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PROTECTING AND RESTORING AMERICA'S GREAT WATERS, PART II: CHESAPEAKE BAY

(110–159)

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

JULY 30, 2008

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July 29, 2008

SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Water Resources and Environment

FROM: Subcommittee on Water Resources and Environment Staff

SUBJECT: Hearing on Protecting and Restoring America's Great Waters, Part II: Chesapeake Bay

PURPOSE OF HEARING

On Wednesday, June 30, 2008, at 2:00 p.m., in Room 2167 Rayburn House Office Building, the Subcommittee on Water Resources and Environment will receive testimony from representatives from the Government Accountability Office (GAO), the U.S. Environmental Protection Agency (EPA), the Chesapeake Bay Commission, the University of Maryland, and other stakeholder organizations and individuals on recommendations for the protection and restoration of the Chesapeake Bay.

BACKGROUND

This memorandum summarizes the state of the Chesapeake Bay, and efforts to protect and restore it through the Chesapeake Bay Program. In 1983, the states of Maryland, Pennsylvania, and Virginia, the District of Columbia, the Chesapeake Bay Commission,[1] and the EPA signed the first Chesapeake Bay Agreement with the aim of protecting and restoring the Bay. The Chesapeake Bay Agreement resulted in the creation of the Chesapeake Bay Program, a partnership that directs and conducts the restoration of the bay. The Chesapeake Bay Program is authorized through the Clean Water Act. EPA's Chesapeake Bay Program Office, based in Annapolis, Maryland, provides support to the Chesapeake Bay Program.

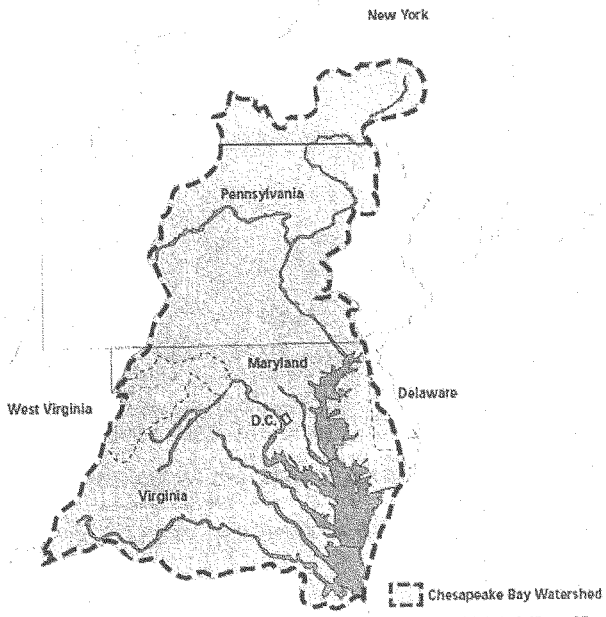
[1] The Chesapeake Bay Commission is a tristate legislative commission representing Maryland, Pennsylvania, and Virginia.

The Chesapeake Bay (the Bay) is the largest of the nation's estuaries. Largely located between Maryland and Virginia, it is nearly 200 miles long, 35 miles wide at its largest point, and covers more than 4,500 square miles. Having an average depth of only 21 feet, the Bay is relatively shallow.

Estuaries are bodies of water that receive both inflows from rivers and tidal inflows from the ocean. The Chesapeake Bay receives approximately half of its water from the Atlantic Ocean, and the other half is freshwater from the numerous rivers and streams that enter the Bay. The Susquehanna River is the largest source of freshwater entering the bay, providing approximately 50 percent.

The Chesapeake Bay watershed is that geographic area from which water ultimately drains into the Chesapeake Bay (*see figure below*). The watershed includes the District of Columbia and parts of six states: Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. It covers approximately 64,000 square miles.

Figure: Chesapeake Bay Watershed



Source: US EPA Office of Inspector General

The population of the Bay watershed has been steadily increasing since the mid-twentieth century. Between 1950 and 2000, the watershed's population nearly doubled from over 8 million to nearly 16 million individuals. The Government Accountability Office (GAO) estimates that the population of the Bay watershed will reach 18 million by 2020.

The Chesapeake Bay is a rich habitat for a wide variety of plants and animals. It is home to 3,700 species including blue crabs, ducks, herring, oysters, shad, and striped bass.

The State of Chesapeake Bay

State of the Chesapeake Bay: The Chesapeake Bay ecosystem, including water quality, is under stress. Sustained and excessive levels of pollution have resulted in water quality and habitat degradation, and have also contributed to the decline in populations of some species.

The Chesapeake Bay Program tracks progress using 13 ecosystem and water quality indicators that are grouped into three priority areas: Water Quality; Habitat and the Lower Food Web; and Fish and Shellfish. Water quality across most of the Chesapeake Bay is degraded. Critical habitats have been harmed and the lower food web[2] has been pushed out of balance. Many of the Bay's fish and shellfish populations are below historic levels.

Good water quality is necessary to support a healthy Bay ecosystem. The Bay Program tracks dissolved oxygen, water clarity, an algal indicator, and chemical contaminants to assess the Bay's water quality. Dissolved oxygen is necessary for fish and shellfish to survive. Water quality data collected between 2005 and 2007 indicates that approximately 12 percent of the Bay and its tidal tributaries met dissolved oxygen standards. The Chesapeake Bay Program notes that this is "a sharp decrease" from 28 percent in 2004 through 2006. Water clarity is necessary for sunlight to reach underwater plants. Water clarity is impeded by excess levels of sediment and algae, among other factors. The Bay Program reports that an estimated 12 percent of the Chesapeake Bay had acceptable water clarity in 2007. Algae are microscopic organisms that sit at the bottom of the food chain and are relied upon by many other species for food and oxygen production. However, in excess quantities they block sunlight from reaching bay grasses, resulting in the degradation of Bay habitat. In addition, large amounts of decomposing algae decrease dissolved oxygen levels. Large-scale algal growth, known as algal blooms, results from excess nutrients entering water bodies. The Bay Program reports that, in 2007, 74 percent of the Bay had unacceptable levels of the indicator[3] used to track algal levels. The Bay Program reports that 67 percent of the Bay's waters and tidal tributaries are impaired or partly impaired due to chemical contaminants, chiefly PCBs (polychlorinated biphenyls.)

Life in the Chesapeake Bay is reliant upon high-quality habitat and food sources to survive. The Bay Program assesses habitat and the lower food web through indicators that measure bay grasses, bottom habitat, wetlands, and phytoplankton. Bay grasses serve as a critical habitat for commercially important species such as the blue crab and striped bass. 2007 data shows that bay grasses cover 65,000 acres, or 35 percent, of the 185,000 acre restoration goal. However, this is down from the 2002 level of 90,000 acres. The bottom of the bay serves as the habitat for the Bay's benthic, or bottom-dwelling, communities such as worms and clams. Benthic habitat can be

[2] The Bay Program uses a measure of phytoplankton as its indicator for the Lower Food Web.
[3] The Bay Program measures the amount of *chlorophyll a* in the Bay to measure the amount of algae present.

impaired through low dissolved oxygen levels and increased pollutants, including chemical contaminants. The Bay Program reports that 43 percent of the bottom habitat was healthy in 2007. On a Bay-wide scale, the Bay Program reports no significant change in the amount of wetland acres between 1996 and 2005. However, the Bay Program notes that on the local scale there have been some significant changes. Phytoplankton, or algae, form the base of the food web and are used as an indicator of the health of the Bay's surface waters. The Bay Program reports that data from spring 2007 shows that 55 percent of the Bay's phytoplankton communities are considered healthy.[4]

Healthy and abundant fish and shellfish populations are central to the Bay ecosystem, and important parts of the Bay economy. The Chesapeake Bay Program assesses fish and shellfish population health by measuring the abundance of blue crabs, striped bass, native oysters, juvenile menhaden, and shad. The Chesapeake Bay Program reported in 2007 that the blue crab population was at 78 percent of the 200 million blue crab interim target. However, in 2008, both Maryland and Virginia announced stringent catch limitations on blue crabs due to significant declines in populations. Striped bass support one of the most important commercial and recreational fisheries on the Atlantic coast. In the 1980s a fishing moratorium was placed on striped bass in the Bay. This is attributed, in part, to the recovery of striped bass populations in the region by 1995. Results for 2007 are unavailable, but the Bay Program reports that scientists are concerned about the impacts that disease and reduced food supply may have on a sustainable stock. In the nineteenth and much of the twentieth century, oysters were a major commercial fishery in the Bay. Over-harvesting, pollution, and disease have reduced stocks to only 8 percent of current restoration goals in 2006. The Bay Program reports that the abundance of shad is at 22 percent of the targeted goal. Menhaden are an important prey species for higher level predator fish (liked striped bass). The number of juvenile menhaden in the Bay is at a significantly lower, albeit stable, level than the number present in the mid-1970s through the mid-1980s.

Sources of Chesapeake Bay Impairment: The primary sources of the Bay's impairment are excess nutrients and sediment. Chemical pollutants are also a factor in some areas of the Bay and its tributaries.

The primary nutrients loadings entering the Chesapeake Bay are nitrogen and phosphorus. Nutrients are necessary for life on both land and water. However, excessive quantities of nutrients can result in algal blooms that block sunlight, and also result in decreased dissolved oxygen levels as a result of decomposition of algae and the die-off of plants and other organisms.

Sediments consist of loose particles of clay, silt, and sand. The release of sediment through erosion is a natural process. However, excess loadings of sediment result in a negative impact on water quality. The sediment can both block sunlight – decreasing water clarity – as well as providing a vector for nutrient particles to attach to as they make their way through the Bay watershed and into the Bay. Sediment can also smother benthic organisms, such as oysters, as it settles to the bottom. It can also impair shipping when it accumulates in harbors and shipping channels.

Chemical contaminants, or toxics, can cause harm to humans and aquatic life. Mercury is the most common toxic metal found in the Bay. Organic toxic contaminants include PCBs, PAHs

[4] Healthy phytoplankton levels are determined as having the right species of phytoplankton, and in the proper quantities.

(polycyclic aromatic hydrocarbons[5]), and a variety of pesticides. Endocrine disrupting chemicals have also been found in a number of Bay tributaries. Some chemical contaminants, such as mercury or other toxics, can bioaccumulate – resulting in increasing loadings in species at the higher end of the food chain. This can result in adverse health effects.

Sources of Chesapeake Bay Pollution: The primary sources of these pollutants come from throughout the Bay watershed and consist of agricultural runoff, wastewater treatment facilities, land-use changes and urban stormwater, and atmospheric deposition.[6]

Agricultural runoff of nutrients and sediment is the largest source of pollutants into the Chesapeake Bay. The runoff of nutrients, such as nitrogen or phosphorus, into the Bay and its tributaries often occurs after precipitation following fertilizer application. Sediment runoff from agricultural areas is also a source of impairment. According to the Chesapeake Bay Program, the implementation of practices to reduce agricultural runoff has resulted in a decrease in the amount of agricultural runoff – nutrients and sediments - that enters the Bay. These best management practices consist of, for example, planting winter cover crops, and planting vegetative buffers at the edge of tributaries or the Bay. The Bay Program reports that agricultural pollution controls, for 2007, have resulted in 48% of the nitrogen goal achieved, 51% of the phosphorus goal achieved, and 48% of the sediment goal achieved.

Wastewater treatment facilities contribute to nutrient loadings into the Bay and Bay tributaries. According to the Bay Program, these facilities contribute 20% of the nitrogen loadings, and 22% of the phosphorus loadings. The Bay Program notes, however, that decreases in the amount of nutrients discharged from wastewater treatment plants account for a large portion of the estimated nutrient reductions, as of 2007. In 2005, Bay jurisdictions began putting into place a new permitting approach that requires hundreds of wastewater treatment facilities to install a new generation of nutrient reduction technologies. Since 1985, wastewater treatment facilities have achieved 69 percent of their nitrogen goal, and 87 percent of their phosphorus goal.

New land development (including urban and suburban development) is increasing nutrient and sediment loads at rates faster than restoration efforts are reducing them. Loadings from developed and developing lands include urban stormwater runoff, septic systems, and runoff from mixed open areas (golf courses, parks.) Development often displaces natural, absorbent surfaces with hard impervious surfaces. Precipitation that may have been absorbed, instead hits a hard surface, like concrete, a building, or a road, in a developed area and washes and is quickly channelized into streams or other waters. This results in increasing levels of water, nutrients, sediment, and other pollutants into these streams, causing further erosion and excess loadings. In addition, increased population growth and development is associated with increased vehicle usage, resulting in higher levels of atmospheric deposition of pollutants (*see below*). Development in the Chesapeake Bay watershed often occurs on formerly agricultural or forested lands. Therefore, agricultural runoff may be displaced with urban stormwater runoff. Improvements in landscape design and stormwater management practices can decrease urban and developed land runoff issues.

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[5] PAHs are formed when gas, oil, or coal are burned. They are common in areas with high rates of development, or with high levels of vehicle traffic.

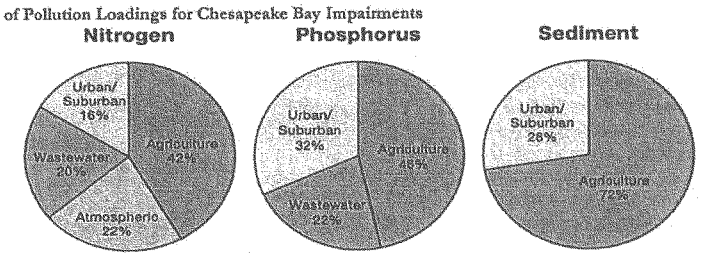
[6] Atmospheric deposition is a process by which airborne pollutants settle directly onto the surface of a water body (direct deposition), or reach a water body indirectly through deposition onto land surfaces and subsequent run-off through wet weather events (indirect deposition).

However, the Chesapeake Bay Program notes that "pollution increases with land development...have surpassed the gains achieved from improved landscape design and stormwater management practices." This, in combination with significant population increases, has resulted in increased adverse impacts from this source.

Atmospheric deposition stems from emissions from vehicles, power plants, agriculture (ammonia from animal feeding operations), and industry. Pollutants from these emissions, including nitrogen, land directly on water bodies (direct deposition) or on land and are ultimately carried into water bodies (indirect deposition.) Indirect deposition accounts for 22 percent of the Bay's 2007 nitrogen loadings. The Bay Program did not report direct deposition figures for this period. The Bay jurisdictions rely upon federal and state air pollution control programs to reduce atmospheric deposition loadings. EPA and the Bay Program had relied on the Clean Air Interstate Rule (CAIR) to reduce 8 million pounds of nitrogen deposition by 2010. However, in early July 2008 the District of Columbia Circuit Court of Appeals struck down this rule. At this point in time, then, neither EPA nor the Bay Program can expect to use this mechanism for nitrogen deposition reductions.

The following figure, produced by the Bay Program, illustrates the relative source loadings for nitrogen to the Bay for 2007.

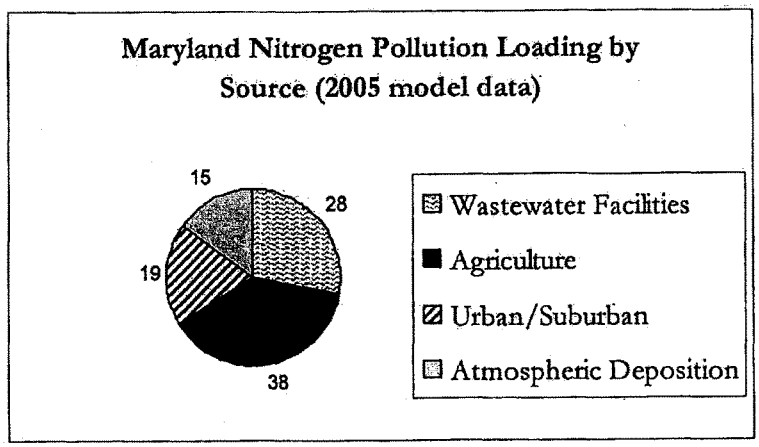
Sources of Pollution Loadings for Chesapeake Bay Impairments



Wastewater loads based on measured discharges; the rest are based on an average-hydrology year.
Does not include loads from direct deposition to tidal waters, tidal shoreline erosion or the ocean.
Data and Methods: www.chesapeakebay.net/status_reducingpollution.aspx

Source: Chesapeake Bay Program (2007)

While parts of six states and the District of Columbia comprise the Chesapeake Bay watershed, most of the pollutant loading comes from only three: Maryland, Pennsylvania, and Virginia. It is important to note that while each produces pollution from the same sources, the share of each of these loading sources is different, per state. This is a function of both the types of economy, geography, and population centers. The following figure illustrates the relative pollution loadings of nitrogen for Maryland, Pennsylvania, and Virginia. The data comes from 2005 Chesapeake Bay Program modeled loading data.


Maryland Nitrogen Pollution Loading by Source (2005 model data)
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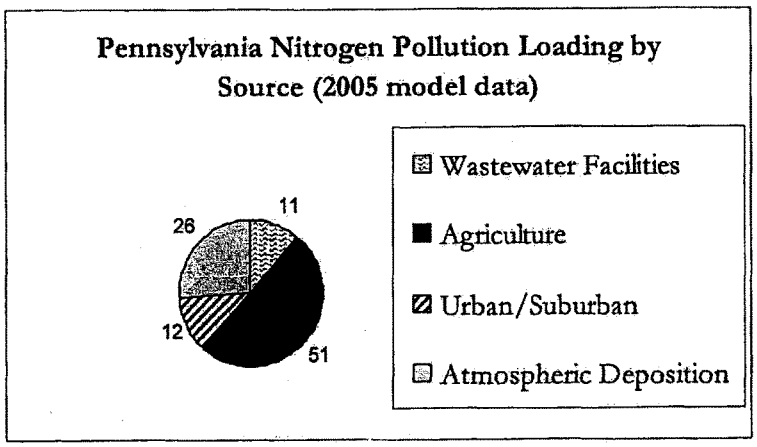
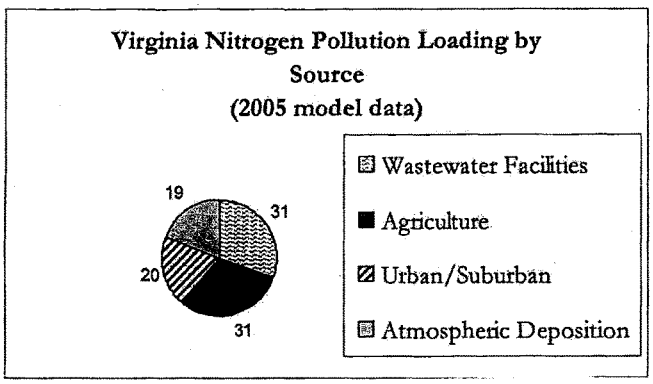
Wastewater Facilities
Agriculture
Urban/Suburban
Atmospheric Deposition


Pennsylvania Nitrogen Pollution Loading by Source (2005 model data)
11
26
12
51
Wastewater Facilities
Agriculture
Urban/Suburban
Atmospheric Deposition



The significance of these differential loadings is that each state will require different approaches to decrease its respective loadings. In other words, each state will have to apply resources differently in order to cost effectively decrease its own loadings.

The Chesapeake Bay Agreements

In the 1970s and early 1980s, EPA found that degradation of the Chesapeake Bay was taking place as a result of nutrient runoff, population increases, and discharges from wastewater treatment facilities. In response, in 1983 the states of Maryland, Pennsylvania, and Virginia, the District of Columbia, the Chesapeake Bay Commission, and the EPA signed the first Chesapeake Bay Agreement.

The Chesapeake Bay Agreement established the Chesapeake Executive Council and resulted in the Chesapeake Bay Program. The Chesapeake Executive Council meets annually and consists of the governors of Maryland, Pennsylvania, and Virginia, the EPA Administrator, the Mayor of the District of Columbia, and the Chair of the Chesapeake Bay Commission. Subsequent Chesapeake Bay Agreements were signed in 1987, 1992, and 2000. The most recent agreement, *Chesapeake 2000*, is identified by the Bay Program as its strategic plan.

The Chesapeake Bay Program is a partnership that directs and conducts the restoration of the bay. It was authorized by Section 117 of the Clean Water Act. It currently includes partners at the federal, state, and local levels, as well as academic institutions and nonprofit organizations. The current Director of the Chesapeake Bay Program is Jeffrey Lape, of the EPA.

EPA's Chesapeake Bay Program Office (CBPO) provides support to the Chesapeake Executive Council and the Bay Program. Among its responsibilities are the development and provision of information on the environmental quality and living resources of the Chesapeake Bay ecosystem. It also is responsible for coordinating EPA's activities with other federal agencies and state and local authorities participating in Chesapeake Bay restoration activities. The Chesapeake Bay Program recently produced as assessment of Bay health and restoration progress in April 2008: *Chesapeake Bay 2007 Health and Restoration Assessment: A Report to the Citizens of the Bay Region.*

The most recent Chesapeake Bay Agreement, *Chesapeake 2000*, is identified by the Bay Program as its strategic plan. In this agreement the Bay partners agreed to improve water quality in the Bay and its tributaries so that these waters would be removed from EPA's impaired waters list by 2010. This result would mean avoiding a requirement to develop a Total Maximum Daily Load (TMDL)[7] for the Bay. The non-signatory Bay watershed states of Delaware, New York, and West Virginia also agreed to the *Chesapeake 2000* water quality gorals, and signed onto a six-state Memorandum of Understanding with EPA.

The signatories to *Chesapeake 2000* agreed to 102 commitments to restore the Chesapeake Bay. These included management actions and ecosystem health measurements. The commitments were organized into five broader restoration goals: Protecting and restoring living resources (14 commitments); Protecting and restoring vital habitats (18 commitments); Protecting and restoring water quality (19 commitments); Sound land use (28 commitments); and Stewardship and community engagement (23 commitments).

In 2006, GAO testified at a Subcommittee for Water Resources and Environment hearing that between 1995 and 2004, $3.7 billion in direct funding has provided for the Bay restoration effort by 11 federal agencies, Maryland, Pennsylvania, Virginia, and the District of Columbia. Federal agencies provided approximately $972 million, and the states and the District of Columbia provided approximately $2.7 billion. Of the federal agencies, the Army Corps of Engineers has provided the greatest amount of funding: $293.5 million. Of the states, Maryland provides the greatest amount of direct funding: over $1.8 billion.

GAO also determined that $1.9 billion was provided between 1995 and 2004 for activities that had an indirect impact on Bay restoration. Federal agencies provided $935 million in indirect funding, and Pennsylvania and the District of Columbia provided $991 million. The U.S. Department of Agriculture, largely through the Natural Resources Conservation Service, provided the greatest amount of federal funding - $496.5 million. Pennsylvania provided $863.8 million of the $991 million in indirect funding.

Reviews and Effectiveness of the Chesapeake Bay Program

In October 2005, the Government Accountability Office[8] released an evaluation of the Chesapeake Bay Program, titled *Chesapeake Bay Program: Improved Strategies are Needed to Better Assess, Report, and Manage Restoration Progress.*[9] Since the release of this report, the Chesapeake Bay Program has been working to address these recommendations. Primary findings included:

- While the Bay Program had established 100 measures to assess Bay ecosystem trends, it had not developed an approach that would allow it to integrate all of these measures. As a result, it was unable to assess the progress made by the overall restoration effort in achieving the five *Chesapeake 2000* goals. GAO recommended that the CBPO develop an approach to allow the Bay Program to combine its measures into a few broader-scale, or

[7] A TMDL is a calculation of the maximum amount of a pollutant a waterbody can receive and still meet water quality standards, and an allocation (wasteload allocation) of that amount to the pollutant's sources.
[8] At the time of the report's release, GAO was known as the General Accounting Office.
[9] GAO-06-96

keystone, measures that could be used to assess Bay progress. In its Subcommittee for Water Resources and Environment testimony in July 2006, GAO testified that the Bay Program was still working to develop and implement a fully integrated approach for assessing restoration progress;

- The Bay Program's primary mechanism for reporting on the health status of the Bay did not provide an effective or credible assessment of the bay's current health status. GAO recommended that the Bay Program clarify on how it describes the Bay's current health and management actions to restore the Bay. In response, the Bay Program developed a new reporting format;

- The Bay Program did not have a comprehensive, coordinated implementation strategy that allowed the strategic targeting of resources on the most cost effective restoration activities. GAO recommended that the Bay Program develop such a strategy. In response, the Bay Program began developing an internet-based approach to unify its planning documents, and had adopted a funding priority framework. GAO subsequently noted in its July 2006 congressional testimony that the Bay Program had not yet developed the necessary comprehensive implementation strategy to reflect what could be accomplished with available resources.

