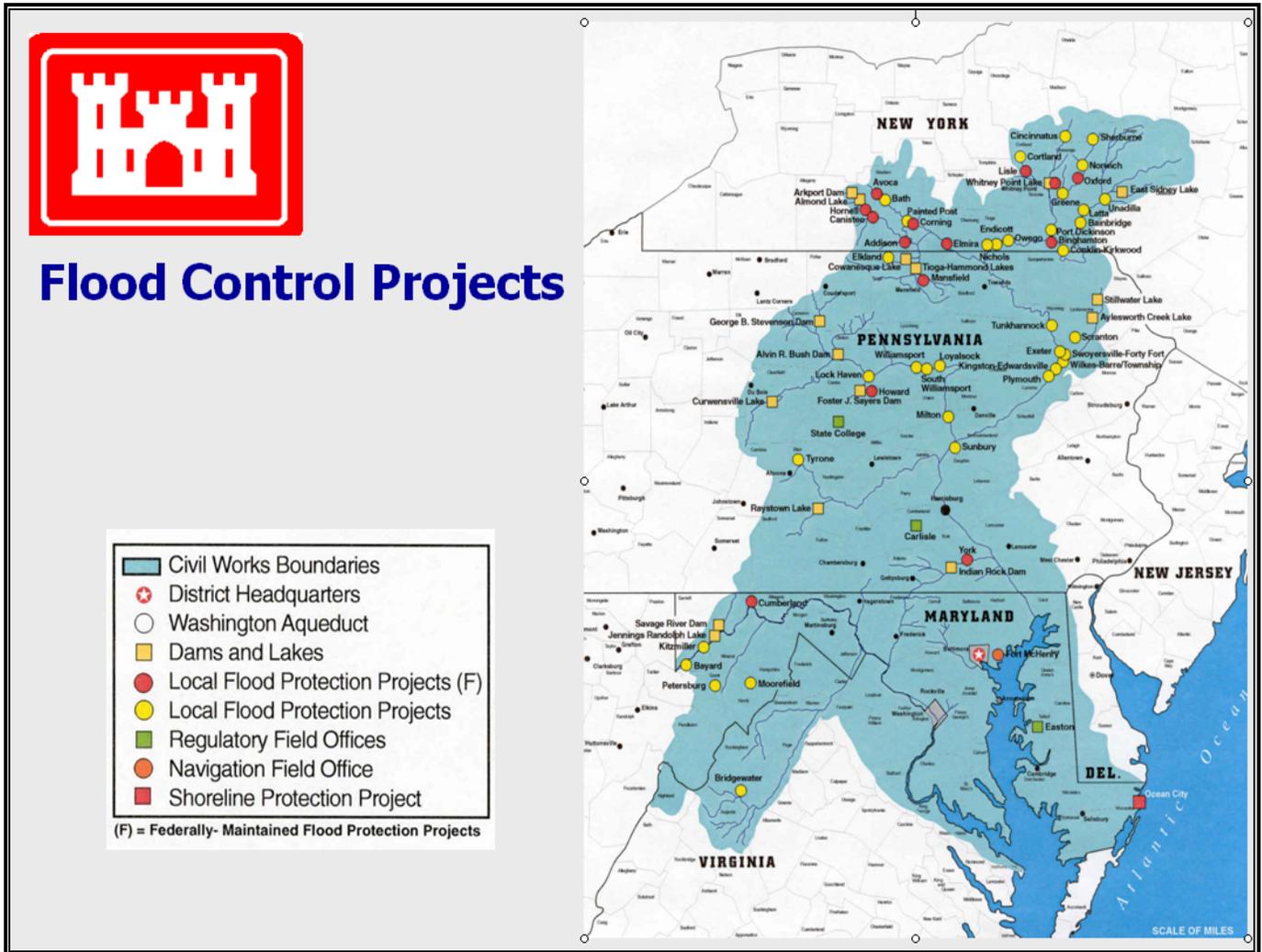
Army Installations

The Army manages the 19 major installations depicted on the map below, which total more than 220,000 acres in the Chesapeake Bay watershed. Many other smaller Army Reserve and Army National Guard facilities and activities are present in the watershed.



U.S. Army Corps of Engineers

USACE is responsible for dams and reservoirs in the Chesapeake Bay watershed, which provide flood control for nearly 3,430 square miles of land. The map below delineates most USACE flood control and other projects in the watershed.