In December 2007, Congress passed the Consolidated Appropriations Act of 2008 (P.L.110-61) and directed EPA to implement all of the recommendations of the 2005 GAO report and to develop a Chesapeake Action Plan (CAP). The CAP would contain specified components that include realistic annual targets, actual activity reports, amounts and sources of funding, and a process to track and measure progress. The CAP was released in July 2008.

As a result of EPA and the Bay Program's acknowledgment that they would be unable to meet the goals of *Chesapeake 2000*, the Bay Program has committed to creating TMDLs for the Chesapeake Bay. The deadline for the completion of these is 2011.

In July 2008, EPA's Office of Inspector General produced an evaluation[10] of the Bay Program that contained a number of recommendations. These include:

- Improve reporting to Congress on the actual state of the Chesapeake Bay and actions necessary to improve its health;

- Develop a strategy to further engage local governments and watershed organizations to capitalize on their resources, tools, authorities, and information to advance the mission of the Chesapeake Bay and include key actions as developed in the CAP;

- Provide CBPO with the opportunity to review and comment on any proposed rulemakings resulting from the Office of Air and Radiation's review of the secondary standard for NO_2.

EPA concurred with the recommendations in this report.

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[10] EPA OIG. 2008. *EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report.* Report No. 08-P-0199. (July 14, 2008)

Pending Legislation on Reauthorizing the Chesapeake Bay Program

The authorization of appropriations for the Chesapeake Bay Program in Section 117 of the Clean Water Act expired in 2005.

Congressman Gilchrest has introduced legislation (H.R. 16) to reauthorize the Chesapeake Bay Program. The Committee has not take action on this legislation.

HEARING ON PROTECTING AND RESTORING AMERICA'S GREAT WATERS, PART II: THE CHESAPEAKE BAY

Wednesday, July 30, 2008

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
Washington, DC.

The Subcommittee met, pursuant to call, at 2:00 p.m., in Room 2167, Rayburn House Office Building, the Honorable Eddie Bernice Johnson [Chairwoman of the Subcommittee] presiding.

Ms. JOHNSON. The Subcommittee comes to order this afternoon.

We are holding a hearing on protecting and restoring America's great waters, the Chesapeake Bay, and I would like to ask unanimous consent that Congressman Cummings and Congresswoman Edwards be allowed to participate in the Subcommittee hearing.

Today, we will conduct this second in a series of hearings to assess the state of our Nation's great waters and what it will take to better protect and restore them.

Today's hearing focuses on the Chesapeake Bay. We will receive testimony from the GAO, the EPA, the Chesapeake Bay Commission and the University of Maryland regarding the condition of the Bay and their recommendations on implementing action to safeguard and restore this national treasure.

Narrowing our focus from the previous hearing on coasts and estuaries, the Subcommittee will now examine our Country's largest estuary, the Chesapeake Bay. Covering roughly 64,000 square miles, the watershed covers the District of Columbia and six States: Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. The Bay itself is nearly 20 miles long and 35 miles wide, with a total shoreline of 11,684 miles including its tributaries.

A complex ecosystem, the Bay is home to 3,700 species of plants and animals including rockfish, bald eagles, blue crab and oysters. Known for its abundant production of seafood and therefore serving as an important link in this region's commerce, many of the Bay's animal populations are being depleted. The delicate balance of the entire Bay now suffers from diminishing production and is at risk from water quality degradation and loss of aquatic vegetation.

As a result, the habitats of the Bay ecosystem and watershed are at risk, resulting in increased concerns from communities in the region.

Furthermore, the Chesapeake Bay remains an important tourism feature for the economies of the District of Columbia, Maryland, and Virginia. The restoration and protection of this waterway is vital not only for the obvious environmental reasons but for the impact on regional livelihood and identity.

It has been well-established that the Bay suffers from a variety of sources of pollution. Chief amongst them are the nutrient and sediment runoff from the rich agricultural lands in the watershed. But deposition from cars and power plants, stormwater from our rapidly growing communities, and nutrients and toxics from industry and wastewater treatment facilities are also major factors.

Additionally, wastewater treatment facilities contribute significantly to nutrient dumping into the Bay and its tributaries. It has also been discovered that new land developments are also causing an increase in nutrient and sediment loads at rates faster than restoration efforts can reduce them.

As early as this week, the National Oceanic and Atmospheric Administration released a report stating that this year's blue crab population is even lower than last year's alarmingly low level. It states that the population of spawning-age blue crabs in the Bay for 2007-2008 was 120 million. This is down from 143 million during the 2006-2007 season and highlights that the Bay's signature species is in danger. Last year's take was 43.5 million pounds, the lowest level since 1945.

For the sake of our watermen, for the sake of the Bay's health, and for the sake of this region's identity, we must move forward in protecting and restoring the Bay, and we must do it better than we have in the past because we are nowhere close to the level of success and sustainability that we should be. This is not to say that nothing has been done, but it is to say that much, much more needs to be achieved.

Since the 1980s the Federal Government has been involved in Bay restoration activities. Largely through the Chesapeake Bay Program, the Federal Government has invested sizable resources into the Bay.

Our level of knowledge about the Bay—its ecosystems, its impairments, its tolerance for pollutants—is probably greater than for any other body of water in the country, and yet the Bay seems to suffer ever-more from pollution. And in line with this, the habitat and living resources of the Bay have become ever-more degraded.

It has been 25 years since the Chesapeake Bay Agreement was first signed. Since that time, the EPA, the Chesapeake Bay Commission, the District of Columbia as well as the States of Maryland, Pennsylvania, Virginia, Delaware, New York, and West Virginia have worked hard toward improving conditions in the Bay.

Given the length of time that the EPA and other parts of the Federal Government have been trying to heal the Bay and given the amount of resources we have dedicated to it, we should have a stronger record of success than we presently do. It seems obvious to me that we need a new approach. I feel strongly that in lieu of intensive research initiatives, a greater emphasis on implementing a plan that will actually restore the Bay is now needed.

As we all know, such goals are not easy to achieve and yield many questions: Through what mechanism will we provide in-

creased funding for addressing our wastewater and stormwater infrastructure? How can we best address non-point source pollution from agricultural lands?

What is the best approach for reducing airborne emissions that degrade our waters? And how do we work with our State and local partners to promote smart growth and development? These are all questions we need to and must face.

Obviously, what we as policymakers put forth in a future reauthorization of the Chesapeake Bay Program will have significant ramifications on the future health of the Bay.

As such, addressing these major drivers of Bay pollution will be challenging on a variety of levels: political, policy and fiscal. Nevertheless, it is my view that we must put aside our differences and work together to overcome any obstacles with a collective and united eye towards restoring a national treasure.

It is with this in mind that I would like to acknowledge one of my long-time colleagues on the Committee, Congressman Gilchrest. Congressman Gilchrest has been a tireless advocate in his efforts to raise and focus our attention to the importance of protecting and restoring the Chesapeake. The people of this region can only hope that whomever his successor is, Republican or Democrat, that person will be as dedicated to restoring this precious body of water as has Representative Gilchrest.

We certainly will miss him.

I now yield to my Ranking Member, Mr. Boozman, for an opening statement.

Mr. BOOZMAN. Thank you, Madam Chair.

I also would echo the hard work that Mr. Gilchrest has done on this particular project and on so many others and, again, that we will very much miss him and all that he has contributed to this Committee and Congress in general.

The Chesapeake Bay is the largest estuary in the United States and is critical to the economy, environment and way of life for millions in the Mid-Atlantic area. Covering some 64,000 square miles, the watershed spans parts of six States and the District of Columbia and is home to 16 million people.

There are 150 major streams and tributaries in the Chesapeake Bay Basin. The Bay is an important environmental feature in the region. It is home to billions of waterfowl and a vast array fish, shellfish and other aquatic plants and animals.

For the human population, the Chesapeake Bay provides millions of pounds of seafood, a wide variety of recreational opportunities and is a major shipping and commercial hub. Two of the Nation's largest ports are on the Chesapeake Bay: Baltimore, Maryland and Hampton Roads, Virginia.

Beginning with the colonial settlement and until today, land use activities and changes in the watershed have affected the health of the Chesapeake Bay.

Public concerns about the health of the Bay have been raised since the 1930s. The deterioration of the Chesapeake Bay can be seen in a decrease in water clarity, a decline in oyster and crab populations and a lack of underwater grasses. There are even areas of the Bay that are dead zones where there is not enough oxygen in the water to sustain life.

The EPA says the major causes of the Bay's deterioration are excess nutrients and sediments coming from farmlands, wastewater treatment plants and urban runoff. Septic systems and air deposition of emissions from power plants, cars and trucks also contribute to the degradation.

In the next 25 years, an additional 3.7 million people are expected to be living in the Chesapeake Bay watershed. As more concrete and asphalt replaces forest and open spaces, the runoff of nutrients and sediments into the Bay will increase.

However, it is this same growth and development that provides the economic stability for the region. The Bay region must balance economic development with the need for clean water and a healthy environment. To do this, the region needs to be smart in how it grows in the future in order to minimize the impacts on the Bay.

The Chesapeake Bay Program was created many years ago to address the degradation of the Bay. In 1987, the program was authorized formally by Congress in the Clean Water Act. Today, the program is a partnership of States, local entities and the EPA that directs and conducts restoration of the Chesapeake Bay.

The Chesapeake 2000 Agreement sets ambitious restoration goals to be met by 2010.

A lot of money has been spent over the years to clean up the Bay. In the past 12 years alone, nearly $4 billion in direct funding has been provided to the program from the Federal Government and the States. An addition $2 billion in indirect funding has gone to programs that aim to improve the health of the Bay.

The EPA also has provided over a billion dollars in the program partner States through the Clean Water State Revolving Loan Fund to help pay for wastewater treatment improvements. However, while EPA reports that some progress has made in cleaning up the Bay, substantial challenges remain.

It is now clear the Chesapeake 2000 Agreement's ambitious restoration goals will not be met in 2010. More needs to be done. All of the program partners and stakeholders need to make some hard decisions and a stronger commitment if we ever hope to achieve the Bay restoration goals.

Right now, it is not so clear whether everyone is willing to make the hard decisions and be truly committed to getting past the talking and planning and on to cleaning up the Bay. Because Federal dollars will be limited, it is important to invest in activities that will directly clean up the Bay.

Today, we have an assembled an excellent group of expert witnesses to help us consider the Chesapeake Bay Program that is now up for reauthorization. I look forward to hearing from each of the witnesses on how we can improve the performance of the Chesapeake Bay Program and increase the accountability of the program and its partners to achieve the Bay restoration goals.

I yield back, Madam Chair.

Ms. JOHNSON. Thank you very much, Mr. Boozman.

Ms. Eleanor Holmes Norton.

Ms. NORTON. Thank you very much, Madam Chair.

I very much appreciate this hearing, and I am sure the region appreciates it, but surely the Country should appreciate it. If there

were a list of the Seven Natural Wonders of the United States, I don't see how the Chesapeake Bay could be left off of that list.

I must join with my colleagues in regretting the loss of Mr. Gilchrest. Mr. Gilchrest has been, what is it? The gatekeeper? The lighthouse keeper? He has been the repository of unique expertise and advocacy.

Sure, there are a lot of us who are advocates. None of us begins to have his encyclopedic knowledge and understanding of the Bay over time and what it needs now.

I hate to say he has irreplaceable knowledge because, somehow or the other, we are going to have to find a way to replace it. One of the ways we are going to find is to keep drawing on you because we really cannot do without what Mr. Gilchrest has been able to do for our Subcommittee and for our Committee and its work on the Bay with these hearings which we have regularly been holding.

Madam Chair, there is very deep concern on our Committee about large changes in the environment in our own region. We perhaps see evidence of some of the largest and most disturbing changes of all right here in our own Bay.

I just don't know what to think when I read about intersex fish. I really don't know how to process that information.

I do know how to process information that the crab hauls are markedly down. I know how to process that because I know how to count.

The crab gives this region its identity in the Country. The notion that there could be such short drops in the haul has got to be disturbing. If you are not disturbed about what is happening in the Bay, think about what is happening to one of its major economic drivers.

In his testimony, Mr. Grumbles, the Water Administrator, concedes, as he delicately puts it, that development in the Bay watershed is outpacing progress in goals. Really?

The development in the Bay watershed has been predictable all the time. It is no surprise to us. But intersex fish are a surprise to us and an intolerable one.

He tells us that we lose a hundred acres of watershed forest lands each day, and then we look at what we are doing about it. It is enough to discourage you, especially when you recognize you are in one of the richest regions in the Country. This is not some backwater region where people just have to let it go.

Yes, we are in the process of designing the largest plan ever to reduce pollution in the Bay. We are not sitting here and doing nothing, but I am frustrated by plans that appear to have so little in the way of measurable action forward.

Madam Chair, on the Chesapeake Bay, we have been paddling backwards. Maybe if we had no plan, we would not be where we are today, but one can only express profound disappointment that plans we have benefitted the Bay so little that there is no room for self-congratulation about progress on the Bay, however one might measure that.

Sitting here in a major area which contributes urban non-point pollution, I am particularly concerned about that form of pollution.

I hope I can wait out most of the testimony. I have been asked to come to an important meeting affecting the District of Columbia, so I may not hear it all.

So, Madam Chair, I do want to say that those of us who live in, particularly, our urban areas know we bear some of the responsibility, and I think we are going to have a great deal of responsibility and are going to have to make our local governments take more responsibility than they have.

Now when it comes to point sources, we have been able through regulation to get at a fair amount of that, from factories and the like, but I fail to see the progress on non-point solutions. As far as I can tell, it is because there is no action item there.

Because there is no action item, the local jurisdictions do not feel that—I will be through in one second—they have to do anything to meet non-point source allotted reductions. Until we face the fact that, among us, the Federal Government and the local jurisdictions have to embrace the major sources of unattended pollution, we will continue to go downstream even as we are trying to paddle upstream.

I thank you for your indulgence, Madam Chair.

Ms. JOHNSON. Thank you very much.

We have a vote on, and the second bell has already rung. So we are going to recess.

I think Mr. Gilchrest would like to make his statement.

Would you like to make your statement now? We have 10 minutes, rather than 5.

Mr. GILCHREST. I will be 30 seconds, Madam Chairman. Thank you very much.

I want to thank my colleagues for their kind condolences on the loss of my election. Being a politician is one of those few rare moments where you can hear your own eulogy and thank the people for their kind words.

Just a few comments on the proposed legislation and the witnesses that will testify. There has been a great deal of work done over the many decades that all of you have contributed to the resolution of trying to deal with the degradation of the Chesapeake Bay and its tributaries.

We pretty much know now that human activities in all its various forms, whether it is agriculture, development, stormwater, air pollution, human activity is not compatible with nature's design. That is the fundamental issue here.

The Federal Government has contributed large sums of money. Scientists have engaged in these issues of an ecological approach for many years now. We are now looking into how to deal with TMDLs, how to deal with climate change, how to deal with the recent Supreme Court decision that sort of knocks out our role with air pollution from one State to another State.

But the issue here, I think, that we really need to focus in on, Madam Chairman, is that the science is available for us to understand how we can reverse and paddle that canoe forward, Eleanor, and not in reverse, and that is local government, local government, local government.

That is where land use decisions made. That is where the forests need to be replanted. That is where the buffer zones can go. That

is where the development can be more compatible, more ecologically sustainable.

The issue here is a vital one for the sustainability of future generations. The planet has limited resources. This has been a dynamic economy in this region of the world for 400 years.

Prior to European colonization, Native Indians, American Indians were relatively compatible with nature's design in that they were not this blunt force stopping the cycles of nature. The storm cycles, the calm cycles, the fish cycles, the weather patterns, the climate cycles, these were all compatible with nature's long-term design.

Then we came in, and we are one dull thud. A sewage treatment plant doesn't have cycles. It just contributes nitrogen and phosphorus.

Streets are not compatible. They are not cycles. They contribute constantly with stormwater.

Human activity is one dull thud that has impacted and degraded this magnificent estuary.

And so, we do know how to make us more compatible. We know how to do it with stormwater. We know how to do it with sewage treatment plants. We know how to do it with managing our fisheries. We know how to do it with agriculture.

What we need now is what Ben Grumbles said in his testimony: adapt, innovate and accelerate that information in a very broad way.

So, thank you very much for the kind words, Madam Chairman, and I look forward to the testimony.

Ms. JOHNSON. Thank you very much.

We are going to recess until we complete these votes, and we will be right back.

[Recess.]

Ms. JOHNSON. The Committee will reconvene, and I request that any further opening statements be filed for the record.

I now call on our first witness, the Honorable John Sarbanes.

TESTIMONY OF THE HONORABLE JOHN P. SARBANES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND; THE HONORABLE ROBERT J. WITTMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. SARBANES. Thank you very much, Chairwoman Johnson, Ranking Member who will be back shortly, I am sure, and other Members of the Committee that may join us for allowing me to testify today. Thank you for holding the hearing on Chesapeake Bay environmental restoration and protection.

I think you are going to find a refreshing bipartisan consensus among the Members representing the Chesapeake Bay watershed that we must be successful in our efforts to save the Bay. That this consensus exists at all is in and of itself, I think, a very strong statement about the Bay as a historic cultural, economic and environmental symbol for this region.

I am proud to represent Maryland's Third Congressional District whose residents have a strong tradition of environmental advocacy rooted in a passion for the Chesapeake Bay.

The Bay is our Nation's largest estuary, as you know, and in many ways it is the soul of the State of Maryland. It is a national environmental treasury and an economic catalyst as it pertains to the region's tourism and seafood industries.

I, too, just wanted to echo the praise of Wayne Gilchrest for his incredible work on behalf of the Chesapeake Bay. I think in many ways the Chesapeake Bay is part of Wayne's soul, and he communicates that with all the initiatives he undertook over these many years on behalf of the Bay.

I also want to say how pleased I am that Congressman Wittman is here to testify as well. We have had the chance to collaborate on some initiatives in the Natural Resources Committee with respect to the Chesapeake Bay, and he is a real champion of its preservation.

We are all committed to the health of the Bay. Unfortunately, the Bay's health has been significantly affected by multiple factors from locally produced nutrient runoff to sea level rise as a result of global warming.

I am committed to reversing these trends and restoring the Bay's water quality and natural habitats. There is no doubt that the EPA's Chesapeake Bay Program is absolutely essential to those efforts, and I welcome the opportunity to improve upon its work.

Although the EPA is the lead agency for the Chesapeake Bay Program, the program is actually a partnership among several Federal agencies as well as the States of Maryland, Virginia, Delaware, Pennsylvania, New York, West Virginia and the District of Columbia. County and municipal governments have also made strong contributions to the Bay restoration effort.

This widespread participation allows for more resources to be brought to bear, but it also poses challenges with respect to setting common goals, coordination, management and evaluation. I expect that these challenges along with overall funding commitments will be among the most common topics of debate as you begin to craft reauthorization legislation.

I look forward to contributing to that discussion. I hope that Members from the Bay region who are absolutely committed to succeeding in our efforts to save the Bay can work with the Committee to ensure the program achieves its water quality and living resource goals.

In closing, I am very pleased to have the opportunity to testify today before the Committee. I hope the Chair will indulge me for just one moment to say that the Water Resources Development Act reauthorization next year is also very critical to the Bay cleanup.

The Army Corps of Engineers is an integral partner in the Chesapeake Bay Program. I, along with 21 other Members representing Bay watershed districts, have introduced legislation, H.R. 6550 to expand the Corps' role in Bay cleanup.

The legislation would make permanent the Corps' Chesapeake Bay Environmental Restoration and Protection Program which was established as a pilot program under WRDA 1996.

It would also expand the Corps' work to all six States in the Bay watershed and the District of Columbia and provide flexibilities for the Corps to work with other Federal agencies, State and local governments and not for profit groups engaged in Bay cleanup.

I also believe we should authorize the Corps on a pilot basis to engage in stormwater management projects in the Bay watershed.

I welcome the opportunity to discuss these proposals with Members of the Committee in the future, and I look forward to working with you on the EPA program reauthorization and WRDA next year. Thank you again.

Just as I come to the close of my testimony and depart from the written statement, I just want to say that there is a recognition that we have to have a partnership between the citizens of the Chesapeake Watershed and government and non-profit organizations to save this incredible national treasure.

We can do it. We have the will to do it. We have to have all the implementation in place to make it happen. I look forward to the reauthorization.

Thank you very much. I yield back.

Ms. JOHNSON. Thank you very much.

Mr. Wittman.

Mr. WITTMAN. Thank you, Chairwoman Johnson. I thank you for the opportunity and, Members of the Committee, thank you for allowing me to be here today to discuss an issue important to me and my constituents, the Chesapeake Bay.

I am very grateful to the attention you are paying to estuary restoration with hearings on improving America's great waters. As we all know, the Chesapeake Bay has been one of the most productive bodies of water in the world, and hopefully we will continue to allow it to maintain that status.

I would like to also thank Wayne Gilchrest for his leadership and for his passion on Bay issues. He has been out there in the forefront, and we all know what a treasure that is for our Nation.

Wayne, I appreciate your leadership there.

I also would like to thank Congressman Sarbanes again for his leadership and for his initiatives. It has been an honor to be a partner with him on a number of those.

I look forward to being a partner with you there in the future. So, thank you very much.

I am fortunate to represent Virginia's 1st District which stretches from the exurbs of Washington, D.C. to Hampton Roads.

Although I am new to Congress, I am not new to the challenges and issues confronting the Chesapeake Bay. For the last 20 years, I have served in local and State government on the front lines of Bay restoration activities. During my time in the Virginia General Assembly, I served on the Agriculture, Chesapeake and Natural Resource Committee and for the last 18 years prior to serving in Congress, my day job had me monitoring water quality and environmental health issues in the Chesapeake Bay watershed.

Thanks to high levels of Federal, State, local and stakeholder participation, there are many success stories in the Chesapeake Bay like dramatically increased numbers of striped bass.

However, there are many sobering statistics as well. Blue crab populations are down 70 percent since 1990. Native oyster populations are currently at less than 1 percent of historical levels. Reductions in nutrient and sediment pollution are way behind schedule to meet the Chesapeake Bay 2000 Agreement goals.

We still have a lot of work to do. There are extraordinary challenges out there in front of us.

I want to commend and recognize, though, the significant effort by EPA and other Federal, State and non-governmental organization partners in preparing the Chesapeake Bay Action Plan. The EPA's July, 2008 report outlines significant accomplishments in meeting the GAO's 2005 recommendation and outlines a way forward for the remaining years under the Chesapeake Bay 2000 Agreement.

I want to outline some of the key principles that I would like to encourage the Committee to consider as Congress continues to evaluate and plan for ongoing restoration activities in the Chesapeake Bay.

First, there must be performance-based measures to assure that dollars currently spent on Bay restoration activities are producing results. Before we can evaluate a program, we need to know what projects are out there. The Chesapeake Bay Action Plan's Activity Integration Plan is a key step in organizing restoration activities into one database.

Before now, it has been difficult, if not impossible, to have a complete list of ongoing restoration activities. However, as I understand it, this database, at least in the initial phase, will not be publicly accessible.

I would suggest that a comprehensive accounting of all Bay restoration activities available to everyone including Congressional oversight committees, appropriators and stakeholders should be an important component going forward in order to ensure program effectiveness.

The next step is to evaluate programs in meeting goals and ensuring effective implementation. For complex environmental restoration activities like the Chesapeake Bay, adaptive management can be a very useful tool to meet the scientific and policy challenges inherent to ecosystem management. I am encouraged that the Chesapeake Bay Action Plan includes a significant adaptive management component.

I believe that this Committee and all partners should embrace an active adaptive management component for Bay restoration activities to ensure the best management outcomes with finite financial resources. Accounting and adaptive management are vital, in my mind, as key components for any complex environmental restoration project, especially the Chesapeake Bay.

I have drafted legislation that I want to introduce this week, and my legislation would implement a cross-cut budgeting requirement for Chesapeake Bay restoration activities.

Cross-cut budgets are an accounting process that has recently been enacted for the Great Lakes, the Everglades and the California Bay Delta Region. For these restoration activities, it has been critical.

Cross-cut budgets can be important tools that foster accountability and are useful in measuring progress and assessing program effectiveness.

My legislation would also require the EPA to implement active adaptive management to guide restoration activities in the Chesapeake Bay watershed with an eye towards results and effectiveness

from the State level to the Federal level and also down to the local level. My goal would be to build on the initial steps EPA has outlined in their Chesapeake Bay Action Plan.

Secondly, I would like to highlight the importance of water fowl species and efforts to restore wetlands within the Chesapeake Bay watershed. As an avid waterfowler and lifetime member of Ducks Unlimited, I am particularly interested in restoring quality habitat for waterfowl.

The Bay has a rich heritage of plentiful waterfowl. However, changing land use patterns and degraded water quality have negatively impacted prime wintering habitat

Ducks Unlimited and other non-profit organizations are vital partners in the efforts to clean up the Bay and protect habitat. Ducks Unlimited along with Federal, State and local partners have made significant progress in meeting wetlands restoration goals, and I encourage this Committee to continue its support for wetlands restoration as a key component of Chesapeake Bay restoration activities.

Finally, both commercial and sport fishing industries are suffering from poor water quality in the Bay. By cleaning up the Bay, we can increase the oysters, crabs and fish available to both commercial and sport fishermen.

Watermen and fishermen contribute to local economies, and these men and women are also representative of an important part of the heritage of the Bay. We must make sure that this way of life does not fade into history. These activities are a vital part of the economy and heritage of this Nation and are fundamental parts of maintaining our quality of life.

Thank you again, Chairwoman Johnson and Ranking Member Boozman for allowing me to testify today, and I stand ready and willing to support and work with you to continue efforts to restore our Chesapeake Bay.

Ms. JOHNSON. Thank you very much.

This completes the testimony of our first panel. We have a policy not to question you in public.

[Laughter.]

Ms. JOHNSON. Our second panel of witnesses consists of Mr. Benjamin Grumbles, and he is accompanied by Mr. Jeff Lape from EPA, Anu Mittal from GAO and Wade Najjum from EPA OIG.

Your full statements will be placed in the record, and we ask that you try to limit your testimony to about five minutes as a courtesy to other witnesses.

We will proceed in the order in which the witnesses are listed, and I suppose that, Mr. Grumbles, you can proceed. The other witnesses will be called at your discretion or will they be testifying?

Mr. GRUMBLES. He is here to help me on the question.

Ms. JOHNSON. Okay. Thank you very much, and you can begin your testimony.

TESTIMONY OF THE HONORABLE BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR THE OFFICE OF WATER, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ACCOMPANIED BY JEFF LAPE, DIRECTOR, CHESAPEAKE BAY PROGRAM OFFICE, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; ANU K. MITTAL, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT TEAM, UNITED STATES ACCOUNTABILITY OFFICE; AND WADE NAJJUM, ASSISTANT INSPECTOR GENERAL, OFFICE OF INSPECTOR GENERAL, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Mr. GRUMBLES. Thank you very much, Madam Chair.

I am Benjamin Grumbles, Assistant Administrator for Water, and I am accompanied by Jeff Lape, the Director of the Chesapeake Bay Program.

It is always an honor and a pleasure to appear before the Subcommittee, and I just want to start by thanking you and your colleagues for drawing such attention to the importance of great waters and water bodies across this Country, including the Chesapeake Bay.

I know that you are also focused on others throughout the Country, including the Great Lakes, and the timing is critical for that as the President has recently issued a statement of strong support for congressional efforts to pass the Interstate Compact on the Great Lakes.

But today, we have the opportunity to discuss the importance of the Chesapeake Bay, the efforts of the U.S. EPA and our partners in the Chesapeake Bay Program.

Madam Chair, my testimony, my written testimony is rather lengthy, and so I am not going to read it.

And, I am not going to focus on the accomplishments, although it is quite tempting to do that because there are many and they are often forgotten. The Chesapeake Bay Program and the partners throughout this very large watershed have taken important steps over the years and done a lot of good, but of course what we are focused, as Congressman Gilchrest, is on ensuring that we are best equipped to adapt, to innovate and to accelerate the restoration and protection.

We know—EPA certainly knows—this from our position. We know that we have a lot of work to do, and there are significant challenges.

I want to focus on a date, July 14th of this year. That is the day in which we and our partners sent to Congress a Chesapeake Action Plan. That is a significant step. We believe it is a true milestone in efforts to focus on full-scale implementation, to embrace the principles of cooperative conservation which certainly has been a shining example throughout this Administration of our approach to environmental progress through partnerships.

But the Chesapeake Action Plan is also an emphasis on coordinated restoration, integrated efforts. We are listening, Madam Chair. We are listening, and we believe we and our partners are adapting to the concerns or criticisms expressed by those who are overseeing the program and want us to do more.

In addition to cooperative conservation and coordinated restoration, there is the all-important principle of collective accountability.

So we think that the Chesapeake Action Plan is very important. It includes a strategic framework. It includes an operating plan so that we get into the details of taking concrete and not so concrete, softer paths and steps towards implementation.

It also includes a very important component, and that is dashboards on 11 key measures so that a high level assessment of the 11 key, critical features of progress and challenges in the Chesapeake Bay.

Between the strategic framework and the action plan, the operating plan and the dashboard, we think it is a very important, critical plan for progress.

And the last part of it is adaptive management, making sure that we, that the Federal, State and local levels adapt and respond to the challenges ahead.

What are the challenges? You have already heard, and I know you and your colleagues are very much aware of this. Because the Chesapeake Bay is the largest estuary throughout this Country and through North America, it is also the largest land mass. A lot of the focus needs to be on land-based sources of pollution.

This Administration believes, and I believe Congress, the Majority in Congress understands the importance of working with local landowners, local governments, States and others to reduce the amount of nutrients and sediments that are the number one problem challenging the Chesapeake Bay. So we think it is very important to adapt, to understand that we need to get smarter and innovate our approaches to stormwater and non-point source pollution.

I mentioned July 14th as an important date because that was the date in which there was a very well-attended public hearing session in Annapolis that USDA held on the monies in the new Farm Bill that will be directly targeted towards progress in the Chesapeake Bay. We think that is a critically important component.

I think another important effort, a challenge ahead, as EPA brings to the table its Clean Water Act tools, is the Total Maximum Daily Loads Program. We and our partners are working towards the development of a TMDL. Legally, we have until 2011, but we are all shooting hard for accelerating completion of a massive, complex but important and timely TMDL by the end of 2010.

Madam Chair, climate change is also an important subject. I look forward to discussing it with you and how we, as a Federal agency, and others can work together to adapt our efforts and programs in a time of climate change.

The last thing I would say, Madam Chair, is that we appreciate the attention. Mr. Lape and I will be happy to respond to questions that you have, and your colleagues, throughout the hearing.

Thank you.

Ms. JOHNSON. Thank you very much.

Ms. MITTAL. Madam Chairwoman and Members of the Subcommittee, thank you for inviting us to participate in your hearing on the Chesapeake Bay.

As you mentioned, restoring the health of the Bay is a complex and difficult endeavor that has been ongoing for several decades. Federal, State and other partners have contributed billions of dollars for restoring the Bay, and yet a healthy Bay remains an elusive goal.

In October, 2005, we issued a report on the restoration effort and identified a number of concerns that we concluded were undermining the success of the Bay Program. To address these concerns, we recommended that the Bay Program implement six actions. After our report was issued, Congress also directed the Bay Program to implement all of our recommendations and develop a realistic action plan.

My testimony will summarize the concerns that we raised in 2005, the recommendations that we made to address these concerns and our assessment of the Bay Program's actions to date.

In 2005, we reported that the Bay Program had established over 100 individual measures to assess progress in meeting certain restoration commitments and to support program decisionmaking. However, the Bay Program did not have an integrated approach to determine what these individual measures meant in terms of the overall health of the Bay and restoration progress.

We recommended that the program develop such an integrated approach.

In response to our recommendation, the Bay Program has integrated its key measures into three broad indices of Bay health and five broad indices of restoration progress. We believe that these new indices will allow the Bay Program to provide better overall information about the Bay's health and restoration progress.

In 2005, we also found that the Bay's reports did not provide an effective or credible assessment of the Bay's current health status. This is because the reports focused on trends in individual species and pollutants, they tended to downplay the deteriorated conditions of the Bay, and they were not subject to an independent review process.

We recommended that the reporting process should be modified in three ways: First, it should include an assessment of the key ecological attributes that reflect the Bay's health. Second, it should separately report on the health of the Bay and on management actions. And, third, it should be subject to an independent review process.

In response to our recommendations, the Bay Program has revised its annual reporting process and is now using 13 key ecological attributes to report on the Bay's health. It is also using a new reporting format that distinguishes between indicators of the Bay's health and restoration effort activities.

We believe that these changes will significantly improve the clarity of the Bay's reports. However, we remain concerned that the Bay Program has not taken adequate steps to establish an independent review process, and therefore this recommendation still needs additional attention.

Finally, in 2005, we reported that the Bay Program did not have a comprehensive, coordinated implementation strategy that would allow it to strategically target limited resources to the most effective restoration activities. We also found that some program planning documents were inconsistent with each other and some were perceived to be unachievable by the partners.

We concluded that this large and difficult restoration project could not be effectively managed and coordinated without a realistic strategy that unified all of its planning documents and tar-

geted its limited resources to the most effective restoration activities.

In response to our recommendations, the Bay Program has taken several actions such as developing a strategic framework that articulates how it will pursue and measure progress toward achieving its goals. Although these actions are positive steps in the right direction, we believe that additional actions such as identifying resources and assigning accountability to partners for implementing the strategy are still needed.

In addition, the program still needs to identify and clearly link a comprehensive set of priority activities to each of the newly established annual targets so that limited resources are focused on those activities that provide the greatest environmental benefit.

In closing, Madam Chairwoman, in the three years since our report was issued, the Bay Program has made significant improvements to address the deficiencies that we had identified. However, additional steps are still needed to ensure that the program continues to move forward in the most cost-effective and well-coordinated manner possible.

This concludes my prepared statement. I would be happy to address any questions that you have.

Ms. JOHNSON. Thank you very much.

I misread this agenda here, and I thought that all of you were accompanying Mr. Grumbles.

I will now hear from Mr. Najjum.

Mr. NAJJUM. Thank you. Good afternoon, Madam Chairwoman and Members of the Subcommittee.

I am Wade Najjum. I am the Assistant Inspector General for Program Evaluation with the Office of Inspector General at the Environmental Protection Agency. I am pleased to be here today to discuss the OIG's evaluation of EPA's role in helping to clean up the Chesapeake Bay. We began our reviews in response to a request from Senator Barbara Mikulski of Maryland.

EPA plays multiple roles in the Bay watershed including overseeing the State's implementation of the Clean Water Act, issuing and renewing permits for point sources, and ensuring compliance with those permits. EPA also has direct implementation responsibility for issuing and monitoring permits to the District of Columbia. However, EPA's principal role in promoting water quality goals for the Bay is the Chesapeake Bay Program. Congress charged EPA's Chesapeake Bay Program Office with the responsibility to coordinate cleanup efforts with other Federal agencies and State and local governments. The Program Office was also given the responsibility to report to Congress on the progress in cleaning up the Bay. We conducted reviews focused on the Chesapeake Bay Program's efforts to reduce nutrients and sediments into the Bay.

We issued four major reports: agriculture, air deposition, developing land, and wastewater treatment facilities. In each area, we found that the Bay partners had accomplished some noteworthy achievements, but achieving the Chesapeake Bay water quality goals is in serious jeopardy. The Bay remains degraded and, at the current rate of progress the Bay will remain impaired for decades.

In the individual reports, we concluded that significant challenges the Bay partners faced meeting their cleanup goals were in-

creasing implementation of agricultural conservation practices, managing land development, seeking greater reductions in air emissions and upgrading wastewater treatment facilities.

Surmounting these challenges requires action by States, local governments, watershed organizations and Federal agencies. EPA's principal goal is to facilitate and motivate these other key stakeholders to take the necessary steps, many of which will be expensive and difficult.

A key task for EPA will be to provide Congress and Bay citizens with a realistic picture of what it will take to clean up the Bay, challenges and obstacles, and a realistic time frame for when the water quality goals will be achieved. Providing sound information to decision makers and stakeholders about progress and costs will allow them to make decisions about whether to take the steps needed to restore the Bay.

We concluded that EPA can do more to assist its partners and to improve its communication with Congress and residents of the Bay watershed. While implementing the OIG's recommendations will be helpful, much more is needed.

The OIG considers the Chesapeake Bay Program to be a key management challenge for EPA. Management challenges are defined as a lack of capability derived from internally or externally imposed constraints that prevent an organization from reacting effectively to a changing environment.

In this case, we believe EPA lacks authorities, resources, and tools needed to address the challenges posed by agricultural runoff, new development, air pollution, and wastewater treatment upgrades.

Meeting the various challenges facing the Bay will require a fundamental reexamination of current approaches and strategies used by EPA and its partners at the Federal, State, and local levels. For example, the Federal Government needs to establish a coherent national policy that helps agricultural producers be protective of water quality while remaining profitable. Local communities will need to incorporate broader concerns when deciding how to develop.

Given its limited financial resources and regulatory authority, EPA's greatest role will be in facilitating and motivating States and local governments and watershed groups to address the challenges and consider the sacrifices that will be required.

EPA also needs to more clearly communicate to its partners and Congress the extent of the challenges and chart a realistic path for achieving and sustaining water quality goals.

Lastly, because the Chesapeake Bay Program is at the forefront of watershed restoration, finding successful solutions to cleaning up the Bay is important to estuaries across the Country experiencing similar challenges.

Thank you for inviting me to testify before you today. I would be pleased to answer any questions the Subcommittee may have.

Ms. JOHNSON. Thank you very much.

I would like to ask you this question. In view of the EPA's OIG, what are the top four challenges that EPA and the Chesapeake Bay Program face in restoring the Bay?

Mr. NAJJUM. The top four challenges are going to be the agricultural runoff, the new developments, the wastewater management—stormwater in particular would be one—and air deposition. Those are the four major challenges that we view that they are going to be facing in the future.

Ms. JOHNSON. Mr. Grumbles, would you respond as well to these points?

Mr. GRUMBLES. Well, we appreciate the work of the Inspector General. We agreed with their recommendations on challenges in areas.

We are committed to focusing on innovative approaches to development and agriculture, working with our partners, not just in the Federal Government but State and local government. Also, atmospheric deposition, not losing sight of the fact that it is not just what comes off the land, it is also what falls from the sky.

And so, we are very concerned about the recent judicial decision overturning the Clean Air Interstate Rule. So we think one of the big challenges is how do we, as a Federal Government, respond to that court case because we were estimating eight million pounds of nitrogen loadings a year that would be prevented and reduced from getting into the Chesapeake Bay through that rule.

It underscores that using Clean Air Act authorities as well as authorities to manage develop and use best management practices for agriculture are key challenges for us and others in this effort.

Ms. JOHNSON. Do you currently have the tools to address these four issues?

Mr. GRUMBLES. Well, let me answer it this way. Under the Clean Water Act, we have a significant array of regulatory tools.

We are about to embark on one of the most unprecedented efforts here, and that is to develop a Total Maximum Daily Load for this complex, large ecosystem. So we are going to be focusing on that, and we will be learning along the way how adequate the tools are using the Clean Water Act TMDL Program.

I know that we need to rely on tools and authorities outside of the Clean Water Act, Madam Chair, which is the point between the Department of Transportation and USDA and their authorities and our Air Office. We need to do more to remember that it is not just from the land. It is also nitrogen and nutrient loadings from atmospheric deposition.

We also think it is very important, a critical part of this whole discussion. The greatest risk is for policy makers to assume that any one entity is the one that is going to solve the problem or any one level of government.

The key here is to recognize that while we at the EPA have a critically important role in facilitating and also using our regulatory tools and our financial tools, so much of the implementation will need to occur at the local level and at the State level.

As the States are showing, they are moving forward. They are developing the numeric criteria for nitrogen and phosphorus. They are probing these innovative approaches for water quality training. They are showing some leadership too.

So we think it is important to use the tools we have and to work with Congress on innovative approaches.

The one thing I will say about some important additional legislative action we think is critical to this effort in the Chesapeake Bay and in other great waters across the Country is to recognize that it is not just the population growth or the amount of pavement that can impede on sustainable management. It is also the need for innovative financing.

That is why we would urge the Congress, not just in the context of reauthorization of the Clean Water State Revolving Funds, but beyond that, to amend the code, the tax code to remove the artificial limit on private activity bonds, to embrace these water enterprise bonds as a way to bring in millions and billions of dollars in new money for aging infrastructure, so we can reduce sewer overflows which also is a significant threat to the Chesapeake Bay.

Ms. JOHNSON. Thank you.

Could you please provide this Subcommittee with some assurance or substantive way to show your activity and the results of it in this fashion, in addressing the four issues?

Mr. GRUMBLES. Absolutely, Congresswoman.

In addition to just the EPA responding to show collective accountability for our response to the Inspector General's observations and recommendations, we also think a key part of this July 14th delivery to Congress of a Chesapeake Action Plan is that EPA and our partners are signing up to demonstrate greater accountability and to develop annual operating plans so that Congress and others can track the progress or the lack of progress if the case may be.

Ms. JOHNSON. Thank you very much.

Mr. Boozman.

Mr. BOOZMAN. Thank you, Madam Chair. I apologize for being late. I had a bill on the Floor that I had to be over speaking about.

Mr. Grumbles, can you tell us what you feel like are the greatest accomplishments of the program and, on the other side, where have our challenges been? What have the weaknesses been over the last 20 years?

Mr. GRUMBLES. One of the greatest accomplishments is that the Chesapeake Bay Program, EPA and its partners have developed world class science for ecosystem restoration and protection, the monitoring and the modeling and really understanding where the challenges are. That has been one of the greatest accomplishments.

But as we have learned, we are also not across the finish line on that front, and we need to adapt and to continue to improve our efforts on monitoring and modeling to measure for progress.

So, on the science fronts, that is one of the greatest accomplishments.

On the governance front, I think it is setting an example for the rest of the Country and for the world on collaborative approaches to large ecosystem efforts, large aquatic ecosystems. The Chesapeake Bay is the envy of many other large aquatic ecosystems around the Country in the sense of the people and the governance structures and the mechanisms that come into place.

In terms of ecosystem health, I think the recovery of the rockfish, the striped bass is an important one. There are a lot of measures where we have seen progress.

I think it is very important to conclude, however, to make the point that at times that progress is also at risk or it swings in a different direction, and we are not nearly as far as we need to be such as for submerged aquatic vegetation. We have made tremendous progress if you look at previous decades. But then again if you look at the current situation, we are not as close as we would like to be to meeting our goals.

So I think we have made a lot of progress, but we all recognize—EPA would be the first to say, I think—that we have a lot of work ahead of us, and it is not all just on our shoulders. It is with our partners throughout the Chesapeake Bay watershed.

Mr. BOOZMAN. Thank you very much.

Ms. Mittal, Mr. Grumbles says a lot has been done, but we are a little bit at risk of maybe falling back a little bit. I guess my question is what do you think it will take to get public officials, stakeholders and the general public truly committed to moving forward with the actions that we need to go ahead and clean up the Bay?

Ms. MITTAL. What we identified in 2005 was a lack of effective and credible reporting by the Bay Program. There was a tendency to present a rosier picture of the progress that had been made versus what had actually been made.

I believe there is a valid reason for that. People were afraid that if they presented a really negative impression of the Bay's health, then they wouldn't get the support that they needed.

But at the same time, you need to be able to present a credible picture. You can't have the Bay Program presenting a very positive image and then other groups coming out and presenting a very negative image.

So I think that the progress that the Bay Program has made in the last three years will be very helpful in that regard. The reporting formats that they have revised will provide a much more credible assessment of the health of the Bay versus the management actions. The measures that they have developed, the integrated approach that they have developed will provide better overall information.

So, again, it is restoring the credibility of the overall effort. That is what is really important.

Mr. BOOZMAN. Good. Thank you very much.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you very much.

Mr. Gilchrest.

Mr. GILCHREST. Thank you, Madam Chairman.

I want to compliment everyone in the room that may not be back next year. This is sort of a pre-eulogy to all of the work that you have done over the decades to help with the Chesapeake Bay.

What I would like to ask each one of the witnesses: In a sincere way, a lot of people have done a lot of work on the Chesapeake Bay for many, many decades now and especially after the Bay Program was put into effect.

They have worked hard to try to understand how to make water quality improve with this huge, massive bureaucracy where no one has to do what you tell them, where no one even has to follow your suggestions. I am talking about the State governments, local gov-

ernments, the EPA with the exception of a few things like TMDLs and the Clean Water Act where it deals with point source pollution. It has been a very difficult struggle to match the science with the governance.

I think perhaps, not to be overly optimistic, we have reached a point now where there is a sense of urgency, there is a sense of the depth of the science, and there is a sense of a collaborative government scheme that can implement the recommendations and especially at the local level.

Perhaps our biggest problem now is education, that you get into the minds, into the neurons of the town council, the mayor, the county commissioners, the planning commission—all of those people—what it will take on one level to clean up their part of the Bay, whether it is Cooperstown, New York or down to Norfolk, Virginia.

Then ideally, I guess if you got into every school room from K through 12 the essence of the ecology of the Chesapeake Bay watershed and its systems, then you would have more and more people who would have some understanding of what their impact on the Bay is other than just driving 60 miles an hour on Route 50 to get to Ocean City and you see the little sign there that says you are now exiting the Chesapeake Bay watershed. What does that mean?

So part of this education, but I wanted to get to some specifics.

In each of your testimonies, you talked about agriculture, wastewater, development and air emissions as key elements: 42 percent, 20 percent, 16 percent, 22 percent and so on. That is the problem.

Some innovative ways, as Ben has described, to begin implementing some of the science and the governance that we know need to happen, and Ms. Mittal made a comment about new authority for EPA.

Mr. Najjum, new authority for EPA, could you be a little bit more specific about where that authority would come from as far as new legislation or Federal statute and how would it deal with agriculture, how would it deal with wastewater treatment plants, how would it deal with development and then how would it deal with air emissions?

These are all significant contributors to the degradation of the Bay.

Mr. NAJJUM. Yes, sir. I believe what we said was EPA doesn't have the authority to deal with those.

The question of new authorities, we have discussed amongst ourselves quite a bit, is that the local governments have those authorities. The State governments have those authorities. The Federal Government, the U.S. Department of Agriculture in some cases has those authorities to deal with different elements of those problems.

We don't take a position on whose authority you would take away to give it to EPA in order to solve that problem. If you are going to deal with a local development problem in the watershed, the question is are you willing to take authority away from local governments and give it to EPA? Those are political decisions.

Mr. GILCHREST. Are you saying not only EPA needs new authorities, but each level of government needs new authorities?

Mr. NAJJUM. No. What we are saying is each level of government in its own right has some authorities. At the county level, for example, they do the local zoning, development, and what not. Smart development, I think you mentioned earlier, is an area that we do better at as the Bay Program Office reaches out and educates people on what they need to do.

But in terms of new authority for EPA, we don't see a way that you would give EPA authority over local zoning without taking that away from an existing body politic.

Mr. GILCHREST. So the concept of new authority that you mentioned was a question mark.

Mr. NAJJUM. Yes, and we believe that is a political decision up to the Congress, the States, and the local governments as to what authorities that you would give to EPA.

Mr. GILCHREST. Just one quick follow-up, Madam Chairman, for Ben on that question.

Ben, do you see under the present regime, the present program and your present recommendations, do you think EPA needs any additional authority as far a cleanup is concerned?

Mr. GRUMBLES. Do you want to take that, Jeff? No?

Congressman, first of all, thank you for the work you have done for the Chesapeake Bay over the years. I just want to make that statement on your leadership.

Mr. GILCHREST. Thanks, Ben.

Mr. GRUMBLES. In answer to your question, our current view, our current approach is we have ample regulatory authority under the Clean Water Act. From our position, as a general matter, government that is most closely located to those who are being governed works most effectively.

However, we do think it is important, when you are looking at multi-jurisdictional trans-boundary issues, there needs to be a convener of stature. There needs to be a mechanism. We think that is preferable to lawsuits, to have some type of facilitated effort.

That is why we have been investing in the partnership with States and local authorities on land use decisions under the Clean Water Act rather than seeking to use or to petition Congress to have Federal land use authority or regulating non-point source pollution. That would be a fundamental significant change.

We don't think you need to go that far, but we do feel it is important to have clear authority and to convene meetings, to have partnerships where we assign responsibility.

We are, Congressman, encouraged about the Chesapeake Action Plan. We really do think it will embrace collective accountability. As we develop the TMDL approach, we think that is also going to bring more folks to the table.

Mr. GILCHREST. Would that be a convener of statutes, the process you have done with TMDL?

Mr. GRUMBLES. It doesn't always have to be EPA. As I have seen over the years, it can be a local leader or it can be a governor or someone else. But certainly when it involves multiple jurisdictions, there needs to be someone who can be a facilitator and not represent just one perspective.