Appendix B. Chesapeake Bay Agreements and Partnerships

Chesapeake Bay Agreements

In 1984, the Army officially became involved in the Chesapeake Bay restoration effort when the Department of the Army signed a joint resolution with the EPA to comply with the goals and objectives of the 1983 Chesapeake Bay Agreement, which essentially established the Chesapeake Executive Council (EC) and tasked it with establishing the Implementation Committee. Soon after, the Army became a member of the Federal Agencies Committee (FAC). Since then, the signing of the 1987 and 2000 Chesapeake Bay Program agreements reaffirmed and strengthened the original commitments and increasingly integrated the Army's efforts with the activities of CBP.

The following major milestones mark significant actions and commitment by DoD, the Army, CPB, and many diverse partners over the past four decades in support of finding innovative ways to restore and protect the Chesapeake Bay:

- ◆ *1984 DoD and EPA Joint Resolution on Pollution Abatement in the Chesapeake Bay.* DoD and EPA jointly resolve to cooperate to enhance Chesapeake Bay pollution abatement activities.
- ◆ *1984 USACE Memorandum of Understanding (MOU) with EPA.* The Army expertise is recognized early as essential to protection and restoration efforts in the Bay watershed. The Army agrees to fully utilize capabilities to restore and protect the Chesapeake Bay consistent with goals and objectives in the 1984 Chesapeake Bay Agreement.
- ◆ *1987 Chesapeake Bay Agreement.* Adds goals for reducing the amount of nutrients—primarily nitrogen and phosphorus—that enter the Chesapeake Bay by 40 percent by 2000. (In 1992, the CBP partners agreed to continue the 40 percent

reduction goal beyond 2000 and to attack nutrients at their source—upstream, in the Chesapeake Bay’s tributaries.)

- ◆ *1987 Water Quality Assessment of DoD Installations/Facilities in the Chesapeake Bay Region.* DoD publishes a seminal study under this agreement to assess the impacts of 66 DoD facilities, including Army installations, in the Chesapeake Bay watershed on water quality and living resources. The study finds that while DoD facilities were not a significant contributor to the decline of the Bay and its tributaries, DoD should join with federal and state agencies in a concerted effort to reduce the impacts of these facilities through sound environmental management and stewardship. The report emphasizes the need for ongoing monitoring of environmental impacts, control of nonpoint source runoff, and careful hazardous materials management.
- ◆ *1989 Army MOU with EPA.* Provides for coordination and cooperation between the Army and EPA regarding Chesapeake Bay activities and reflects the Army commitment to utilize its capabilities and expertise toward protection and restoration of the Chesapeake Bay, consistent with the goals, objectives, and commitments of the 1987 Chesapeake Bay Agreement. This MOU supersedes the November 1984 MOU between the Army and EPA regarding the CBP.
- ◆ *1990 Cooperative Agreement between DoD and U.S. EPA.* Establishes an annual reporting requirement and the Army’s own Chesapeake Bay initiatives linked to the goals of the EPA’s Chesapeake Bay Program. Also establishes a policy of “coordination and cooperation” between all of DoD and EPA regarding Chesapeake Bay activities (consistent with the goals, objectives, and commitments of the 1987 agreement). This supersedes the 1984 joint resolution between DoD and EPA on pollution abatement in the Chesapeake Bay.
- ◆ *1992 Chesapeake Bay Program Amendments.* Recognizes the challenges in meeting the 1987 water quality goals; recognizes the need for tributary-specific strategies; establishes SAV

distribution as a measure of progress; addresses the air deposition of nitrogen; and calls for exploration of non-signatory state involvement in the overall CBP.

- ◆ *1993 DoD/EPA Action Items for Chesapeake Bay Program.* Further guides program initiatives between DoD and EPA, reflects current CBP strategies (1992 amendments), and provides action items that may be revised periodically to reflect current strategic goals for DoD, EPA, and CBP.
- ◆ *1994 Agreement of Federal Agencies on Ecosystem Management.* The Army, in partnership with the CBP, agrees “to reform and protect the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system.” It signs formal agreements to be part of the Chesapeake Bay Program to help 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 efforts.
- ◆ *1998 Federal Agencies’ Chesapeake Ecosystem Unified Plan (FACEUP).* Creates new opportunities for federal agencies to work with states to carry out the commitments of the Clean Water Action Plan, Conservation Reserve Enhancement Program, Environmental Quality Incentives Program, Wetlands Reserve Program, and Unified Watershed Assessments/Action Plans. Requires biennial reporting for all stated goals. This effort supports the restoration of the Chesapeake Bay living resources and their habitats by fully implementing fish and wildlife conservation efforts and all habitat restoration authorities on all federal lands; develops an annual list of priority projects; and establishes demonstration sites for wetlands, riparian, fish passage, aquatic reef projects, invasive species control, etc. Strongly emphasizes nutrient management plans, integrated pest management, federal facilities assessments, Businesses for the Bay, drainage areas with fish consumption advisories, and pollution from stormwater (restore “swimmable” waters). Partnerships