And, we do think it is important for Congress to continually look at the existing authorities under the Clean Water Act and also

under other programs to make sure that we all move towards a more integrated multimedia approach.

As I emphasized in the testimony, we are concerned about the loss of an important regulatory tool, the Clean Air Interstate Rule.

We also know that it is important to continuously look at the stormwater program. We have charged the National Academy of Sciences with a comprehensive assessment, asked them to do that of our stormwater program for municipal and industrial stormwater because we see that as one of the important challenges.

We also recognize that through the Farm Bill and our through of memorandum of agreement that we have entered into with USDA, that we and other agencies have a lot of important work ahead of us because one of the greatest challenges is in the agricultural community. Most of the work is going to happen at the local level or the state level with the private sector, the land owners, but the Federal agencies are in a position to provide incentives or to remove barriers.

So I think that we are not, at this point, seeking changes to the Clean Water Act specifically for the Chesapeake Bay in the context of new authorities, but we do think it is important to update the financing through water enterprise bonds and through market-based approaches.

Wetlands protection, we think is important to use mitigation banks and other approaches to make sure that we are making progress towards no net loss and ultimately towards gaining wetlands rather than losing them.

Mr. GILCHREST. Thank you, Ben.

Thank you, Madam Chairman from Montgomery County.

Ms. EDWARDS. [Presiding.] Thank you. From Prince Georges County.

Mr. GILCHREST. Prince Georges County.

Ms. EDWARDS. I do want to echo my thanks too for the leadership of Mr. Gilchrest in Maryland, and I only hope that even on this side of the aisle I will continue that leadership and advocacy for the Bay. So I appreciate that.

I have been on the Bay and throughout the watershed for the last 30 years as fisher person and recreational user, and I have seen the degradation of the Bay firsthand.

My concern is whether we know all we need to know about the levels of pollution and their impact on the Bay and throughout the watershed, and so I was a little troubled, Mr. Najjum, on Monday to read an AP news story about the EPA's imposition of what amounts to a gag order directing pollution enforcement officials not to talk with congressional investigators, reporters or even the Office of the Inspector General regarding enforcement activities.

In fact, and I will read you directly, the memo states: "If you are contacted directly by the IG's Office or GAO requesting information of any kind, please do not respond to questions or make any statements."

It raises a question about whether there is the ability of enforcement officials to really be forthcoming about the environmental problems that we face.

And so, Mr. Najjum, I am concerned about whether this is a change in your internal process with respect to direct contact be-

tween the EPA's Office of the Inspector General and how this change in process will affect your ability to provide truly independent investigations of the agency's performance in protecting our environment.

Mr. NAJJUM. Well, first of all, the IG's position is that we always have complete and total access to Agency—

Ms. EDWARDS. Can you speak up? I am sorry.

Mr. NAJJUM. I am sorry. The IG's position is that we always have complete and total access to the agency's documents, people, and records. Anything that they have, under the IG Act, we have access to it. Where we have a problem with a denial of access, we immediately take action to deal with that.

Now we have initiated two things. We are talking with OECA about their misunderstanding of the responsibilities of all government employees and officials have to talk to the IG when asked a question, and the language in their particular SOP. We have also initiated a project to look across EPA to make sure that this is an outlier of a problem, of a procedure. That it is not some generally accepted practice.

Ms. EDWARDS. But does this raise a larger concern that the Administration might want to keep a tighter control over potentially damaging information especially about levels of pollution, and let's just use the Bay as an example, as we come to the finish line here about whether our Nation's environmental problems actually might be far more significant than we know?

Mr. NAJJUM. Usually my experience has been that it is a product of the bureaucracy and the desire to control information rather than a planned "we want to keep this information secret" because at all times in my career a denial really doesn't take place until we get up to the senior level, the senior official of the agency—in this case the Administrator—who would have to be the person who would deny us access to any information because that is how we would pursue it and push it.

In all cases I have ever been involved in when that is a sort of mid-level bureaucratic problem, that when we take it to a policy maker, a senior decision maker, the information is forthcoming because the next step after that is we would be coming to tell Congress about it.

Ms. EDWARDS. Ms. Mittal, I wonder if you could comment because I am worried that maybe if your access to enforcement personnel is also restricted, that this policy as it is indicated in this memo, might affect GAO's ability to conduct independent investigations at the request of Congress.

Ms. MITTAL. Like the IG's Office, the GAO has extensive audit authority that has been provided to us by the Congress. In a situation where we were not getting access to either the people or the documents that we needed, we would look at the situation on a case by case basis. We have a standard process that we follow and we would continue to elevate the situation until we got the information that we needed.

Ms. EDWARDS. Thank you.

Mr. GRUMBLES. Congresswoman, could I just add something on that?

Ms. EDWARDS. Sure.

Mr. GRUMBLES. I think it is important to say that in my experiences at the agency over the last six years, and I am not in the Office of Enforcement and Compliance Assurance, but I spend an enormous amount of time working with that office because they are an extremely important part of our efforts in the National Water Program and throughout the agency. I have seen continuously a concerted effort to provide as much access as possible and to be as responsive as possible to the IG responsibilities and inquiries and investigations as well as GAO.

To bring it home here in the Chesapeake Bay, I would say that we have, certainly over the last several years at EPA, been very committed to and have delivered on that commitment by providing time and resources and access, and we have benefitted from that criticism and engagement with the IG and with the GAO.

When it comes to enforcement, my position on it is it is extremely, as we talk about cooperative conservation and voluntary efforts, that we also use our regulatory enforcement tools when we need and when it is necessary. We have done that, and that has been with sewer overflow violations in the State of Maryland. It has been in other municipalities throughout the Chesapeake Bay.

So, enforcement and the oversight from IG and GAO are all important to the agency as I believe we are fully committed to working with them as full partners in the effort.

Ms. EDWARDS. Let me just be clear. Is this then a change in internal policy or has this always been the policy?

Mr. NAJJUM. As far as OECA's policy, the SOP that was published in the paper, I think that is probably something new, which is why it was raised up as an issue.

So the IG's policy is, has been and—unless Congress changes the IG Act—always will be that we have complete access to the agency's personnel and records.

It is usually a bad thing to tell somebody not to speak to the IG and give out information. It is usually not well thought through if anybody has done that.

Ms. EDWARDS. Thank you. So it is a new policy.

Mr. Duncan.

Mr. DUNCAN. Well, thank you very much, Madam Chairwoman.

I am not going to have a lot of questions because I didn't get to hear much of the testimony due to other meetings, but I would like to make a few comments and maybe ask a question.

I read in the National Journal a few weeks ago that two-thirds of the counties in the U.S. are losing population, yet Fortune Magazine in 2000 said the Knoxville Metropolitan Area, which I represent, was the most popular place to move to in the whole Country based on the number moving in relation to the fewest moving out.

So I represent an area of very fast growth. In fact, most of the people that have moved in, in the last 15 or 20 years, I think wish I could put up walls and keep anybody else out.

Unfortunately, we have taught young people that the words, growth and development, are bad. In fact, it is almost always written in a headline in the media that growth and development are written in a negative way. But you have to have some growth to have a good economy and to have jobs for young people when they get out of college.

Even people who want to work for the government, such as teachers and so forth, a lot of people want to do that. They better hope that we have a good business climate and some growth and some development or there won't be the taxes to pay for all these government employees and government jobs.

What I am getting at, most water regulators seem to have never been in business and don't really have much sympathy for or understanding of people who have been.

Most of you know that or have read the statistic that 80 percent of small businesses fail within the first 5 years. It is a heartbreaking thing.

Then I read in our briefing here that the big problem of the Chesapeake Bay is the growth. I am sure, though, that there are some counties in this big region that are losing population as some counties are.

I hope that we don't get the idea that we just need to stop all growth or we are not going to be able to support all these government activities and the schools and so forth that everybody wants.

Then I know in my area, like when I grew up in Knoxville, even in Knox County, the whole surrounding all of Knoxville were farms. Now the farms are all gone, and most people think that is a sad thing.

But I guess the point I am making, we have this old historic theater in downtown Knoxville, the Tennessee Theatre, and I have gotten in a lot of money to help save that. You want to save the crown jewels, but you don't want to save every rundown dilapidated building out there. You want to have some development. A lot of development is good.

I put together a conference a year ago on growth so that we could try to figure out how to handle growth but not be overwhelmed by it.

Mr. Najjum, I notice that you said that the number one problem was runoff from animal feeding operations or from agriculture. Yet, if you are having all this growth, I am wondering if it is not like in Knoxville where the farms.

I would imagine with all your growth. I mean people have gone berserk over land that is on the water. They pay extremely high prices for it. Is that not doing what happened in East Tennessee? Is that not doing away with many of the farms or a lot of the farms?

It looks like to me like you would have less agricultural runoff than you had a few years ago.

Mr. NAJJUM. Well, I would say logically that is probably true as you develop farmland into housing. Most of our work is based on models that we looked at.

So, in terms of does one balance out the other, I think they are perhaps two sides of the same coin. There are different runoffs that go into the Bay.

Farmers don't want to lose their soil in the Bay either. That is another issue that when you look at agriculture and you say it is runoff, agriculture doesn't particularly care to have their soil run into the Bay. It is just a byproduct.

In answer to your question, I think it would better be directed at the Chesapeake Bay Program Office to see what they feel the ratio there would be.

Mr. DUNCAN. Do we need more water resource work in the counties where there is fast growth which I assume would be the counties that have the waterfront property or property near the water?

I would assume that based on that statistic that two-thirds of the counties in the U.S. are losing population that you still have some small towns and rural areas that are having trouble holding on even in the Chesapeake Bay Region. Are all the counties in this area growing by leaps and bounds or what is the situation?

Mr. Grumbles?

Mr. GRUMBLES. Congressman, I know there are many witnesses behind me who are just jumping, chomping at the bit to be able to respond to that question.

Mr. DUNCAN. Sure.

Mr. GRUMBLES. From an EPA perspective, it is important to keep in mind that agricultural lands and forests provide an important buffer and can be a very sustainable and are a critically important part of the overall health of the Chesapeake Bay watershed.

One of the greatest challenges right now and important challenges for us ahead is it is not to say no to growth. It is to make smart decisions and use technologies and tools for sustainable growth.

We are not going to be. From an EPA standpoint, it is not our role to decide those local decisions. The Local Government Advisory Committee to the Chesapeake Bay Program is key to it.

But what we think is really important is using the new technologies such as porous pavement, pavement that drinks, working with DOT on green highways and infrastructure systems that allow communities to grow in a more sustainable way, that don't have such impacts on or take away from the resiliency of the Bay.

What the Bay partners have to all recognize and which do recognize, including EPA, is that a sustainable way forward isn't just to say no to local growth. It is also an opportunity. For us, whether it is in the Chesapeake Bay or in urbanized areas in Tennessee, one of the great challenges is the pavement.

One of the biggest statistics that we find, which is telling, is that between 1990 and 2000 the population in this watershed grew by 8 percent, but the amount of impervious surfaces grew by 41 percent. That, to us, symbolizes something that is probably not sustainable. There ought to be other approaches that local communities use.

Mr. DUNCAN. Let me just close by saying this. I think the key words in all of this are balance and common sense

Sometimes when people say smart growth and sustainable growth—I am not saying you, but I am saying some people when they say that—they basically want to stop all growth.

Well, what that does, that causes even small homes to go to a million, two million dollars like we see even in this area where families can't afford homes, and so more and more people are jammed into apartments and townhouses. That is not good, and we destroy a big part of the American Dream.

Thank you, Madam Chairwoman.

Ms. EDWARDS. Thank you.

Mr. Gilchrest, do you have additional questions?

Mr. GILCHREST. Just a few, Madam Chairman, thank you very much. Just a quick response to my colleague from Tennessee.

I will say in the Chesapeake Watershed, from the testimony that we have heard today and from the panel that we will hear from, we will probably conclude, based on my analysis of your testimony, 58 percent of the problem with an overload of nutrients degrading the Chesapeake Bay comes from non-agricultural sources.

That is development, wastewater treatment plants and air pollution. That is 20 percent from wastewater treatment plants, 16 percent from development and 22 percent from air emissions.

So, in my particular area, we still have our land is still carpeted with farms. But because it is dotted with fishing villages, those fishermen who catch in their small business—and it is vital—in those tidal estuaries, that is where the fish they catch are spawned.

So, with growth that is not smart in the wetland areas, you take away areas that the fish will spawn in. That is a problem. It was a problem for rockfish, and it still is a problem for the commercial fishermen in the Atlantic and Pacific Oceans because of the tidal areas and the estuary areas.

If the growth is not compatible with nature's design to spawn and sustain the fishery population, those small businesses go out of business.

I would also say the DelMarVa Peninsula, in the same way Florida was targeted by national developers in the 1950s, the DelMarVa Peninsula right now and much of the Chesapeake Bay watershed are increasing in developing, not decreasing.

So what we are trying to do with this program and EPA, the States and especially local governments is try to get everybody in sync with how we can improve water quality in the Chesapeake Bay at the same sustain a dynamic economy.

In my area, our economy has been based on agriculture and fishing and tourism for 400 years. If there is anybody from Staten Island, no offense intended, but if we turn into Staten Island, then our economy is not sustainable from the land or natural resources. It is just a matter of how we can figure this out and the best method.

The question I have, though, for my good friend from Tennessee, I am probing when I ask this question.

The Farm Bill that you mentioned, Ben, has increasingly improved in its targeting for creating sustainable agriculture, and it can be ecologically compatible with the region. They do that with targeting specific farm fields with specific dollars with specific results, and these are fairly well defined in a whole range of ways.

Now is that same approach in a big picture situation possible for urban areas, suburban areas and rural towns, rural areas?

You take the farm field. We have agro-ecology in Maryland. Don Boesch certainly, from the University of Maryland, has done a great deal of work with ag runoff and how to target those things.

Can you take the concept of what we do with agriculture and place that in a more populated area? Here is this area. Here is the

stormwater runoff. Here is the sewage treatment plants. Here is what we think we can do.

Anybody want to take that?

Mr. GRUMBLES. I would just start by saying we are very proud of our partnership with USDA in moving further along in the targeting of resources towards the areas that need it. When it comes to stewardship, environmental stewardship based on priority needs, that targeting principle is an important one.

I think we need to continue to do more work. We are working with USDA on that. They are very willing and open partners on that.

When it comes to urban or suburban areas, for us, we have been embracing that principle for years now under the Clean Water Act in two ways.

One is when it comes to non-point source pollution. We have the Section 319 plans, the nutrient management plans where we provide the grants to the States, and the States are to develop nutrient management programs to target needs in priority areas.

When it comes to water infrastructure needs, what we do is we have used the State Revolving Funds and the mechanism in the Clean Water Act that says each State is to develop an intended use plan to prioritize the use of those limited resources and leverage them to get more bang out of that buck. We think that an important part of that, certainly an important criterion in that intended use plan and that targeting is environmental need and the need within a shed.

But it certainly has been an EPA view both in this Administration and prior that the State funds. It is really the State that develops that intended use plan and based on the priorities unless—unless there is a Clean Water Act violation that is occurring. Then that leaps. That is placed higher on the list of targeting for funding.

Mr. GILCHREST. A lot of work to be done.

I will say my closing comment. There are areas on the Eastern Shore where, for example, farming practices have changed, where there have been buffers put in, where there have been forested buffers put in.

In a very short period of time, water clarity comes back. The SAVs come back. The wild rice comes back. The American lotus blossoms come back. It is pretty extraordinary.

Mr. GRUMBLES. Under Jeff Lape's leadership in terms of the EPA's lead person on the Chesapeake Action Plan, we really do think there is great hope there because a specific purpose of the action plan with the operating plans and adaptive management is to help target resources and actions of the various players in the Chesapeake Bay towards those greater needs based on the overall Chesapeake Bay goals.

So the point about targeting, that is the name of the game, and we know we have to do more at it and be better at it. We think the action plan is going to help throughout the coming years.

Mr. GILCHREST. Thank you, Ben.

Thank you, Madam Chairman.

Ms. EDWARDS. Thank you very much and thank you to our second panel.

I would like to take this time to welcome our third and final panel. Our first witness is Dr. Donald Boesch from the University of Maryland Center for Environmental Science in Cambridge, Maryland.

Next is Mr. Charles Fox from the Pew Environment Group. Mr. Fox is a former EPA Assistant Administrator for Water.

Mr. Roy Hoagland joins us. He is the Vice President of Environmental Protection and Restoration at the Chesapeake Bay Foundation in Annapolis, Maryland.

Mr. William Matuszeski will then testify, and he was Director of the Chesapeake Bay Program from 1991 to 2001.

And, lastly, Mr. Tayloe Murphy will follow. He is a former member of the Virginia House of Delegates and has served also as a Secretary of Natural Resources in the Commonwealth of Virginia.

Our final witness—my apologies—on the panel is Ms. Ann Swanson. Ms. Swanson is the Executive Director of the Chesapeake Bay Commission in Annapolis, Maryland.

To our witnesses, your full statements will be placed in the record, and we ask that you try to limit your testimony to about five minutes as a courtesy to the other witnesses. Again, we will proceed in the order in which the witnesses are listed in the call of the hearing.

Dr. Boesch.

TESTIMONY OF DONALD F. BOESCH, PH.D., UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE; J. CHARLES FOX, SENIOR OFFICER, PEW ENVIRONMENT GROUP; ROY HOAGLAND, VICE PRESIDENT OF ENVIRONMENTAL PROTECTION AND RESTORATION, CHESAPEAKE BAY FOUNDATION; WILLIAM MATUSZESKI, FORMER DIRECTOR, 1991-2001, CHESAPEAKE BAY PROGRAM OFFICE, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; W. TAYLOE MURPHY, JR., ATTORNEY AT LAW, WARSAW, VIRGINIA; AND ANN PESIRI SWANSON, EXECUTIVE DIRECTOR, CHESAPEAKE BAY COMMISSION

Mr. BOESCH. Thank you very much, Madam Chair.

I am Donald Boesch. I am President of the University of Maryland Center for Environmental Science.

I want to join everyone in acknowledging the great leadership of Mr. Gilchrest. He is my Congressman, and so I see a silver lining. We get him back on the Shore.

I also can't let go unnoticed, Madam Chair, your arrival here as one of our representatives from Maryland, and it seems like you are on a fast track because you in the Chairmanship and are Chair-ready.

I spent nearly 30 years of my career either studying, myself, or managing people in programs that study the Chesapeake Bay. But I have also extensive experience in working in scientific guidance of restoration of other great ecosystems such as the Everglades, the Mississippi Delta and the Baltic Sea.

I am going to go right to the issues identified, the three challenges identified in the Office of Inspector General's report and offer some comments, and suggestions hopefully appropriate at the Federal level of what Congress could do.

You know one of the things I observed in reading that report is it talked about these as new and emerging issues. That is the urban stormwater issue, the air issue and the agricultural issues. These are not. These are recalcitrant, vexing issues which have been around for a long time.

With respect to uncontrolled land development, as you know, recent studies and science have increasingly showed that landscapes are very sensitive to paving them over through increasing runoff. Increases in volume and intensity erode streams and diminish the capacity of our natural systems to absorb waste, including nutrients and sediments.

Additional research is actually showing that even very low density development close to the tidal waters has some undesirable effects on the shallow water ecology of the estuary.

Local government, as has been pointed out, has the main responsibility for managing land use in our Country and in our States. The efforts that we are doing in Maryland, the State government, for example, to require consistency of comprehensive plans of local governments with the tributary strategies and the targets that have been agreed to among the States is one way that can help bring local government management in compliance with our commitments to restore the Bay.

But I think Congress also has an important role moving forward.

It was mentioned before regarding questions about authority. That EPA actually has a lot of authority it can exercise with respect to stormwater, various agricultural practices, animal waste as well as the atmosphere that could be implemented, I think, more aggressively.

In addition to that, as we look forward, it is my view on this issue of growth that we are going to be confronted—we are already confronted—with major challenges ahead dealing with climate change and the need to reduce greenhouse gas emissions and to conserve costly energy. This gives us opportunities to think about how we authorize and fund transportation networks that can make us grow more smartly in the future.

This is a big issue. So, in moving forward and dealing with climate change and energy conservation, I hope you keep in mind the environmental restoration of our Nation's waters, livable communities, those sorts of things as we solve these other large problems as well.

With respect to limited implementation of agricultural conservation programs, I make the point that source reduction has made far less progress than we have in waste treatment because in municipal waste treatment we finally got to the point where we recognize that those responsible ought to pay for it. The polluter pays. So we now have major upgrades in Maryland and in Virginia and coming along in Pennsylvania.

Agriculture has lagged. Over the last 20 years, the implementation of agricultural practices to reduce nutrient runoff has taken more or less of a "don't ask, don't tell" approach. That is, we have farmers sign up to do practices, but there is very little direct accountability for outcomes. I think we can no longer afford to do that.

You in Congress have authorized major targeted programs in the Farm Bill dealing with the Chesapeake Bay watershed. Some $188 million is authorized. The States are also providing funds. For example, in Maryland this last year, the General Assembly enacted a trust fund dedicating up to $50 million a year for non-point source control. We have to employ these funds with rigorous accountability moving forward.

Also, with respect to air quality, Congress and the national Government have a lot of authority with respect to controlling our air quality, and that has benefits for our great waters.

The previous witnesses have talked about this idea of adaptive management. I think it is the way to go. It means that we have to really be very smart about how we apply the science that we have developed, to do the appropriate monitoring, to tie it tightly with models and to always perpetually ask questions about the effectiveness of the outcomes and always improve the practices. Hopefully, using the new strategy the Bay Program has identified, we can do this.

In our own State, Madam Chair, as you are aware, Governor Martin O'Malley implemented when he took office last year, the BayStat Program, which is such a metric-based accountability program that is still a work in progress but is beginning to have real results.

So, thank you very much for this opportunity.

Ms. EDWARDS. Thank you.

Mr. Fox.

Mr. FOX. Thank you, Madam Chair. It is a real pleasure to see you in the Chairmanship.

Mr. Gilchrest, I think I will have to divulge here as part of our going-aways to you that I have now, for all Members of the Committee, been to Mr. Gilchrest's house twice for what I think is best described as continuing education procedures. I hope I will still get invited back. Congressman, you have been a great leader.

Today's witnesses have described the key challenges confronting the Chesapeake cleanup program. We would like to focus our brief oral remarks on ideas about ways forward. We are pleased that the Subcommittee and so many Members remain focused on improving the Bay's health.

The Bay Program excels in ecological monitoring, modeling and goal-setting. It is arguably the most sophisticated well-funded ecosystem restoration program in the world. However, Bay area governments have not yet succeeded in restoring water quality or in managing sprawling development patterns that characterize our region.

We will focus on the water quality challenge because we believe it is the most fundamental problem impacting the Bay's health.

The Bay Program is often described as a voluntary program. In some respects, that is true. However, the Bay Program operates within a suite of mandatory Federal and State laws, the most significant of which is the Federal Clean Water Act, obviously, a statute the subject of this Subcommittee's jurisdiction.

The Act and its implementing regulations impart many obligations on governments and private entities to control pollution to the Chesapeake and its tributaries. Fundamentally, the Act re-

quires EPA and the States to issue permits to all major sources of pollution.

The Act further requires that these permits be sufficiently stringent to meet water quality standards. Unfortunately, as a practical matter, this is not happening.

It is easy to get lost and overwhelmed when discussing the suite of challenges confronting the Chesapeake Bay. I find it helpful to frame these conversations in the context of the objectives of the Clean Water Act. Why is it that we are not meeting the Act's goals?

Consider the Clean Air Act. Over the past 26 years, the aggregate emissions of the six principal air pollutants has declined by almost 50 percent. This achievement, while likely still not sufficient, has occurred despite more than a doubling of our Nation's GDP, a doubling of vehicle miles traveled and substantial increases in population and energy consumption.

These statistics contrast sharply with the water pollution trends in the Chesapeake Bay over the same period. Why is that?

Our Nation's air pollution control programs establish emission standards for virtually all sources, both large and small, including even household appliances and products in some regions. Cumulative air pollution loads are monitored with significant precision and, perhaps most importantly, the various control regimes are modified in clear and consistent ways based upon ambient monitoring data. If, for example, a region fails to meet standards, more stringent accountability mechanisms are applied.

Water pollution control programs in the Chesapeake possess some but not all of these attributes. In the Chesapeake, we have developed sophisticated monitoring and goal-setting programs.

However, we have not yet developed accountability systems that ensure controls on all major sources of pollution. This is particularly problematic for runoff pollution from municipal and agricultural sectors.

Over the past decade, the Bay Program has defined in great detail the precise pollution control actions that are necessary to meet the Bay's water quality goals. The Bay Program has also developed relatively precise estimates of the costs of meeting these goals. In many ways, the Bay Program is in an enviable position compared to other large-scale restoration efforts around the world.

We would suggest the Subcommittee and Bay area governments consider three possible ways forward:

First, enforce current law. As a practical matter, EPA and the States could begin issuing permits to virtually all sources consistent with the precise practices defined by the Bay Program. This could be done in a number of creative ways to minimize burdens, reduce costs and assure timely implementation of the measures.

Second, consider reauthorizing the Bay Program with explicit new accountability mechanisms to improve runoff pollution control from municipal and agricultural sectors. Again, there are many creative ways of accomplishing this including the use of watershed general permits, pollution trading schemes and other incentive-based systems. Ultimately, a reauthorization will have to provide a high degree of certainty of success within a relatively short period of time.

And, third, consider establishing the regional financing authority to support a number of water quality priorities particularly those related to runoff pollution from agricultural areas. Ideally, such an authority would support both capital and operating expenses, and it would be structured in a way as to enhance accountability.

Thank you, Madam Chair.

Ms. EDWARDS. Thank you.

Mr. Hoagland.

Mr. HOAGLAND. Madam Chair, Mr. Boozman, Mr. Gilchrest, Mr. Platts, thank you for providing us the opportunity to present to you today.

By the close of this hearing, you will have heard a lot of different perspectives on Bay restoration—everyone from government, State and Federal levels, to present and past Assistant Administrators for Water, an academician. I am here to present for you the NGO perspective from an organization that has worked for 40 plus years on Chesapeake Bay restoration.

If I had one single word for you to take away with you today, that word would be change. It is time to change the way the Federal Government goes about restoring the Chesapeake Bay.

In 1983, with the signing of the first agreement, the Federal Government assumed a role of cooperative partner with the Bay States. It reaffirmed that agreement in 1987 with a new agreement. They adopted a 1992 directive stating again their commitment.

In 2000, the Federal Government once again assumed the role of cooperative partner with the signing of the Chesapeake 2000 Agreement, an agreement that had a very specific nitrogen pollution reduction goal.

In 2000, the nitrogen pollution entering the Chesapeake Bay was at 250 million pounds. In 2007, it was at 318 million pounds. We had obviously not achieved any of that reduction.

Albert Einstein says the definition of insanity is doing the same thing over and over again, expecting a different result.

We are insane if we keep allowing the Bay restoration efforts to be driven by what are considered to be purely voluntary agreements, and the cooperative role of the Federal Government needs to change from one which has assumed it was going to simply be positively and cooperatively working with other governments.

The change that we are advocating is a change to the Clean Water Act for the Chesapeake Bay. We are advocating that you direct the Federal Government through EPA to take a significantly more aggressive role in requiring pollution reductions, pollution reductions that are necessary, by specifically requiring the cleanup tool which the EPA is now developing, the bay-wide TMDL, which contains accountability and enforceability measures.

TMDL or Total Maximum Daily Load is a tool established under the Clean Water Act. It is the line of last defense. We adopt a TMDL when we have failed under our regulatory and non-regulatory programs to keep our waters clean.

The bay-wide TMDL will, by regulation, specify the amount of pollution that the Chesapeake Bay can receive. That is a good thing. It will change the voluntary agreement into a regulatory one, but it is not enough change.

TMDLs across the United States have failed to accomplish pollution reductions and water quality improvements because EPA has failed to follow the clear intent of the Clean Water Act as well as its own guidance. It has allowed the development of TMDLs which lack accountability and enforceability, and we ask that you consider changing that for the Chesapeake Bay.

Currently, the Act requires that the TMDL provide reasonable assurance that it will achieve the pollution levels it identifies. This concept is contained in the Act itself and in EPA's own guidelines.

In the past, EPA has chosen to ignore this requirement. It has inserted boilerplate language in the TMDLs and then proceeded to ignore the clear intent and purpose of that language. By doing so, it has ignored the language and its guidance that it has gone through in 1991, 1997 and 2002.

Reasonable assurance is a critical element of an effective TMDL. Without having that in the bay-wide TMDL, the TMDL will in fact be a mere paper exercise.

We propose that you statutorily define reasonable assurance for the Chesapeake Bay region, directing EPA how it will develop, approve and administer the bay-wide TMDL. There is no doubt that this last line of defense will in fact determine whether we are or are not successful with the Chesapeake Bay restoration and the millions and millions of Federal dollars that have been invested in it.

We urge you to take a look at this statute. Look at the Clean Water Act and, instead, make the TMDL a model, the bay-wide TMDL a model for national restoration. In fact, as the Chairman said at the beginning of this meeting, develop a plan that will actually accomplish the cleanup of the Chesapeake Bay.

Thank you.

Ms. EDWARDS. Thank you.

Mr. Matuszeski.

Mr. MATUSZESKI. Thank you, Madam Chairwoman.

My name is Bill Matuszeski. I was Director of the EPA Chesapeake Bay Program from 1991 to 2001.

Thank you for the opportunity to provide you with my perspective.

The sources of the problems of the Chesapeake have been identified. The solutions are well known and widely accepted to reduce nutrient and sediment loadings to the Bay and to manage its fisheries for sustainability.

Loads have been estimated, reductions allocated. Tributary strategies have been completed. There is, frankly, little more we need to know about the Bay to know what action to take.

The problem is that those required actions involve two words that public officials are loathe to use: taxes and regulation. The simple fact is that what needs to be done requires either public funds or the willingness to make others pay through regulation.

In some areas, we see to have this point across. With respect to sewage treatment plants already under the regulatory control of the States and EPA, we have made great progress. Already user fees were in place.

To their credit, Maryland and Virginia decided early on to deal with the equity issue of variable costs of upgrades by coming up

with State funds as an equalizer. After a false start with regulation, Pennsylvania now seems to be moving in the same shared State-local cost approach. All this has produced good results and promise for more results in coming years.

In fisheries management, there are also encouraging signs. We have told the tale of the recovery of the striped bass. In recent actions by Maryland and Virginia to reduce crab harvests, we see that the States are beginning to take tough decisions.

One tough decision is probably long overdue, related to the harvest of menhaden which is a major food fish for the striped bass and probably leading to high crab mortality with its removal. Interestingly, this decision is in the hands of the Federally established Atlantic States Marine Fishery Commission which has been slower to act than the States.

In other areas, the sources of nutrients and sediments are air pollution, stormwater and agriculture. Here, we start to encounter the real reluctance to make the taxes or regulation decision.

Air pollution comes from power plants, motor vehicles and farms. The regulatory structure is in place to deal with this, but it has been ineffective in recent years. Controls on power plants and autos have been held up in endless legal and administrative disputes, and nobody even wants to look at the farm sources.

In addition to that, internally, EPA is pretty badly crippled by the inability of their air bureaucrats to talk to the water bureaucrats and to think very far outside their narrow air focus. The solution here is leadership and making better use of the authorities already in place.

In stormwater, we have authority within EPA and the States to issue regional permits to urban counties and cities. Although most of these permits have been issued, they are very vague, hortatory or soft. There are opportunities here to tie stormwater permits to the required pollution reductions, but there is real reluctance.

Madam Chair, right here in our own region in the Anacostia, citizens of Prince Georges County, Montgomery County and the District of Columbia have spent five long years trying to get Maryland and EPA to agree to require Montgomery and Prince Georges Counties to reduce flows and peak flows to the Anacostia and its tributaries as part of the stormwater permits. The jury is still out after five years.

These are all problems that are solvable if EPA was willing to aggressively apply its existing stormwater provisions and States and localities were willing to respond with programs to charge users and set up stormwater utility districts. But these are not politically popular actions, and there has not been an informed enough public to force them to happen.

Finally, agriculture remains the single largest source, and States have been funding programs for a number of years. Recent Federal Farm Bill provisions provide additional help, but the funding gap is still immense for agriculture.

Federal regulation of farmers is not going to happen, but there may be things that the States need to start to consider. For example, what if there is not enough money to carry out a clearly cost-effective agriculture practice? Should we rely on purely voluntary action by farmers?

Perhaps now that Congress has acted and provided the Federal funds, at this point, further progress is going to require the States to make the decision between taxes and regulation for agricultural management.

In conclusion, it seems to me the issue for this Subcommittee and the Congress is not the need for new Federal authority in the Chesapeake. It is assuring that Federal agencies are fully and properly using the authorities already in place.

Much as EPA has used its point source permit programs with the States to make real progress in sewage treatment plant upgrades, we need to see the Federal Executive Branch use its authority to manage interstate fisheries, to break logjams and recognize the water pollution effects of nitrogen under the Clean Air Act and to assure that EPA is effectively using its stormwater authorities.

Similarly, the State partners need to continue funding the treatment plant upgrades and making tough decisions on fisheries management, developing innovative stormwater solutions and taking on the task of making choices about taxes and regulation to get results from agriculture.

Madam Chairwoman, the issues facing the Chesapeake require, and I appreciate the leadership you have shown in calling and holding this hearing. Thank you.

Ms. EDWARDS. Thank you.

Mr. Murphy.

Mr. MURPHY. Thank you, Chairwoman Edwards and Members of the Subcommittee for the invitation to appear before you with my fellow panelists, all of whom I have known and admired for many years.

My name is Tayloe Murphy. I am an attorney and lifelong resident of the Northern Neck of Virginia. From 1982 to 2000, I was a member of the State House of Delegates and, from 2002 to 2006, I was Virginia's Secretary of Natural Resources during the Administration of Governor Mark Warner.

During each of my 22 years of public service, I was a member of the Chesapeake Bay Commission whose very capable executive director is also here today.

When I was asked to be a witness at this afternoon's hearing, I was told that today's testimony might have some influence on the next reauthorization of the Chesapeake Bay Program. I hope that what we say will be helpful as we express our personal views of the past successes of the program and the problems that will need to be addressed in the future.

The most basic benefit arising from Federal participation in the Chesapeake Bay Program is the scientific and modeling capacity that the Federal-State partnership is able to muster. Without good science, it would be impossible to identify the most important problems and design programs to solve them. The States have never had the research and scientific capacity that the Chesapeake Bay Program has and, by themselves, they never will.

Within the Bay Program structure, the Environmental Protection Agency brings to the table its scientific and technical expertise as well as that of other Federal agencies. In addition to the EPA's science and modeling, the program benefits from NOAA, Chesapeake Bay Science as well as that of the U.S. Geological Survey,

the Fish and Wildlife Service, the National Park Service, the agriculture departments, Beltsville Ag Research Program, the U.S. Forest Service and the Natural Resources Conservation Council.

Only an organized collaboration like the Chesapeake Bay Program can bring all of this Federal science together and focus it on the Bay's needs.

It was this Bay Program science that established the criteria for the development of new water quality standards for the Bay and its tidal tributaries. These standards for dissolved oxygen, chlorophyll A and water quality, in turn, formed the basis for determining the nutrient and sediment reductions necessary to meet the new standards and restore the Bay.

As a result, in 2003, all six Bay States, the District of Columbia and EPA agreed to cap annual nitrogen loadings at 165 million pounds and annual phosphorus loadings at 12.8 million pounds. The Bay Program used its monitoring information to do basin-wide modeling of nutrient loadings, enabling development of scientific and specific nutrient allocations for all jurisdictions within the watershed.

Since these allocations were agreed upon, each jurisdiction has undertaken the process of refining its tributary strategies to determine the extent of the non-point practices and the levels of wastewater treatment that are necessary to achieve its reduction goals and then maintain its caps.

I would argue the Bay Program partners have a good handle on the nature and causes of the Bay's water quality and ecological problems. Moreover, they have established a framework for accelerating water quality cleanup through the adoption of the new standards and reduction goals.

The basic weakness of the program is not something that can be cured by changes to the Bay Program structure. The reason the program has not made progress in restoring water quality is very straightforward. Nutrient reduction costs money, a lot of money.

There are many thousands of localities and farmers who need to act, and curbing stormwater pollution requires actions by millions of Bay citizens. All of them need the financial help of our Federal, State and local lawmakers.

I would urge them to begin putting natural resources conservation and environmental protection at the top of the list of priorities for public funding rather than at or near the bottom where it has been since I entered public service over 25 years ago.

The restoration of the Chesapeake Bay is possible, but it is not assured. We have established measurable nutrient reduction goals which are defensible, and we have put in place the programs necessary to achieve those goals. The financial resources required to implement those programs and reach those goals are what we lack.

Notwithstanding the criticism often leveled by the Chesapeake Bay Program Office and other Bay agencies for the lack of progress in returning the Bay to a healthy condition, I would submit that our failures are not the fault of the agencies but rather the failure to recognize the fundamental principle that where the environment is concerned, there is no free lunch.

What this means is simply this: Everything we do that adversely affects the environment imposes a cost, and that cost must be paid by somebody, if not by you or by me, then by someone else.

Our failure as public servants, whether Federal, State or local, to bear the cost of protecting the Chesapeake Bay has transferred the cost to the commercial watermen facing condemned oyster grounds and dwindling populations of crab and finfish to the seafood packer looking further and further afield for products to market and to the tourist business whose customers are driven away by polluted waters. All of these and others have paid the cost because we have failed to protect their workplaces.

Now is the time for the Bay partners to pick up the tab and restore these groups the livelihood of which they have been deprived through no fault of their own.

Thank you, Madam Chairwoman.

Ms. EDWARDS. Thank you, Mr. Murphy.

Ms. Swanson.

Ms. SWANSON. Thank you for pulling up the rear. I would like to take just a moment and make a suggestion, a procedural question suggestion, which is the next time that we do this I hope that we go alphabetical order by first name and that I am invited back.

[Laughter.]

Ms. SWANSON. So with that in mind, my name is Ann Swanson. I have served as the Executive Director of the Chesapeake Bay Commission for 20 years and have actually been involved in the Bay restoration beginning two months prior to the signing of the first Chesapeake Bay agreement. So I guess I am an institutional memory.

What I hope to do today is to answer the Committee's questions of how do we treat this program, how do we make it better.

But I think that it would be wrong if I didn't first extend a very heartfelt thank you to Congressman Gilchrest for all of his leadership and work. He has really given us a very strong hopeful knowledge that there is bipartisan support, bipartisan leadership in the Chesapeake Bay from the Congress, and that kind of available leadership means the world in keeping you going. So I thank you for that.

Let me also say, before I begin the constructive criticism, that the Bay Program is the best of its kind in the Nation and to my knowledge the best of its kind in the world. And so, while criticism can be levied, the sad thing that we also have to recognize is it is the best we have which means if it is the best we have, just like the best students in school, you try to invest in them and make sure that they can lead and provide leadership for the future.

I would tell you by any measure I have seen that the Chesapeake Bay Program and the efforts of the States and the Congress really are beneficial and progressive. That being said, I also know that it is stalling and that it needs improvement.

That is where I can only agree with my colleagues to the right in saying fundamentally the lack of improvement seems to boil down, I would say, to three things which can guide you in the future. One is funding, two is regulation and enforcement and three is targeted implementation, which take me to my recommendations of which I would like to make five.

The first is that Congress needs to come forward and demand a strategy for reaching the goals, not a plan. We have plenty of plans, the cap being the most recent. But a strategy is about time lines. It is about making sure that you have deadlines. Humans function with deadlines.

The other thing is not to just identify available cash but to identify funding gaps because that puts the challenge in perspective, and that is what is lacking in our current plans.

The second is that we really need report cards, not at a bay-wide scale but at a river or river basin scale. The reason is because that puts States, local governments and citizenry on record not only with knowledge of what is going on but also to some degree, accountability.

And, to incite a little bit of competition among the local governments, I think would do us a world of good in this situation.

The third has to do with the TMDL. The TMDL is an excellent provision of the Clean Water Act, but it is flawed in that it really does focus on those regulatory tools at hand which leaves 80 percent of the pollutant load in the Chesapeake Bay, the non-point source, not really addressed.

You need to take a careful look at the reasonable assurance provisions and at the margins of safety and do what you can to make sure. In the Chesapeake Bay region, there are serious demands to address reasonable assuredness. How do we know that the TMDL that is proposed actually can be implemented and, if it can't, be sure we must identify the consequences of an unattained load allocation goal?

We also need to, of course, not only address the point sources or the regulated non-point, like stormwater MS4, but all of the pollutant load because in the Chesapeake Bay our point sources are not our biggest Achilles' heel. They are not.

If we were to address full bore every point source, we still wouldn't clean the Bay. We would only have 20 percent, an important point.

The fourth has to do with this stormwater provision. This Committee, right now, is taking a look at H.R. 6550. I would tell you that a watershed-wide stormwater action plan is a good thing and that that kind of pressure put on the States to address that is important.

I call to your attention the cost effectiveness analysis that the Chesapeake Bay Commission conducted which clearly shows we do not have the money or the regulatory authority to address stormwater. We need a plan.

And, last, I would like to encourage you to reauthorize the Bay Program at the $50 million a year. The reason I say that is look at the amount of money it has leveraged at the State level. Look at the cap. Look at that inventory. Fifty million dollars is actually very small compared to the amount of dollars it gets the States and local governments to invest.

So, with that, I thank you, Madam Chairwoman, our newest Member and also all of the others here—Mr. Platts, Mr. Boozman, Mr. Gilchrest—for your time today.

Ms. EDWARDS. Thank you.

Each of you, in your statements, raised the question of accountability and enforceability. And so, I would like to turn to Mr. Hoagland's suggestion that Congress should modify the Clean Water Act to ensure that the EPA's existing reasonable assurance policy be used to ensure that TMDL load reductions for all non-point source pollution are achieved.

I appreciate your comments on the proposal. I am particularly interested in the impact on local planning authorities and their ability to create more than just a wish list for protecting the Bay and the watershed but to have real requirements imposed on them.

Mr. Boesch?

Mr. BOESCH. Yes. First of all, with respect to Mr. Hoagland's basic proposal of reasonable assurance and enforceability, as a scientist, as an empirical scientist, I can tell you I don't know of any place in the world that solved this nutrient over-enrichment issue just with voluntary measures.

In fact, if you look at environmental issues generally, there needs to be some sort of a regulatory driver requirement to adjust the procedures and markets and taxes and so on to make these things happen. So it is not necessarily a matter of philosophy, just of observation.

With respect to this challenge with these non-point sources, we have methods, and we are just challenged to implement them.

Like we have in Maryland with this Chesapeake Bay 2010 Trust Fund that allows us a mechanism, given the flexibility, given an accountability, to implement measures across different sectors of non-point sources. Coupled with increased regulatory enforcement, it does allow a means forward.

So for example, in our jurisdictions now, Montgomery County is coming up in its new stormwater permit. EPA delegated to the States. The States are working with the counties to develop the stormwater regulations. That will be sort of a benchmark as we move forward.

But even then, if we are to do that, on the table for negotiation is something like a 30 percent requirement of treating the stormwater, 30 percent of the stormwater. It will still fall short of what we have estimated is going to be required to meet the Bay tributary strategy.

So it is going to have to be an incremental approach, and it is also going to have to have Federal and State assistance to make it happen.

Mr. FOX. Madam Chair, I haven't used the acronym TMDL in this Committee in probably about eight years. For those veterans here, you will know it was a very different time.

But I, in the Clinton Administration, advanced I think arguably the most comprehensive TMDL regulations ever proposed. I don't want this to sound too partisan, but when the Bush Administration came into office they removed these regulations and haven't since promulgated anything since then.

The fundamental tenet that we were trying to do at the time was to create a sense of reasonable assurance in a TMDL context

For those of you that aren't as familiar with this, a TMDL is really just a pollution budget. It is a statement of how a regulatory

agency will meet pollution standards in a water body by allocating the different pollution loads.

The proposal, and I am happy to work with the Committee and the staff in talking about this in more detail, but the proposal as it was described here probably isn't going to solve our problems. I say that because an enforceable TMDL, in and of itself, doesn't necessarily get to the control actions on the ground and on the water. We would have to look at other parts of the statute other than Section 303 to really try to accomplish that in my opinion.

I think it is also important to note for the record that the definition of a point source under Section 502 of the Clean Water Act is very, very, very broad. I think it goes far. I can even go as far as to say that I haven't seen a lot of so-called. Well, let me say this I haven't seen things that would not meet the definition of a point source at some time in the Chesapeake Bay watershed.

As was testified to here earlier today, I think we can go a long way in improving water quality by just enforcing current law.

Ms. EDWARDS. Does anyone else have a comment?

Mr. Matuszeski?

Mr. MATUSZESKI. I would like to suggest that the reasonable assurance concept would require a level of money and regulation of agriculture that is far, far beyond anything that anyone has seen her or anywhere else in this Country if we wanted it to happen.

It would also have to deal with the issue of stormwater. While a lot of attention has been given to new development, and we do have a lot of terrific technological solutions for handling stormwater with new development.

In areas such as the existing urban areas, and once again the Anacostia is a perfect example, the problem is not new development. The problem is existing development. The problem is that 85 percent of the sediment load in the Anacostia River comes from stream bank erosion from stormwater that is being rushed in and eroding those banks.

The solution to that is not cheap. The solution to that is going to require a whole new set of institutions including stormwater districts and charges that people are going to have to have on their sewer and water bills that they are not accustomed to having.

So it is not a simple solution to get to reasonable assurance.

Ms. EDWARDS. Thank you.

Mr. Boozman.

Mr. BOOZMAN. Thank you very much.

Dr. Boesch, what would you say? We had others verse what they felt like the percentages were from various things: farm, point source, whatever. How would you lay that as where the pollution is coming from?

Mr. BOESCH. I think there is sort of reasonable agreement on that. So, for example, take agriculture. The best recent estimates are something like at least 40 percent of the nitrogen and about 48 percent of the phosphorus coming in.

There is debate about exactly how much of the nitrogen is coming in from atmospheric input because it lands on the land. I think we have to calculate it, separate it out from all the other things that are happening on the landscape.

Mr. BOOZMAN. In regard to the agriculture, if you had just virgin land, how much a percentage? In other words, you have leaves and stuff like that running into it.

Mr. BOESCH. Right. If one would take, based on——

Mr. BOOZMAN. I guess what I am saying is, and I don't mean to interrupt. I am sorry.

Mr. BOESCH. Sure.

Mr. BOOZMAN. If you did all of the practices that you could envision, there is still nitrogen and there is phosphorus coming from the land. What percentage would that be?

Mr. BOESCH. If one imagines a virgin watershed or a completely forested watershed compared to an agricultural piece of the watershed, the increase in nitrogen loading, for example, because of agriculture, present agriculture is something like 100-fold of what it was on a natural, on a per acre basis.

Now it is not possible to conduct agriculture and make it so that it only is yielding as much as a natural forest, but the targets are getting it back to a 50 percent reduction or something of that sort.

That is going to take a very careful, much more attention to the budget of how a farmer is managing the fertilizer. There are opportunities for cost savings in doing that too because fertilizer costs are rising rapidly. So there are some potential benefits to a more efficient use of fertilizers and animal waste for fertilization of farm fields.

Mr. BOOZMAN. Okay. So if you had a 40 percent contribution, really the amount that you could decrease it would be by half of that?

Mr. BOESCH. In a general term, the 2010 targets would be to reduce both nitrogen and phosphorus by roughly 50 percent by 2010. We are less than halfway there for both nitrogen and phosphorus based upon optimistic assumptions of the models.

Mr. BOOZMAN. You all can chime in, from whomever feels like they would like to answer.

The point sources that we have, what do they normally run as far as phosphorus in the area? What would be the average? What would you like for them to be and where are they at now?

Mr. BOESCH. Well, the point sources were at one time a significant part of the phosphorus inputs into the Bay. What we did over the period of time is when we added wastewater treatment, we began to remove phosphorus from wastewater streams.

An example of the success of that is right behind us, the Potomac River Estuary where back in the sixties and seventies we started to remove phosphorus and improve water quality.

Nitrogen became a more difficult issue, but now we are in the process of implementing enhanced nitrogen removal from most of our major wastewater treatment plants. It is going to really reduce the percentage of the input from wastewater.

Mr. BOOZMAN. Would they be like one part per million or half? Two? Three?

Mr. BOESCH. Removing nitrogen I think the performance goal is three, three milligrams per liter.

Mr. BOOZMAN. And as far as the phosphorus, what would it be?

Ms. SWANSON. I was just going to add because I know I work for a lot of legislators, and it is very helpful. If you are treating your

sewage at an advanced level, you are somewhere between 18 and 25 milligrams per liter nitrogen just across the Country.