include Partners for the Chesapeake: Protectors of Priority Watersheds; Stewards of the Bay's Living Resources and Habitats; Leaders in Nutrient and Toxics Prevention and Reduction; Guardians of Human Health; Providers of Research, Assessment and New Technologies; and Supporters of Smart Growth.

- ◆ *Chesapeake 2000*. Agreement guides restoration activities throughout the Chesapeake Bay watershed through 2010. Also provides the opportunity for Delaware, New York, and West Virginia to become more involved in the CBP partnership. These headwater states now work with the CBP to reduce nutrients and sediment flowing into rivers from their jurisdictions.
- ◆ *2000 Chesapeake Bay Restoration Act*. The Army—as one of the Chesapeake Bay Agreement signatories and acting through EPA—commits to a comprehensive cooperative program to achieve improved water quality and improvements in the productivity of living resources of the Bay and asks for federal support for monitoring, management, and restoration activities in the Chesapeake Bay and the tributaries of the Bay to meet goals and commitments of the CBP.
- ◆ *2005 Resolution to Enhance Federal Cooperative Conservation in the Chesapeake Bay Program*. Sixteen federal agencies and EPA signed this resolution to rededicate and commit to cooperative conservation in support of the Chesapeake Bay federal partnership.

Army Chesapeake Bay Program Partnerships

The following organizations are partners in the Army CBP.

Federal

- ◆ Department of Defense
- ◆ EPA Chesapeake Bay Program
- ◆ National Oceanic and Atmospheric Administration
- ◆ National Park Service
- ◆ U.S. Department of Agriculture, Natural Resources Conservation Service
- ◆ U.S. Department of Agriculture, U.S. Forest Service
- ◆ U.S. Fish and Wildlife Service
- ◆ U.S. Geological Survey

State

- ◆ Maryland Department of Environment
- ◆ Maryland Department of Natural Resources
- ◆ Maryland Port Administration
- ◆ Pennsylvania Department of Environmental Protection
- ◆ Virginia Department of Conservation and Natural Resources
- ◆ Virginia Institute of Marine Science
- ◆ Virginia Marine Fisheries Commission
- ◆ Virginia Marine Resources Commission
- ◆ District of Columbia Department of the Environment
- ◆ West Virginia Department of Environmental Protection

Other Organizations

- ◆ Alliance for the Chesapeake Bay
- ◆ Anacostia Watershed Restoration Partnership
- ◆ Atlantic States Marine Fisheries Commission
- ◆ Bush River Partnership
- ◆ Chesapeake Bay Commission
- ◆ Chesapeake Bay Foundation
- ◆ Delaware River Basin Commission
- ◆ Ducks Unlimited
- ◆ Environmental Earth Day Organization
- ◆ Gulf States Marine Fisheries Commission
- ◆ Harford Land Trust
- ◆ Interstate Commission on the Potomac River Basin
- ◆ Maryland Environmental Partnership
- ◆ Maryland Working Watermen's Association
- ◆ Metropolitan Washington Council of Governments
- ◆ National Aquarium in Baltimore
- ◆ Natural Resources Defense Council
- ◆ Oyster Recovery Partnership
- ◆ Ozone Action Days through Clean Air Partners
- ◆ Partners for Sustainable Facilities
- ◆ Patuxent River Commission

- ◆ Potomac River Fisheries Commission
- ◆ Reef Keepers of Virginia
- ◆ Smithsonian Environmental Research Center
- ◆ Society of Military Engineers
- ◆ Submerged Aquatic Vegetation Partnership
- ◆ Susquehanna River Basin Commission
- ◆ The Conservation Fund
- ◆ The Nature Conservancy
- ◆ Trust for Public Land
- ◆ Upper Potomac Tributaries Team
- ◆ Upper Susquehanna Coalition
- ◆ Upper Western Shore Tributary Team
- ◆ Virginia Outdoors Foundation
- ◆ Virginia Seafood Council
- ◆ Virginia Working Waterman's Association
- ◆ Wild Turkey Federation



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