With these enhanced nitrogen removal systems, you can get it anywhere down from four milligrams per liter to seven or eight milligrams per liter. So it is truly low

Mr. BOOZMAN. Where are you at now, though?

Ms. SWANSON. We have many, many plans now that are down at four, five, six, seven, eight.

All of the majors, for example, in Maryland, all of the majors are funded to go to full-scale ENR in the next four years. In Pennsylvania, they are taking the major plants down to eight milligrams per liter. In Virginia, it is anywhere from four to six milligrams per liter. That is for the big plants that are 500,000 gallons or more.

Mr. BOOZMAN. Right. As far as phosphorus?

Ms. SWANSON. For phosphorus, we have advanced phosphorus removal throughout the watershed, and so that is one thing. The Chesapeake Bay region can hold its head very high, very high on point sources.

The other thing, and I have to recognize your work. Thanks to the work of the United States Congress, the new infusion of dollars and policy direction, and I want to emphasize that with the Farm Bill, will really address that 40 plus percent of the load which is the agricultural load. The onus is on us now to spend it wisely.

That is why in some of this testimony you have heard so much about kind of the remaining non-point source loads, what is left, because if we are really successful in implementing the Farm Bill dollars coupled with our own State dollars and if we do fully achieve the ENR, we should finally see some serious progress.

Mr. FOX. Madam Chair, I think I need to, I feel compelled—I am sorry—to correct the record or at least an impression that I want to make sure the Committee has about what constitutes a point source under the Clean Water Act. I think this is something that is very important for everybody to be aware of because it goes, to me, to the heart of the challenges ahead.

Under Section 402(p) of the Clean Water Act, all municipal stormwater sources are considered point sources. Under Section 502 of the Clean Water Act, all CAFOs or Concentrated Animal Feeding Operations are considered point sources. Under Section 502, any ditches, pipes, man-made conveyance of any pollution to the waters of the United States, these are point sources that, in theory, are regulated.

So I think it is important to make this distinction because there is this impression left oftentimes that if something is a non-point source, it is therefore not in the regulatory system, and there are not very clear expectations that should happen with them.

Thank you.

Mr. BOOZMAN. Very good. Yes.

Ms. SWANSON. So I was really referring to our municipal point sources, our sewage treatment plans, our waste treatment plants.

Mr. MURPHY. Madam Chairman?

Mr. BOOZMAN. Yes.

Mr. MURPHY. In response to the figures that have been used this afternoon regarding the percentages of nutrient pollution that is attributable to agriculture or to wastewater treatment facilities, I

think you have to look at it jurisdiction by jurisdiction. You cannot look at it simply based on the figures for the entire Chesapeake Bay watershed.

In Virginia, for example, sewage treatments plants account for 30 to 33 percent of the nutrient. It is not 20 as has been stated for the watershed.

And so, you have to look at each jurisdiction and look at our tributary strategies that we have developed in the various jurisdictions to determine what practices are important for what jurisdiction.

We have to do site-specific analysis of our tributaries to ensure that the appropriate measures are being taken, tributary by tributary, not looking at the Bay watershed as a whole necessarily but looking at the sum of the parts. It is the cumulative effect of the various programs that is ultimately going to spell success for the entire watershed.

Mr. BOOZMAN. Let me just say one more thing and, again, you can comment.

I guess from the testimony, it seems like you all are in unison as to what you feel like you need to do. Fairly much, okay. The reality is how do you get that done.

The things that you are advocating, I am very familiar with this from the water battles with Oklahoma and things like this in Missouri. The reality is what you are advocating—the TMDL, loading and things like that and the other things—no State legislature would agree with you. Most cities would not agree with you. Most counties would not agree with you.

So the answer can't be you guys fix it, meaning the Feds, and provide us the money. I mean that is not going to happen.

I think we will be glad to help you as you decide, as you work through those entities, but that really is the bottom line.

I would agree with you, Mr. Fox, and I think all of you would agree with this too. I guess one of my frustrations is there really is a lot of stuff under current law that we could help with and you could help with, without pushing in some areas that are so controversial that it is very difficult to get done.

I am a guy that feels like we need to push in increments and get things done, but there is a lot on the table right now that we could do a much better job of it, that I think would make a difference.

So you can comment if you like. I apologize if I am going over.

Mr. HOAGLAND. Madam Chairman, I have two comments.

The first is, Mr. Boozman, you are exactly right. I mean I don't think anybody here at this panel, and I have worked with all of them, are politically naive in terms of what the burdens are we have to overcome in terms of what you rightfully recognize as opposition at the State and local levels at times.

I do want to share with you the fact that this issue of reasonable assurance. We are actually seeing progress within the Maryland the Virginia State governments asking for it to be in fact defined more clearly, so that they can in fact have some of the support through EPA, so that this TMDL, which the process has already started, required by law, does in fact have some substance and they can rely on it.

So we are working, at least from the Bay Foundation's perspective as well as the Commission's perspective, trying to bring State

governments along with us on this issue also, and there has been movement there.

The second thing is I think it is really important for all of us here to remember that we tend to be focusing on the non-point source discussion. The Bay needs a reduction of 110 million pounds of nitrogen according for it to be healthy, according to all the science. That is our goal, a 110 million pound reduction.

Ann of the Bay Commission has spoken about the point source success we have had to date in your response to your questions.

I think it is really important for us to remember, and part of my presentation was focusing on changing the way the Federal Government looks at handling Bay restoration. Part of the change the Federal Government is going to have to take with point source is it is going to have to stand firm on those reductions that we have accomplished.

We are already seeing some pushback on the point source level that when in fact the rubber meets the road, local governments or State Governments are saying, no, we have to readjust. We have to take that allocation that is going to take us to the 110 million pound. We need to inch it back up.

So the Federal Government needs to play an equally important role in ensuring that the reductions and the accomplishments we have made between funding and regulation are met over time as we go forward.

Ms. EDWARDS. Thank you.

Mr. Gilchrest.

Mr. GILCHREST. Thank you, Madam Chairman.

Well, I think I know everybody but Mr. Murphy. Welcome to Washington, Mr. Murphy, and congratulations on your public service and your testimony.

Of course, Mr. Fox has been the only one canoeing on Turner's Creek. So we have to get the rest of you guys down there.

Maybe during the month of August, we will have a little picnic down there and eat sweet corn. We might give the crabs some relief, so we won't have a crab feast. We will just have some sweet corn.

Then we will go canoeing and look at those areas where the agriculture has changed. Nutrient management has come in. Buffers have been employed. Beautiful SAVs and wild rice and American lotus blossoms have come back, and they are at their height right now. If you wait too long, you won't see them.

I would like to ask. We all know how complex and how big and how all encompassing the Chesapeake Bay Program is and your part and your effort to deal with it, from runoff, from all sources, even now from climate change and its impact.

Farm use of these dollars, the broad perspective of the program: We want to reauthorize it, and we want to make sure that we capture the essence of the complexity and the broad nature of this program in the reauthorization.

My question, though, is as we go through to emphasize certain areas, to buttress those certain areas, would you recommend that we pay close attention to EPA's authority as we go through the reauthorization, to hold certain people accountable for point sources

such as stormwater or accountable for TMDLs, which I think we are going to do, but is that an emphasis?

Mr. Murphy spoke very eloquently about local government. We all know that is where the stormwater runoff is, in local areas. That is where those pipes come in. That is where the development comes in. That is where innovative development or not innovative development, smart growth or not smart growth.

So should we emphasize local government as far as time frames are concerns, report cards for this river are concerned, accountability for local government is concerned, incentives for local government?

We will authorize this from time immemorial. We understand we want to make sure all those farm dollars in the Farm Bill get spent appropriately and that they get interconnected, that there is some consilience, that there is some unity between all the various governments, all the various agencies—State, Federal and local—to implement some of these programs.

Is it time, though, for us to focus and emphasize on local government as far as the science is concerned, accountability is concerned, incentives are concerned and their own governance of these issues is concerned?

I will leave it at that for your answers.

Mr. MURPHY. Mr. Gilchrest, anyone who has been involved with government below the Federal level has heard the term unfunded mandate. Everyone who has ever been involved in local government or State government refers to the requirements that the Federal Government places on the States and localities as an unfunded mandate.

While I do not disagree with my fellow panelists who believe that we need additional regulations in both the point source and nonpoint source areas, I think that those regulations must be accompanied by financial assistance. I see nothing wrong with assisting the localities or the State governments with public funds to meet the regulatory requirements that are placed upon them.

When we adopted new regulations in Virginia imposing nutrient limits in wastewater treatment permits, we added funds to our Water Quality Improvement Fund to assist the localities in meeting the requirements of the new permits that were going to be issued to them, requiring substantial upgrades in their sewage treatment plants. I think that is an appropriate approach to take.

I think that we need to show leadership at the Federal and State levels insofar as giving incentives to our local governments to do the right thing and then for their farming community and everyone who is involved because this is not just a governmental issue. It is an individual problem as well as a governmental problem.

I think when we regulate, whether it is an individual or whether it is a local government or a State Government, we need to think in terms of how do we help those lower levels achieve the goals through financial assistance.

Mr. FOX. Mr. Gilchrest, I would really analyze this problem this way. The Bay Program has defined very precisely what we need to do on the ground to save the Bay. Literally, you can get online and find out specifically what practices need to be implemented in what watershed.

I think the question we need to ask ourselves is how can we effect the delivery of these practices on the ground in a timely way, in an accountable way? In some cases, the answer might be new authority, and I can give you some examples, and we can talk more about where new authority might be granted here.

I think it is also worth mentioning in terms of Secretary Murphy's point here and getting to the comments of the Ranking Minority Member. There is opposition from States and local governments for some of these ideas.

But I will tell you as the former Assistant Administrator for Water, every single drinking water regulation I did had lots of opposition from the States and local governments. When Congress enacted the first Clean Water Act in 1972, it had a lot of opposition from State and local governments.

I really think at this point, we have to decide as a society how important is Chesapeake Bay to us. Just downstream here on the Potomac River, we are spending $2 billion in improving the Wilson Bridge. We are spending $1.5 billion to $2 billion in improving BWI Airport just up the road from me.

The worst case estimates for the cost of cleaning up the Bay are in the same zone. I think we as a society and you all as a Congress really need to look at this part of the equation.

The Office of Management and Budget back in the Clinton Administration did an analysis of environmental regulation. It is true; they had a very high cost. The annualized cost was something on the order of an average of $40 billion a year.

But the important thing in that analysis was that the benefits of those environmental regulations were three to five times greater than the costs, and I think that is the fundamental challenge we face here in the Bay.

Ms. SWANSON. I would like to add something as someone how has witnessed the Bay Program for so many years. You can actually improve authorities and mandate. I will have to say that as a professional in the field, probably the greatest environmental gains I have seen have indeed been coupled with regulation versus more voluntary approaches.

But in the Chesapeake region, there is an interim stage that has worked well to make us one of the leaders in environmental restoration efforts, not utterly successful, but one of the leaders. That is Federal guidance that comes in, that explains to us in the region what are your expectations for the cash that you are putting on the table.

In that sense, like I know in the Chesapeake Bay Commission's testimony, and the Commission is House and Senate Members from three States—Maryland, Pennsylvania and Virginia. Many of those suggestions are guidance to the region.

Fundamentally, the State partners would have to come together and help develop that strategic stormwater plan or help develop that reasonable assurance. But if we were hearing a strong guidance from the Federal level that that is the expectation with the dollars that are forthcoming, I think it could be quite constructive.

And, I will share with you that some of our Members, confidentially—these are House and Senate Members—when they are talk-

ing, they basically say, I have to tell you Ann, I will quote: "It ain't gonna happen if we are not told to do it."

And so, there is some give and take in that relationship between the Federal Government and the State government that does allow for healthy progress forward.

Mr. MATUSZESKI. I would like to add another element to this which is the concept of public support. Every public opinion survey that has been given about the Bay indicates that the public really wants to clean up the Chesapeake Bay, and every survey that has been taken says they are willing to pay a substantial amount for it.

I think one of the areas we have failed is in making the case for innovative new ways to help pay. I think a perfectly interesting example of this is when Maryland decided it wanted to develop a State way of supporting the local governments' upgrade of sewage treatment plants. They put a bill in to raise taxes by putting it on everybody's sewer bill.

The opponents of this dubbed it a flush tax. Everyone horrified, who was in favor of this, saying this is going to doom the bill.

Well, it turned out the public loved the idea of a flush tax, and the public said: Okay, a flush tax, we can understand that. That relates to something that we know about.

So maybe we should be thinking more about oyster taxes and crab taxes and sweet corn taxes and ways in which we can really work with local governments while at the same time making maximum use of Federal authorities, making use of Federal funds and guidance but working very hard on how to sell the public on what is going to take and giving them opportunities to choose the ways in which they can pay.

Ms. EDWARDS. Thank you.

Mr. Gilchrest, did you have any further questions?

Mr. GILCHREST. No, thank you.

Ms. EDWARDS. As we prepare to adjourn, I just want to follow up on the comments of Mr. Boozman and ask each of the witnesses, if you would, to provide the Committee with a list of current Clean Water Act authorities that may need stricter enforcement as well as any recommendations for change of the existing law that might aid us in our efforts to reauthorize the Chesapeake Bay Program and really show progress in addressing the health of the Bay.

I appreciate your being here. Thank you for the Committee's indulgence of my first opportunity at the Chair.

The meeting is adjourned.

[Whereupon, 5:25 p.m., the Subcommittee was adjourned.]

STATEMENT OF THE
HONORABLE JOHN BOOZMAN
HEARING ON
THE CHESAPEAKE BAY PROGRAM
JULY 30, 2008

- I would like to welcome everyone to our hearing today on the Chesapeake Bay Program.

- The Chesapeake Bay is the largest estuary in the United States and is critical to the economy, environment, and way of life for millions in the Mid-Atlantic area.

- Covering some 64,000 square miles, the watershed spans parts of six states and the District of Columbia and is home to 16 million people. There are 150 major streams and tributaries in the Chesapeake Bay basin.

- The Bay is an important environmental feature in the region. It is home to millions of waterfowl, and a vast array of fish, shellfish, and other aquatic plants and animals.

- For the human population, the Chesapeake Bay provides millions of pounds of seafood, a wide variety of recreational opportunities, and is a major shipping and commercial hub.

- Two of the nation's largest ports are on the Chesapeake Bay – Baltimore, Maryland, and Hampton Roads, Virginia.

- Beginning with colonial settlement and until today, land use activities and changes in the watershed have affected the health of the Chesapeake Bay.

- Public concerns about the health of the Bay have been raised since the 1930s.

- The deterioration of the Chesapeake Bay can be seen in a decrease in water clarity, a decline in oyster and crab populations, and a lack of underwater grasses.

- There are even areas of the Bay that are "dead zones," where there is not enough oxygen in the water to sustain life.

- The EPA says the major causes of the Bay's deterioration are excess nutrients and sediments coming from farmlands, wastewater treatment plants, and urban runoff.

- Septic systems and air deposition of emissions from power plants, cars, and trucks also contribute to the degradation.

- In the next 25 years, an additional 3.7 million people are expected to be living in the Chesapeake Bay watershed.

- As more concrete and asphalt replace forests and open spaces, the runoff of nutrients and sediments into the Bay will increase.

- However, it is this same growth and development that provides the economic stability for the region.

- The Bay region must balance economic development with the need for clean water and a healthy environment. To do this, the region needs to be smart in how it grows in the future in order to minimize the impacts on the Bay.

- The Chesapeake Bay Program was created many years ago to address the degradation of the Bay. In 1987, the Program was authorized formally by Congress in the Clean Water Act.

- Today the Program is a partnership of states, local entities, and the EPA that directs and conducts restoration of the Chesapeake Bay. The *Chesapeake 2000* Agreement set ambitious restoration goals to be met by 2010.

- A lot of money has been spent over the years to clean up the Bay.

- In the last twelve years, alone, nearly $4 billion in direct funding has been provided to the Program from the Federal government and the states. An additional $2 billion in indirect funding has gone to programs that aim to improve the health of the Bay.

- The EPA also has provided over $1 billion to the Program partner states through the Clean Water State Revolving Loan Fund to help pay for wastewater treatment improvements.

- However, while EPA reports that some progress has been made in cleaning up the Bay, substantial challenges remain.

- It is now clear that the *Chesapeake 2000* Agreement's ambitious restoration goals will <u>not</u> be met by 2010.

- More needs to be done. All of the Program partners, and stakeholders, need to make some hard decisions and a stronger commitment if we ever hope to achieve the Bay restoration goals.

- Right now it is not so clear whether everyone is willing to make hard decisions and be truly committed to getting past the talking and planning and on to cleaning up the Bay.

- Because Federal dollars will be limited, it is important that we invest in activities that will directly clean up the Bay.

- Today we have assembled an excellent group of expert witnesses to help us consider the Chesapeake Bay Program, as it is now up for reauthorization.

- I look forward to hearing from each of the witnesses on how we can improve the performance of the Chesapeake Bay Program, and increase the accountability of the Program and its partners, to achieve the Bay restoration goals.

OPENING STATEMENT OF
THE HONORALBE RUSS CARNAHAN (MO-3)
HOUSE TRANSPORTATION & INFRASTRUCTURE COMMITTEE
WATER RESOURCES & ENVIRONMENT SUBCOMMITTEE

Hearing on
Protecting and Restoring America's Great Waters, Part II: Chesapeake Bay
Wednesday, July 30, 2008

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Chairwoman Johnson and Ranking Member Boozman, thank you for holding this important hearing on protecting the Chesapeake Bay.

The ecosystem and economy surrounding the Chesapeake Bay has been under stress for many years. Poor water quality, for example, has affected life sustainability in the Bay, which has in turn affected the jobs of many fishermen. Though many improvements have been accomplished since the creation of the Chesapeake Bay Program in 1983 and the subsequent *Chesapeake 2000* program, we must still work toward restoring our nation's largest estuary to a healthy status.

Just this past year, both Maryland and Virginia issued tighter regulations over blue crab fishing to help the blue crab population in the Chesapeake Bay. Additionally, wastewater treatment facilities have shown significant improvements in their levels of nutrient discharge that have previously clouded the water in the Bay. Though these steps have made crucial differences in the health of the Chesapeake Bay, some problems are continuing to affect the ecosystem. Recent water quality data has shown that water clarity has continued to decrease despite restoration efforts. We need to continue to work toward cost-effective and efficient programs that will restore the ecosystem and economy of the Chesapeake Bay.

I would like to thank the witnesses for speaking today. I look forward to hearing your testimony.

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Russ Carnahan

STATEMENT OF
THE HONORABLE JERRY F. COSTELLO
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING ON PROTECTING AND RESTORING AMERICA'S GREAT WATERS, PART II:
CHESAPEAKE BAY
JULY 30, 2008

Thank you, Madame Chairwoman, for holding this hearing on the protection and restoration of the Chesapeake Bay.

Madame Chairwoman, this Subcommittee has held numerous hearings on this issue in the past, and has investigated and proposed legislation to address water quality impairment, contaminated sediments, and a wide variety of sources of pollution and solutions to the Chesapeake Bay because of the importance of this vital natural resources.

In my home state of Illinois, we grapple with similar issues in how to protect and restore the Great Lakes. Both the Great Lakes and the Chesapeake Bay are integral to the regional economies and livelihood of those states that line their shores.

Clearly, Madame Chairwoman, significant challenges remain in this nation's efforts to restore and protect the Chesapeake Bay and our other great waters. I am pleased that this Subcommittee will explore these issues, and hope that the witnesses invited to testify will be able to identify the successes as well as the failures in these efforts, and on ways we can improve our efforts.

I welcome the witnesses here today, and look forward to their testimony.

Elijah E. Cummings

Committee on Transportation and Infrastructure
Subcommittee on Water Resources and the Environment

"Protecting and Restoring America's Great Waters—Part II: Chesapeake Bay"

July 30, 2008
2:00 p.m.
2167 Rayburn House Office Building

Opening Statement of Congressman Elijah E. Cummings

Madam Chair:

I thank you for calling this important hearing on the protection and restoration of America's waters, in particular, the Chesapeake Bay. I also thank you for the opportunity to participate in this hearing.

As you know, the Chesapeake Bay is one of the most precious natural resources we have in this country. Stretching more than 200 miles between Havre de Grace, Maryland and Norfolk, Virginia, the Chesapeake Bay is the largest estuary in North America—and the pride of my home state, Maryland.

The Chesapeake Bay is not only home to over 3,700 aquatic species including blue crabs, ducks, oysters, and rockfish; it is a source of both social and economic vitality. On weekends, Maryland families flock to the beaches that line the Chesapeake hoping to relax and enjoy its beauty. During the week, Maryland fishermen take to the water in search of their next big catch.

In fact, data suggest that the Bay-related industries generate close to $20 billion and 340,000 jobs, including commercial fishing, boat building, and tourism. However, these numbers will gradually decline unless we make a concerted effort to fight pollution in the Bay.

Unfortunately, we are already witnessing the traumatic side effects of pollution on the Bay. The Bay's oyster population is a mere two percent of its historic level, and reduced amounts of underwater grass habitat, in addition to low summer levels of dissolved

oxygen, continue to keep the crab population well below the historical average.

These alarming statistics can be attributed to a number of factors; however, run-off from agricultural sites and impervious surfaces seems to be the biggest culprit. Research shows that more than 40 percent of the excess nitrogen and phosphorous, and more than 60 percent of the excess sediment, comes from agricultural runoff. The rest comes primarily from urban and suburban storm water runoff and atmospheric deposition.

I applaud the Environmental Protection Agency and its Chesapeake Bay Program Office (CBPO) for their efforts to address critical issues such as agricultural and urban runoff; however, despite spending millions of dollars, it appears that the Bay will still fall well short of the ambitious restoration goals set forth in the Chesapeake 2000 Agreement.

The EPA's office of the Inspector General has conducted an evaluation of the Bay Program and has developed a number of recommendations to strengthen Bay restoration programs by improving reporting to Congress, and the development of a strategy to more closely involve local governments and organizations in restoration efforts. These are important recommendations that should be implemented immediately.

We can not afford to simply throw money at this problem hoping that it will correct itself—history shows that it will not. Bringing the Bay back to life will take not only a comprehensive plan that must be implemented with a concerted effort from every stakeholder but as we increasingly understand, it will take real change in people's daily habits and in our usual way of doing business.

Fortunately, there are efforts underway to make these changes. Just a few days ago, I joined officials from the University of

Maryland, the Maryland Port Administration, and the U.S. Maritime Administration to announce the development of a center on a Ready Reserve ship homeported in the Bay that will test ballast water treatment systems to identify those that can truly prevent the spread of invasive species in ships' ballast water. These invasive species present yet another threat to the ecosystem not only of the Bay but to virtually all U.S. waterways.

I look forward to hearing the testimony of today's panelists and I again thank Chairwoman Johnson and the members of this subcommittee for allowing me to join them today. I yield back the remainder of my time.

Harry E. Mitchell

Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Water Resources and Environment
7/30/08

--Thank you Madam Chairwoman.

--And thank you for holding this series of hearings on protecting America's great waters.

--Today we are examining the Chesapeake Bay, which, as you know is our nation's largest estuary.

--Sadly, despite a lot of work and some major investments in protection and restoration, we are seeing some discouraging results.

--According to the Chesapeake Bay Program, which coordinates these efforts, between 2005 and 2007 only 12 percent of the Bay and its tidal tributaries met dissolved oxygen standards. This is a decline from 28 percent between 2004 and 2006.

--Fish and shellfish populations are suffering. Virginia and Maryland were forced to enact strict limits on blue crab catches this year, and as of 2006, the bay's once flourishing oyster population was down to 8 percent of the bay program's restoration goals.

--I look forward to hearing from today's witnesses about what can be done to improve the bay's health.

--I yield back.

Testimony of Congressman John P. Sarbanes
Subcommittee on Water Resources and Environment
Protecting and Restoring America's Great Waters – Part II: Chesapeake Bay

Chairwoman Johnson, thank you for allowing me to testify today and thank you for holding this hearing on Chesapeake Bay environmental restoration and protection. I think you will find a refreshing bipartisan consensus among the Members representing the Chesapeake Bay watershed that we must be successful in our efforts to save the Bay. That this consensus exists is, in and of itself, a strong statement about the Bay as a historic, cultural, economic and environmental symbol for this region.

I am proud to represent Maryland's 3rd Congressional District, whose residents have a strong tradition of environmental advocacy rooted in a passion for the Chesapeake Bay. The Chesapeake Bay is our Nation's largest estuary and, in many ways, the soul of our state. It is a national environmental treasure and an economic catalyst as it pertains to the region's tourism and seafood industries.

Unfortunately, the Bay's health has been significantly affected by multiple factors from locally produced nutrient runoff to sea level rise as a result of global warming. I am committed to reversing these trends and restoring the Bay's water quality and natural habitats. There's no doubt that the EPA's Chesapeake Bay Program is central to those efforts and I welcome the opportunity to improve upon its work.

Although the EPA is the lead agency for the Chesapeake Bay Program, the Program is actually a partnership among several federal agencies, as well as the states of Maryland, Virginia, Delaware, Pennsylvania, New York, West Virginia and the District of Columbia. County and municipal governments have also made strong contributions to the Bay restoration effort. This widespread participation allows for more resources to be brought to bear but it also poses challenges with respect to setting common goals, coordination, management, and evaluation. I suspect these challenges, along with overall funding commitments, will be among the most common topics of debate as you begin to craft reauthorizing legislation. I look forward to participating in that discussion and hope that members from the Bay region, who are absolutely committed to succeeding in our efforts to save the Bay, can work with the committee to ensure the Chesapeake Bay Program achieves its water quality and living resource goals.

In closing, I am very pleased to have the opportunity to testify before the committee today and I hope the Chair will indulge me for a moment to say that the Water Resources Development Act reauthorization next year is also critical to Bay cleanup. The Army Corps of Engineers is an integral partner in the Chesapeake Bay Program. I, along with 21 other members representing Bay watershed districts, have introduced legislation, H.R. 6550, to expand the Corps' role in Bay cleanup. The legislation would make permanent the Corps' Chesapeake Bay Environmental Restoration and Protection Program, which was established as a pilot program under WRDA 1996. It would also expand the Corps' work to all six states in the Bay watershed and the District of Columbia and provide flexibilities for the Corps to work with other federal agencies, state and local governments and not-for-profit groups engaged in Bay cleanup. I also believe we should authorize the Corps, on a pilot basis, to engage in storm water management projects in the Bay watershed. I would welcome the opportunity to discuss these proposals with members of the Committee in the future and look forward to working with you on the EPA program reauthorization and WRDA next year.

Prepared Remarks of Representative Robert J. Wittman (VA-01)
Protecting and Restoring America's Great Waters -- Part II: Chesapeake Bay
2:00 p.m., 2167 Rayburn House Office Building
July 30, 2008
Subcommittee on Water Resources and Environment

Chairwoman Johnson and Ranking Member Boozman,

Thank you for allowing me to be here today to discuss an issue important to me and my constituents, the Chesapeake Bay. I am grateful to the attention you are paying to estuary restoration with hearings on improving America's great waters. I am pleased that you have decided to focus today on the Chesapeake Bay.

I would like to take a moment to introduce myself and share with you my interest in efforts to restore the Chesapeake Bay. I'm fortunate to represent Virginia's First District which stretches from the exurbs of Washington D.C. to Hampton Roads. The First District includes many of the major tributaries of the Bay, the Potomac, Rappahannock, York and James Rivers. Just as the Bay has shaped the lives and livelihood of Virginia residents for centuries, the bay continues to be a central player in the character of the region.

As you know, I am one of the newer members elected to serve in this distinguished body. I have the honor of filling the remainder of Jo Ann Davis' term after she lost her battle with breast cancer in the fall of 2007. Jo Ann was a champion for the Chesapeake Bay and she served Virginia's First District with grace and dignity.

Although I am new to Congress, I am not new to the challenges and issues confronting the Chesapeake Bay. For the last 20 years I've served in local and state government, on the frontlines, if you will of Bay restoration activities. During my time in the Virginia General Assembly I served on the Agriculture, Chesapeake and Natural Resources Committee and for the last sixteen years my "day job" has been spent as a shellfish specialist monitoring water quality and environmental health issues in the Chesapeake Bay watershed.

As the largest estuary in the United States the Chesapeake Bay watershed is home to 16 million people. The scope of the watershed is hard to imagine, the watershed encompasses six states and the District of Columbia, well over 1,000 local governments, 150 major tributaries, 100,000 streams and rivers and over 11,600 miles of shoreline, plus thousands of plant and animal species. The bay accounts for billions of dollars in economic and recreational revenue, not to mention it's the site of major ports and military bases.

In many respects we are very fortunate, the amount of research, funding and attention dedicated to restoring the Chesapeake Bay is unprecedented and unmatched in other watersheds. The level of federal, state, local and stakeholder participation is a testament

to the shared commitment to restoration and speaks to the importance of this "jewel" of an estuary. There are many successes to point to, dramatically increased numbers of striped bass, encouraging numbers of Atlantic sturgeon in the James River, increased access for shad to freely spawn up tributaries and reductions in wastewater nutrient discharges.

However, there are many sobering statistics as well. Blue crab populations are down 70% since 1990. Native oyster populations are currently at less than 1% of historical levels. Reductions in nutrient and sediment pollution are way behind schedule to meet Chesapeake 2000 agreement goals. The recent U.S. Environmental Protection Agency (EPA) Office of Inspector General report highlights the many challenges still facing the Bay including land development, agricultural runoff and air pollution.

Recognizing and responding to the calls for a reevaluation of Chesapeake Bay restoration activities and goals the EPA recently completed the Chesapeake Bay Action Plan (CAP) and outlined actions taken to implement the GAO's 2005 assessment.

I want to commend and recognize the significant effort by EPA and the other federal, state and NGO partners in preparing this report to Congress. The EPA's July 2008 report to Congress outlines significant accomplishments in meeting GAO's recommendations and the Chesapeake Bay Action Plan outlines a way forward for the remaining years under the Chesapeake 2000 Agreement. The CAP makes great strides in unifying stakeholder efforts towards restoration goals. The EPA also for the first time, with coordination from state and NGO partners has created a comprehensive database of the ongoing projects within the watershed. Additionally, the rollout of "dashboards" will give everybody a common indicator to gauge the progress and status of meeting Chesapeake 2000 goals. Also, I am very encouraged that the CAP highlights the importance of adaptive management as a key component in the complex environmental restoration efforts ongoing in the Chesapeake Bay. I would like to outline some of the key principals that I would like to encourage the Committee to consider as Congress continues to evaluate and plan for ongoing restoration activities in the Chesapeake Bay.

First, there must be performance based measures to assure that dollars currently spent on Bay restoration activities are producing results.

Before we can evaluate a programs we need to know what projects are out there. The CAP's, Activity Integration Plan is a key step in organizing restoration activities into one database. Before now, its has been difficult, if not impossible to have a complete list of ongoing restoration activities. However, as I understand it, this database, at least in the initial phase, will not be publicly accessible. I would suggest that a comprehensive accounting of all Bay restoration activities available to everyone, including Congressional oversight Committees, Appropriators, and stakeholders should be an important component going forward to evaluate program effectiveness.

The next step is to evaluate program success in meeting goals and effective implementation. For complex environmental restoration activities, like the Chesapeake

Bay, adaptive management is a very useful tool to meet the scientific, policy and management challenges encountered in the Chesapeake. I am encouraged that the CAP includes a significant adaptive management component. I believe that this Committee and all partners should embrace an active adaptive management component for Bay restoration activities to ensure the best management outcomes with finite financial resources.

Accounting and adaptive management are vital in my mind as key components for any complex environmental restoration project, especially the Chesapeake Bay. I have drafted legislation that I will introduce this week. My legislation would implement a crosscut budgeting requirement for Chesapeake Bay restoration activities. Crosscut budgets are an accounting process that has recently been enacted for Great Lakes, Everglades and California Bay Delta restoration activates. Crosscut budgets can be important tools that foster accountability and are useful in measuring progress and assessing program effectiveness.

My legislation would also require the EPA to implement an active adaptive management plan to guide restoration activates in the Chesapeake Bay watershed with an eye towards results and effectiveness. My goal would be to build on the initial steps EPA has outlined in the CAP.

Secondly, I would like to highlight the importance of waterfowl species and efforts to restore wetlands within the Chesapeake Bay watershed. As an avid waterfowler and life member of Ducks Unlimited I am particularly interested in restoring quality habitat for waterfowl. The Bay has a rich heritage of plentiful waterfowl, however changing land use patterns and degraded water quality have negatively impacted prime wintering habitat. Chesapeake 2000, rightly emphasized wetlands restoration activities as a key goal. Ducks Unlimited and other non-profit organizations are vital partners in efforts to clean up the Bay and protect habitat. DU along with federal, state and local partners have made significant progress in meeting wetlands restoration goals. I support continued federal support for wetlands restoration and encourage this committee to continue its support for wetlands restoration as a key component of Chesapeake Bay restoration activities.

Finally, both commercial and sport fishing industries are suffering from poor water quality in the Bay. By cleaning up the Bay we can increase the oysters, crabs and fish available to both commercial and sport fisherman. Waterman and fisherman contribute to local economies and these men and women also represent an important part of the heritage of the Bay. We must make sure this way of life dose not fade into history.

Thank you again Chairwoman Johnson and Ranking Member Boozeman for allowing me to testify today. I stand ready and willing to support and work with you to continue efforts to restore the Chesapeake Bay.

Testimony of
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Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
U.S. House of Representatives
Hearing on "Protecting and Restoring America's Great Waters Part II: The Chesapeake Bay"

July 30, 2008

Chairwoman Johnson and members of the Committee, I am Donald Boesch and am pleased to appear before you today to offer observations on how we can make more progress in protecting and restoring one of America's truly great waters, the Chesapeake Bay.

By way of background, I am an environmental scientist who has conducted research along our Atlantic and Gulf coasts and in Australia and the East China Sea. I have spent nearly thirty years of my career either studying or managing people and programs that study the Chesapeake Bay, but also have extensive experience in scientific guidance of the restoration of other degraded ecosystems, including the Everglades, Mississippi delta, and Baltic Sea. I am a long-time member of the Scientific and Technical Advisory Committee of the Chesapeake Bay Program and as, President of the University of Maryland Center for Environmental Science, serve on the Governor's Chesapeake Bay Cabinet.

Addressing Deficiencies in Restoration Progress

Now, some 25 years since the first Chesapeake Bay Agreement and only two years from the "witching hour" of 2010, what can be done to accelerate progress in restoring this treasured ecosystem? After 2010 some level of mandatory actions are presumably required by the Chesapeake 2000 Agreement if the Bay's waters remain impaired, which appears highly likely. The various Government Accountability Office (GAO) and EPA Office of Inspector General (OIG) reports thoroughly describe the deficiencies and the challenges ahead for the Chesapeake Bay Program. While these reports represent an excellent body of investigation and analysis, few if any of their findings and recommendations come as any surprise to those of us who have been part of this Program for many years. That alone is telling. If we knew of these problems all along, why haven't we resolved them?

Sure, funding has been a limitation, but it is not the only or even the most important one. In my estimation, we have generally lacked a relentless and uncompromising drive toward the restoration goals based on brutally honest appraisals to improve the effectiveness of our actions and on the required alignment of policies at all levels of government with these goals. I will touch on these points, but let me first address the three specific challenges identified in the OIG's recent summary report: uncontrolled land development, limited implementation of agricultural conservation practices, and limited control over air emissions affecting Bay water quality.[1] These challenges are not, as the report describes them, "new" or "emerging," but rather are chronic and recalcitrant.

Uncontrolled Land Development

The effects of sprawl on runoff of nutrients and sediments work to diminish restoration progress on other fronts. The OIG offered the headline finding: "development growth outpacing progress in watershed efforts to restore the Chesapeake Bay." But this masks the fact that, at least judged by the criterion of nutrient loadings, the outpacing results mainly from the slow pace of progress in controlling these watershed nutrient sources rather than overwhelming increases in loadings from suburban nonpoint sources. Still, controlling land development is critically important to the environmental integrity of the watershed and the Bay. Recent studies have shown how increases in impervious surfaces (roofs, driveways, parking lots and roads) have a dramatic effect on the amounts and velocities of stormwater runoff and the ability of streams and wetlands to filter wastes from washing to the Bay. Additional research has shown that even low-density development close to tidal shores has a surprising impact on shallow-water ecosystems.

Controlling land development clearly requires better alignment of policies and actions across Federal, state and local governments. Efforts to require consistency of the comprehensive plans of local jurisdictions with the state-level commitments to Chesapeake Bay Program tributary strategies, such as the water resources plan element of Maryland's Local Government Planning statute, are a start, but stronger requirements and incentives are required.

In my view, this opportunity may be coming soon as a result of the increasingly obvious need to dramatically lower greenhouse gas emissions, as well as a result of the increased costs of energy. When we are finally required to evaluate development and transportation infrastructure through the lens of limiting greenhouse gas emissions, different decisions emerge and present opportunities to control land development more effectively. As it considers legislation to address climate change, energy efficiency, and transportation infrastructure requirements, the Congress should consider the benefits of smarter growth, not only for reducing the carbon footprint, but also for restoring our Great Waters and improving the social fabric of communities.

Limited Implementation of Agricultural Conservation Practices

Significant strides have been made in reducing point-source emissions of polluting nutrients in the Bay through the application of the "polluter pays" principle—meaning that ratepayers like me who contribute to the waste stream are the ones who should pay for cleaning it up. However, less progress has been made in reducing nutrient pollution from agriculture, which remains the largest source of both phosphorus and nitrogen. Over much of the last 20 years, the implementation of agricultural practices to reduce nutrient runoff took more or less of a "don't ask, don't tell" approach. Best management practices (BMPs), largely developed for other reasons, were prescribed and enrolled, but their efficacy and degree of implementation seldom questioned or appraised. We have now discovered that BMP effectiveness was not always what was advertised and have begun to promote and subsidize more effective practices such as cover crops and riparian restoration. Although Chesapeake Bay Program (CBP) computer models estimate that about one-half of the agricultural nutrient reduction goals have been achieved, most scientific experts do not believe this to be the case. The CBP and implementing agencies have underinvested in assessing the actual results of BMP implementation on scales from farm fields to small watersheds and in piloting innovative and more effective technologies.

There is now a significant infusion of new funds, including some $188 million over the next five years authorized from the new Farm Bill, and a sizeable part of the $50 million per year authorized by Maryland's Chesapeake Bay 2010 Trust Fund, and assistance programs in other states. However, we must dramatically change how the agricultural conservation programs are implemented if we are to attain the expected results. Rigorous accountability, targeting the hot spots of nutrient losses and most effective practices, and innovation for continuous improvement must be the guiding principles. Regulatory mandates are an anathema to agricultural interests and are, in any case, difficult to enforce, but should not the public deserve documented results from its substantial investments? The Federal government and states should examine approaches that require outcomes as a condition of financial support such as have been implemented in some European countries. Denmark, for example, has been able to achieve a 50% reduction in the loss of nitrogen to the environment through national statutes and regulations that require farmers to meet certain fertilizer efficiency standards, plant cover crops over the majority of their fields, and manage animal wastes effectively as a condition of eligibility for any government subsidies.[2]

Limited Control over Air Emissions Affecting Bay Water Quality

Atmospheric deposition contributes at least 25% of the nitrogen reaching the Bay, but has historically been considered "uncontrollable" by the Chesapeake Bay Program. Yet, the Federal and state governments have mechanisms for controlling the emissions that are sources of this

atmospheric deposition. Notable among these is implementation of the Clean Air Act. Driven primarily by the commitment to improve air quality rather than water quality, significant reductions in emissions of nitrogen oxides from power plants and other stationary sources have been achieved and this is reflected in significant reductions of more than 25% in atmospheric deposition (both wet and dry) of nitrogen in the Chesapeake Bay watershed over the past ten years. This will result in reduced runoff of nitrogen from both forested and developed parts of the watershed. There are more gains ahead with the implementation of CAA programs, however the ruling earlier this month by the D.C. Circuit Court to vacate EPA's Clean Air Interstate Rule (CAIR) represents a significant setback to efforts to further reduce nitrogen oxide emissions if it stands. The nutrient reduction strategy of the Chesapeake Bay Program was counting on CAIR to close the gap between the reductions included in the Tributary Strategies and the Program's nitrogen reduction target. While final legal outcomes are pending, the Congress should consider legislation to affirm and strengthen EPA's regulatory authority to reduce nitrogen oxide emissions, as is it is critical in attaining air quality goals and has significant benefits to water quality in the Chesapeake Bay and other of the Nation's Great Waters.

While point source emissions have been greatly reduced, unfortunately mobile source emissions of nitrogen oxides have not declined and now account for a majority of the nitrogen deposition in the Bay watershed. Significant reductions of emissions from trucks and other heavy duty diesel vehicle are required. Stricter vehicle emission standards (for example adoption of the California standards by Maryland and Pennsylvania) and incentives for gas-electric hybrids and other low emissions vehicles help, but the big challenge is to reduce the vehicle miles driven. Again, Federal legislation that addresses greenhouse gas emissions, energy conservation, and transportation is probably the only way this is going to be achieved and should be aligned with the objectives of the CAA and Clean Water Act.

Finally, with regard to atmospheric sources of nitrogen to the Bay, the deposition of ammonia has increased in contrast to the declines in deposition of oxidized nitrogen. This is largely due to the intensification of animal production and the release of ammonia from animal wastes. Controls on ammonia releases are an understudied and undermanaged need for Bay restoration.

Increasing Accountability through Adaptive Management

The GAO and OIG have recommended that EPA improve reporting to Congress and public on the actual state of the Chesapeake Bay and actions necessary to improve its health. In response to a GAO recommendation the Chesapeake Bay Program began annually (from 2005) to report separately on the health of the Bay and progress in implementing management actions. This was done to clarify previous reporting that confused and often conflated the two. However, more

accurate, clearer, and more timely reporting is only the first step of accountability, which also requires demonstration that the best efforts are being made to accomplish the objectives effectively and efficiently. In that regard, perhaps the Bay Program overreacted to the criticism in strengthening the firewall between management actions and the health of the Bay.
A close connection among management decisions informed by predictive models, the implementation of these decisions, and observations of outcomes is at the heart of what is known as adaptive management.

A few years ago I chaired a committee of the National Research Council concerning Adaptive Management for Water Resources Project Planning,[3] which noted that most major ecosystem restoration programs had adopted an adaptive management framework and were working to implement it. For a variety of reasons, the Chesapeake Bay Program was a notable exception. In response to the GAO reviews, the Chesapeake Bay Program has, as directed in the Consolidated Appropriations Act, 2008, submitted to Congress this month a report that presents a Chesapeake Action Plan (CAP) that embraces adaptive management as a means to better target limited resources. This is an encouraging sign, but, of course, the proof is in the implementation.

Toward that end, lessons can be learned and practices adapted from Maryland Governor Martin O'Malley's BayStat[4] that he initiated shortly after taking office last year. BayStat is intended to advance accountability and coordination among key government agencies, to evaluate state initiatives directed at improving the health of the Chesapeake Bay on a regular basis, and to ensure these programs are coordinated and operating at the highest efficiency. I am one of the BayStat principals and seen firsthand the development of common frameworks (such as a fully integrated mapping tool), performance metrics, and unblinking and direct accountability that this approach has brought to Maryland's efforts. BayStat has been tasked by the Governor and mandated by the General Assembly to strategically implement the newly dedicated resources of the Chesapeake Bay 2010 Trust Fund programs. The BayStat process also provides government a mechanism to integrate the achievement of multiple objectives, beyond, say, just water quality, to deal with habitats, resources, development, education, commerce and the sustainability of all of these, leading ultimately to ecosystem-based management.

The New Role for Science

It is frequently stated that the Chesapeake Bay Program has done an excellent job of developing and applying science, but what has been lacking has been implementation driven by political will and financial resources. Some have gone so far as to suggest that the science is done and it is now time to focus solely on implementation. These views have always struck me as curiously wrong for several reasons. First, despite popular misconceptions, the Chesapeake Bay Program

has never had a scientific research program, but has benefited by the long-term public investments in academic research centers such as mine and the entrepreneurial talents of the scientists we have assembled. While this has led to the development of much practical understanding, it has been only marginally better than a random walk. The most important remaining scientific and technical challenges are almost all inherently interdisciplinary and will require a more focused and goal-oriented, yet flexible, approach. I assure you the science this requires has not all been done and the Chesapeake Bay needs a highly strategic R&D program. Secondly, innovative and efficient monitoring, interacting with models that assimilate the observations, is a requirement for effective adaptive management. This will challenge scientists and managers alike if we are ever able to seal the deal to achieve Bay restoration. Members of the Subcommittee, I sincerely hope that we can make significant headway toward that destination while I am still on watch!

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[3] National Research Council. 2005. *Adaptive Management for Water Resources Project Planning*. National Academies Press, Washington, DC.
[4] http://www.baystat.maryland.gov/

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TESTIMONY OF J. CHARLES FOX
SENIOR OFFICER, PEW ENVIRONMENT GROUP

BEFORE THE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

ON RESTORING CHESAPEAKE BAY

JULY 30, 2008

Chairwoman Johnson and Members of the Subcommittee:

We greatly appreciate your invitation to appear before the Subcommittee to share our views on restoring the Chesapeake Bay. My name is J. Charles Fox and I serve as a Senior Officer with the Pew Environment Group, the conservation arm of the Pew Charitable Trusts. We are dedicated to advancing strong environmental policies that are informed and guided by sound science on climate change, wilderness protection and marine conservation. Before joining Pew, I served as the Secretary of Natural Resources in Maryland and as the Assistant Administrator for Water at the U.S. Environmental Protection Agency. I also served with the Chesapeake Bay Foundation and have been involved with the Chesapeake Bay Program (CBP) in various other capacities since 1983.

This afternoon we would like to briefly discuss some of the CBP's greatest strengths and challenges. We will identify what we believe are workable options for the Subcommittee to consider to improve the performance of the CBP. It is our firm belief that affordable, science-based solutions are readily available to meet the goals we all share for the Chesapeake Bay.

At the outset, we would like to thank the Chair, Members of the Subcommittee, and Members from the Chesapeake region for their leadership on the Bay. The Chesapeake cleanup program was created more than two and one-half decades ago because of the leadership of a single Member of Congress. It is a great comfort to know that this Subcommittee and so many Members remain focused on the Bay's health, which is integral to the economy and quality of life of communities and people in our region.

Background

In the 1970s, Maryland Senator Charles Mathias worked with his colleagues to authorize a unique and comprehensive study of the Chesapeake Bay. Its conclusions sparked the

establishment of the CBP and the 1983 Chesapeake Bay Agreement, a document signed by the Governors of Maryland, Pennsylvania and Virginia, the Mayor of the District of Columbia and the Administrator of the U.S. Environmental Protection Agency (EPA). That Agreement, while only several paragraphs long, launched what remains widely viewed as the most sophisticated and well-funded ecosystem management program in the world.

The CBP excels in ecological research, monitoring, modeling, and goal-setting. It is managed by EPA, in a formal partnership with the States and the District of Columbia. The CBP is guided by its "Executive Council," a body which meets once a year and includes the EPA Administrator, Governors, the Mayor of the District, and a state legislative representative. The CBP's history includes three major agreements, the most recent of which was adopted in 2000. It has produced a remarkably precise body of scientific knowledge that defines the Bay's problems and, importantly, identifies workable solutions to improve the Bay's health.

The CBP is a voluntary partnership which operates within a suite of mandatory federal and state laws and regulations. The most notable is the federal Clean Water Act (CWA), which is implemented in the Chesapeake region by the states through delegation agreements with the EPA. Fundamentally, the CWA requires permits for major sources of pollution which must be sufficiently stringent to protect the Chesapeake.

The Chesapeake's ecological integrity is a small fraction of what it once was. Like most coastal waters, it suffers from the combined effects of pollution, habitat loss and the extraction of natural resources. These impacts have been exacerbated in the region by sprawling growth and development patterns. The Chesapeake's problems are generally worse than other coastal waters because it is shallow and poorly flushed, and its expansive watershed occupies a large portion of the mid-Atlantic region.

CBP's Successes and Shortcomings

The Subcommittee has assembled an impressive list of witnesses this afternoon who will likely describe in detail the successes and shortcomings the CBP's performance over the past two decades. Amid the likely focus on shortcomings, we believe it important to recognize some of the substantial successes of the CBP and Bay-area governments. Indeed, the relative ease with which the EPA Inspector General, the Government Accountability Office, and the public at large can understand and evaluate the progress of the Chesapeake cleanup should be viewed as a significant success. Fundamentally, the CBP is an extraordinarily transparent and collaborative institution. Indeed, these attributes and its related participatory structures have been replicated throughout the United States and the world.

The region's leadership to restore and protect striped bass populations is also an internationally-recognized success story in conservation. The CBP's related focus on opening anadromous fish spawning areas is also widely viewed as a significant success. In our view, Bay-area governments also deserve substantial praise for: (1) constraining permitted wetland losses; (2) restoring Canada geese populations; and (3) installing forested buffers.

Bay-area governments have been less successful in controlling pollution and managing sprawling development patterns which, in turn, exacerbate pollution and habitat loss. The former is arguably the most fundamental challenge facing the Chesapeake. Nitrogen, phosphorus and sediment pollution: (1) stimulate the growth of undesirable algae, including widespread "brown" and "green" tides; (2) constrain the growth of underwater grasses; (3) decrease water clarity; and, (4) cause the Bay's massive "dead zone," an area with little to no dissolved oxygen or marine life. In addition, bacteriological pollution from improperly treated sewage is a significant local problem in many portions of the Bay.

Chesapeake pollution emanates from many sources. However, agricultural sources are the most significant in the watershed. Runoff pollution from urban and suburban areas, including construction sites, golf courses and lawns, is also a significant and growing source of pollution to the Chesapeake. Other significant sources include municipal and industrial wastewater, electric generating facilities, automobiles, and septic systems. It is important to note that what is generally called "agricultural" pollution includes both animal and cropping activities, the latter of which is further subdivided to include pollution from both commercial and manure fertilizers.

Over the past two decades, the extent and severity of the Bay's "dead zone" has not changed appreciably. Monitoring data suggest that overall pollution loads to the Bay also have not changed significantly or sufficiently. Optimistically, one could argue that the CBP's success in preventing water quality from worsening is significant given the region's population growth. However, this accomplishment is not consistent with the public's expectations or the goals of the CBP.

In the Chesapeake 2000 Agreement, Bay-area governments pledged specifically to meet water quality standards in the Chesapeake and its tributaries by 2010. Unfortunately, the signatories will not come close to meeting this goal.

Is Success Possible?

The experiences of the past two decades *could* suggest that success is impossible. We respectfully reject this conclusion. In our view, the experiences suggest that the water quality goals of the CBP are still achievable, albeit perhaps more difficult, time consuming and expensive than previously thought.

The rationale to protect and restore Chesapeake Bay is just as strong today. Put simply, the Chesapeake defines our region and its value is immense. A University of Maryland study conducted more than 15 years ago estimated the economic value of the Bay at $678 billion. In today's dollars, it would be worth over a trillion. For some people, it is why they live or work here. For some communities and businesses, it is their lifeblood. For all of us citizens of the watershed, its demise would be devastating.

Unfortunately, there is not a single successful example of a large-scale restoration of nutrient-impaired coastal waters in a growing region like Chesapeake Bay. Fortunately, there are many examples of successful pollution control programs in the United States over the past thirty years, all of which offer lessons for the Chesapeake.

For example, our nation's air quality has improved significantly since 1980, despite dramatic growth in population and energy consumption. According to EPA, over the past 26 years, the aggregate emissions of the six principal air pollutants has declined by 49 percent, despite a 121 percent increase in Gross Domestic Product and a 101 percent increase in vehicle miles traveled.

These statistics contrast sharply with water pollution trends over the same period in the Chesapeake. Why?

Our nation's air pollution control programs establish emissions standards for virtually all sources, both large and small, including even household appliances and products in some regions. Cumulative air pollution loads are monitored and modeled with significant precision at national, regional, and local levels. Perhaps most importantly, the various control regimes are modified in clear and consistent ways based upon ambient monitoring data. If, for example, a region is failing to meet health-based standards, more stringent accountability mechanisms are applied.

This air pollution example is not unique. Over the past 30 years, our nation's pollution control programs have produced cleaner drinking water, reduced threats from toxic wastes, improved management of landfills and underground storage tanks, and even increased recycling rates. There are other, more discrete examples of successful pollution control programs, such as eliminating lead in gasoline or banning DDT in pesticides.

Traditional pollution control programs typically impart enforceable obligations on private interests for the purpose of serving a broader public good. In general, the costs of these controls are not borne by government. Instead, they are internalized by specific pollution sources and ultimately passed on to the people who use, purchase, and enjoy the goods and services. A 2003 report by the Office of Management and Budget estimated the 10-year cost of federal environmental regulations at $36 to $42 billion annually. However, it also estimated total benefits at 3 to 5 times greater than total costs.

Water pollution control programs in the Chesapeake possess some, but not all, of the attributes of traditional pollution control programs. In the Chesapeake, for example, we have developed sophisticated monitoring, modeling and goal-setting programs that could form the basis of fair, efficient and scientifically-driven pollution control programs. However, we have not yet developed an accountability system that ensures controls on all major sources of pollution, especially significant portions of the municipal and agricultural sectors. We will discuss some ideas about this more thoroughly later in our testimony.

Pollution Control Actions Already Defined

The CBP has defined in great detail the pollution control actions necessary to achieve the specific Chesapeake water quality standards for dissolved oxygen, water clarity and chlorophyll (a surrogate for algae). These management actions will reduce nitrogen, phosphorus and sediment pollution from all major sources, consistent with numeric targets that have been established for each of the nine major tributary areas. Achieving these numeric targets, in turn,

is expected to substantially reduce the Bay's "dead zone," encourage the growth of underwater grasses, and limit the extent of undesirable algae blooms.

In the agricultural sector, for example, the CBP has defined over two dozen specific practices, on a tributary-by-tributary basis, which will have to be implemented to achieve the water quality objectives for the Chesapeake. Three of these practices are particularly important and will have to be adopted widely throughout the watershed: (1) planting cover crops; (2) implementing enhanced nutrient management plans; and, (3) establishing riparian buffers.

Over a dozen similar practices have been defined as necessary to control pollution from developed lands. These practices include septic system upgrades, erosion control, and stormwater infiltration devices. In general, the pollution loads from developed lands are increasing throughout the watershed, a particularly problematic trend which contrasts sharply with patterns of other sources.

Costs of Pollution Control Actions

The CBP also has developed relatively precise cost estimates for implementing the tributary strategies. In general, the subject of financing the Bay cleanup has received substantial attention in the past eight years, and there is a large body of information and recommendations about ways to address various capital and operating costs.

Some pollution control costs are inherently "public," many of which already have sufficient financing mechanisms. For example, municipal sewage treatment plant upgrades are financed largely through existing residential and commercial water and sewer fees. When necessary, these fees can be supplemented with a number of existing federal and state grant and loan programs, some of which are designed to assist particularly needy communities.

Other pollution control costs are traditionally "private," many of which also have sufficient financing mechanisms. For example, the stormwater control costs of private residential or commercial developments are, in theory, incorporated into the capital and operating costs of that development. Similar mechanisms exist for discharges of industrial wastewater or air emissions from power plants.

However, there are a number of potential new costs which do not have existing financing mechanisms, some of which may not easily be defined as either inherently "public" or "private." As such, there remain significant outstanding questions about whether such costs should be borne by government or, as has traditionally been the case with pollution control, by the private sector. These issues are particularly acute now because of the relatively difficult financial positions of federal, state and local governments. For example, is urban stormwater runoff pollution caused by historical development patterns a "public" or "private" cost? The answer to this question may ultimately involve the obligation of hundreds of millions of dollars to retrofit older communities to improve water quality.

Resolving questions about the costs and associated responsibilities of pollution control from agricultural lands may be the most important issue, given its disproportionate impact on water

quality. One could argue that this sector is comprised of small, medium and large businesses and, therefore, should be responsible for internalizing its pollution control costs like other private enterprises. However, one can also argue that agricultural land uses are far more preferable than urban/suburban ones, and that government has an obligation to protect farmland and provide financial assistance to control pollution. Moreover, agricultural pollution control practices are among the most cost-effective, by far. Presently, there are numerous cost-share programs for agricultural pollution control. However, they are not yet sufficient to meet current demand, much less assure full implementation of the practices necessary to meet the Bay's water quality objectives.

The CBP's 2004 estimate of the total capital costs of implementing the tributary strategies for agriculture is $2.3 billion, which was annualized at $255 million over the life of each practice. In addition, the CBP estimated the total annual operating and maintenance costs (O&M) at $303 million. "Operating" costs in this context includes land rental payments for buffer strips along agricultural streams. In theory, this estimate of an annual "need" of about $550 million could be compared to an estimate of current funds available to approximate the funding "gap." Unfortunately, it is very difficult to do this for a variety of reasons relating to variability in eligibility factors, cost-share rates, and assumptions about funding availability, and we are not aware of any such analysis.

These cost estimates have important limitations. However, it is abundantly clear that the relative cost of controlling agricultural pollution is ultimately not that significant when compared to the societal value of a healthy Chesapeake Bay. Moreover, the recent Farm Bill amendments, secured by Congressman Chris Van Hollen and others, have significantly closed the funding "gap" for agriculture. By way of comparison, the cost of the Woodrow Wilson Bridge replacement over the Potomac River is about $2.5 billion, and similar, multi-billion-dollar public investments are presently being made at all of our region's airports.

Possible Ways Forward

We are in an exceptionally enviable position compared to other large-scale ecosystem restoration efforts around the nation and the world. We have a very clear sense as to what actions are necessary to meet our water quality objectives. We know what it will cost. We have delivery mechanisms already in place at federal, state and local governmental levels. And, perhaps most importantly, we continue to maintain widespread public support for bold action to protect the Chesapeake.

At the same time, there are inescapable conclusions that we draw from the experiences of the past, including: (1) current strategies and policies are not performing adequately; (2) accountability mechanisms are not adequate for significant sources of pollution, particularly runoff pollution from municipal and agricultural sources; and, (3) new financing mechanisms will need to be considered for some sources of pollution, particularly significant portions of the agricultural sector.

We would respectfully suggest that the Subcommittee and Bay-area governments consider three key ideas, which are not necessarily mutually exclusive:

1. **Enforce current law** -- The federal Clean Water Act and related state laws and regulations provide vast authority to control water pollution from all sources in the watershed. In fact, the Act specifically requires permits for all man-made sources of pollution that are sufficiently stringent to protect water quality. As a practical matter, EPA and the states could begin issuing permits to virtually all sources consistent with the precise practices that are described in the CBP's tributary strategies. This approach likely would require additional federal or state rulemaking, and it would likely rely heavily on the issuance of so-called "general" permits (which simplify administrative burdens by establishing standards for entire classes of sources such as car washes, small development projects, or certain types of agriculture). EPA could accomplish this through a regional rulemaking, through its delegation agreements with the states, or by other means. The states, of course, will maintain primary responsibilities for issuing and enforcing the permits and would need to be an equal partner in any such approach.

2. **Reauthorize the CBP with explicit new accountability mechanisms** – This Subcommittee has not reauthorized Section 117 in several years, and it could consider a range of new provisions designed to improve performance of the CBP. One scenario, for example, could involve the establishment of watershed general permits that are consistent with the tributary-specific numerical targets of the CBP. Under this approach, the states would have the flexibility to define their own cost-effective strategies for achieving water quality standards, including enforceable mechanisms for all significant sources of pollution. Other approaches could be considered as well. The State of California, for example, is implementing what is considered by many to be a successful strategy to control runoff pollution from agricultural sources. In the final analysis, any reauthorization must provide a high degree of certainty for success within a relatively short period of time, ideally including explicit consequences if success is not achieved. Such an approach has proved quite helpful in triggering actions from nonattainment areas under the Clean Air Act.

3. **Establish a regional financing authority** – In recent years, the states have significantly increased funding for a number of Chesapeake priorities, particularly municipal wastewater treatment controls. The new Farm Bill provides substantial new federal funding for agricultural priorities. Collectively, however, existing financing mechanisms are not adequate to control major sources of pollution, particularly runoff pollution from agricultural and urban/suburban areas. A regional financing authority could be structured in many different ways, depending upon its specific goals and objectives. If, for example, it was to be focused on addressing agricultural priorities, it would need significant capabilities to provide annual O&M funding, as opposed to capital funding. If, alternatively (or in addition), it was to be focused on enhancing the efficiency of current federal and state expenditures, it would need the capability of influencing the decisions of existing funding sources. In general, there remains significant interest among Bay-area governments in advancing this idea, although the policy challenges continue to be significant, particularly the subject of defining new revenue sources.

Conclusion

The Chesapeake Bay benefits from tremendous support of the public and elected officials. It likely has received more public funding than any large-scale ecosystem restoration project in the world. These investments have produced many significant results. However, they have not yet produced a significant or sufficient improvement in water quality. And, until that happens, the Chesapeake Bay will likely continue to deteriorate. The ongoing and largely predictable impacts of population growth and climate change will continue to compound our challenges.

The path ahead will not be easy, cheap or without political controversy. However, we have an obligation to our children to begin this journey in earnest. Thank you very much for this opportunity.

TESTIMONY OF
BENJAMIN H. GRUMBLES
ASSISTANT ADMINISTRATOR FOR WATER
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

July 30, 2008

Madam Chair and Members of the Subcommittee, I am Benjamin H. Grumbles, Assistant Administrator for Water at the U.S. Environmental Protection Agency (EPA) and I am accompanied by Jeffrey Lape, Director of the Chesapeake Bay Program.

Thank you for the opportunity to discuss EPA's important work with our partners to restore and protect the Chesapeake Bay and its watershed and describe future directions and priorities. I would also like to thank the Subcommittee for holding this important hearing on America's great waters and estuaries and the need for a watershed approach to managing and sustaining these natural assets.

The Chesapeake Bay Program is the flagship of watershed programs and a shining example of "cooperative conservation," the hallmark of this Administration's approach to environmental progress through partnerships. It has seen innumerable successes and progress, yet, needs to continue to adapt and change to reflect the fact that the health of the Chesapeake Bay is far short of the ambitious goals established in the *Chesapeake 2000* agreement

(http://www.chesapeakebay.net/content/publications/cbp_12081.pdf). My testimony summarizes examples of the changes and emphasis of the Program as we continue to improve the condition of the Bay and its watershed.

I. The Chesapeake Bay – An Ecological, Cultural and Economic Treasure

The Chesapeake Bay estuary is ecologically, economically and culturally critical to the region and the country and, as North America's largest and most biologically diverse estuary, is home to more than 3,600 species of fish, plants and animals. For more than 300 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. The economic value of the Bay is estimated at more than $1 trillion[1] and two of the five largest Atlantic ports (Baltimore and Norfolk) are located in the Bay.

The Chesapeake Bay watershed encompasses a diverse landscape and solutions must be tailored to address each unique issue. The land mass of the Bay watershed is sixteen times the size of the Bay, a ratio higher than any other estuary in the world. Nearly 17 million people live in the 64,000 square miles of watershed in portions of six States and the District of Columbia. We know what we do on the land affects our local streams, rivers and, ultimately the Bay.

II. Chesapeake Bay Program – 25 Years of Partnership and Progress

The Chesapeake Bay Program was established 25 years ago, and Congress formally authorized the Program in the Water Quality Act of 1987. The Program has

[1] *Saving a National Treasure: Financing the Cleanup of the Chesapeake Bay*, A Report to the Chesapeake Bay Executive Council, Chesapeake Bay Blue Ribbon Finance Panel, October 27, 2004

developed into one of the most advanced restoration partnerships in the nation, perhaps in the world. The core mission of the Program is to restore and protect the Bay and its watershed. I also acknowledge the unique responsibility of the Chesapeake Bay Program to demonstrate effective approaches to watershed implementation management, partnerships, collaboration and ecosystem improvement for the benefit of other watershed efforts.

World Class Science – The Chesapeake Bay Program established the Bay's first quantifiable, science-based restoration goals in 1987, and was the model for the National Estuary Program. The Bay Program's monitoring data, modeling and cutting edge science was used in 2003 to establish new water quality standards for the Bay and its tidal tributaries. These standards incorporate innovative features such as habitat zoning and area-specific submerged aquatic vegetation targets. The Bay Program's wealth of science and research, contributed to by many partners, has led to a comprehensive understanding of the complexities of the Chesapeake ecosystem including its stressors and condition.

Agreement on Goals and Outcomes – Derived from the world class science and an understanding of the complex ecosystem, the Bay Program partners have reached agreement on clear and ambitious goals and desired outcomes for the Bay. The *Chesapeake 2000* agreement identifies goals for fisheries, vital aquatic habitats, water quality, health of sub-watersheds, and encourages stewardship and community engagement. Agreement on goals is an essential foundation for any watershed effort.

Committed Leaders and Partners – The Chesapeake Bay Program coordinates the restoration of the Bay by bringing together Federal, State, and local governments, non profit organizations, businesses, academics and watershed residents in a collaborative partnership. Today, the partners demonstrate a shared commitment to accelerating on-the-ground implementation efforts. Several Federal partners (*e.g.*, USGS, USFWS, NOAA, NPS, and USDA-FS) are co-located at the Chesapeake Bay Program Office in Annapolis, Maryland which fosters substantially enhanced coordination of Federal programs and activities.

Understanding the Sources of Pollution – We know the principal sources of the three key pollutants causing water quality problems in the Bay - nitrogen, phosphorus and sediments. For example, sources of nitrogen to the Bay include:

- Agricultural lands (87,000 farms), contributing about 42% of the total load;
- Wastewater treatment facilities, contributing about 20% of the total load;
- Developed and developing lands, contributing 16% of the total load; and
- Air emissions, contributing the remaining 22% of the total load.

Substantial Program and Environmental Accomplishments – The Chesapeake Bay Program has been the coordinating forum and catalyst for substantial watershed-wide accomplishments, including:

- Adoption of nutrient and sediment allocations for all parts of the watershed;
- Detailed tributary-specific pollution reduction and habitat restoration plans;
- Coordinated NPDES permitting approach (2004) for the 483 significant wastewater treatment facilities in the bay watershed. The States and EPA

are making considerable progress in the issuance of these permits with discharge limits for nitrogen and phosphorus. The States and EPA anticipate this permitting effort and other efforts by local governments to make significant investments in wastewater treatment plant upgrades will achieve our 2010 nutrient goals for point sources. We recognize there are active permit appeals challenging this permitting approach in Pennsylvania and West Virginia. EPA is providing support to the affected States.

- Adopted a set of fundamental principles and guidelines for nutrient trading in the watershed in March 2001, which led to Pennsylvania and Virginia creating innovative nutrient trading programs for their point source facilities. EPA supports water quality trading as an innovative approach to foster water quality improvement among various sources of pollution.
- Pioneered biological nutrient removal at wastewater treatment facilities and implemented a phosphate detergent ban. In spite of a 24% increase in watershed population since 1985, these efforts have resulted in a 39% reduction of nitrogen pollution from wastewater and 58% for phosphorus over the same period.
- Planted nearly 6,000 miles of streamside forests, restored nearly 13,000 acres of wetlands; and preserved nearly 1 million acres of forests, wetlands, farmland and other resource lands;
- Removed blockages to over 2,000 miles of historic spawning grounds for shad and other migratory fish; and implemented significant harvest restrictions to restore a previously collapsed striped bass fishery.

Innovative Partner Actions – EPA's charge is to coordinate and facilitate the Chesapeake Bay Program. While EPA's programs and tools are among the many critical drivers for restoration and protection, numerous other partners contribute substantial actions and resources to the restoration effort. Pennsylvania's Resource Enhancement and Protection Tax Credit Program (REAP) provides $10 million per year for conservation practices via tax credits to farmers and businesses, and its Growing Greener fund provides $100 million per year for a variety of restoration and protection activities. Maryland's Bay Restoration Fund ("Flush Fee") generates $70 million per year for wastewater treatment plant and on-site system upgrades and for agricultural best management practices, and their Chesapeake Bay 2010 Trust Fund provides $25 million per year for restoration. Virginia's Water Quality Improvement Fund provides $400 million per year for wastewater treatment upgrades.

Independent Feedback and Advice – The Chesapeake Bay Program is supported by three independent Advisory Committees (citizens, local government and science). In the past five years, there have been as many as 23-third party or scientific peer review assessments and reports on the Program by the Government Accountability Office, EPA's Inspector General, National Academy of Sciences, National Academy of Public Administration and others. These reports have provided valuable feedback and recommendations for enhancing the effectiveness of the Bay Program.

Comprehensive Assessment and Reporting of Bay Health and Restoration Progress

Each year, the Chesapeake Bay Program partners issue a report to the citizens of the Bay region. The *Chesapeake Bay 2007 Health and Restoration Assessment* (http://www.chesapeakebay.net/content/publications/cbp_26038.pdf) provides a

comprehensive summary of ecosystem health; factors impacting the Bay and its watershed; restoration progress; and the health of freshwater streams and rivers.

The Bay Program tracks 13 ecosystem health indicators of water quality (*e.g.*, dissolved oxygen, mid-channel water clarity), habitats (*e.g.*, bay grasses) and fisheries (*e.g.*, oysters, blue crab, American shad and striped bass) and twenty indicators of restoration progress (*e.g.*, reduction of nutrients and sediments, fish passage restored, lands preserved). Detailed information about each indicator are accessible on the web (www.chesapeakebay.net/indicatorshome.aspx.).

Some key indicators of the health of the Chesapeake Bay include:

- Low dissolved oxygen levels are found throughout much of the Bay during the summer and tidal rivers suffer from algal blooms and severely reduced water clarity.
- Underwater grasses remain at a third of the desired acreage.
- Most stocks of fish and shellfish are still well below historic levels. (This year, Maryland and Virginia cut the crab harvest in an attempt to save the fishery.)
- Hundreds of miles of streams and rivers throughout the watershed are impaired due to local water quality problems.

III. Future Directions and Emphasis

To build on its 25 year legacy and ensure a more sustainable future, the Chesapeake Bay Program and its partners must aggressively adapt, innovate, and accelerate implementation efforts to restore and protect the Bay and its watershed.

We have benefited from recommendations of our reviewing agencies. The health and restoration assessment, for example, is now divided into separate parts to distinguish actual conditions in the Bay from efforts by Bay partners to improve water quality, as recommended by the U.S. Government Accountability Office. EPA and other Bay Program partners are taking more explicit steps to address the impacts of stormwater on the Bay and its watershed, as recommended by an EPA Inspector General report.

Working collaboratively with all the Chesapeake Bay Program partners, EPA is committed to help lead with our partners. Some examples of how the Bay Program partners are incorporating the need to change, adapt and innovate are outlined below.

Promoting "Champions" to Pursue Different Strategies and Approaches

In December 2007, Administrator Johnson, Governors O'Malley, Kaine and Rendell, Mayor Fenty and other Bay Program leaders met for a day to take on "champion" roles to accelerate implementation progress. Each of the leaders agreed to take on a specific interest area and to promote new and innovative approaches that would focus and accelerate implementation efforts, with particular emphasis on reducing nutrients and sediments.

Chesapeake Action Plan: Enhancing Coordination, Management and Accountability

On July 14, 2008, EPA submitted a Report to Congress titled, *Strengthening the Management, Coordination, and Accountability of the Chesapeake Bay Program* (http://cap.chesapeakebay.net/docs/EPA_Chesapeake_Bay_CAP.pdf) on behalf of

the Program partners. The Report summarizes how the Chesapeake Bay Program has responded to the recommendations of the 2005 GAO Report (*Chesapeake Bay Program: Improved Strategies are Needed to Better Assess, Report and Manage Restoration Progress*) (http://www.gao.gov/new.items/d0696.pdf). In addition, the Report summarizes and describes the Chesapeake Action Plan (CAP) called for in the Explanatory Statement accompanying the Consolidated Appropriations Act of 2008 (P.L. 110-161). The development of the Report and the CAP is a collaborative effort with all of the State partners and the key Federal partners in the Bay restoration. The CAP includes four primary components:

- a strategic framework that unifies CBP's existing planning documents and clarifies how CBP partners will pursue the restoration and protection goals for the Bay and its watershed;
- an activity integration plan that catalogues CBP partners' implementation actions and the corresponding resources;
- dashboards, which are high-level summaries of key information that allow readers to understand the status of progress on key program areas; and
- an adaptive management process that promotes the integration of information and analysis with partners' actions and future priorities.

The CAP is enhancing coordination among CBP partners and will encourage them to continually review and improve their progress in protecting and restoring the Bay as well as heighten the level of accountability for meeting Bay restoration goals. The CAP captures the implementation efforts of ten Federal agencies, the six States, the District of Columbia, the Chesapeake Bay Commission and two non governmental

organizations – Ducks Unlimited and the Chesapeake Bay Trust. Future versions of the CAP will be expanded to include a fuller array of partners and be tailored to meet unique partner needs.

Understanding the Impact of Climate Change on the Bay

The Chesapeake Bay Program and partners recognized the potential impacts from climate change in its *Chesapeake 2000* agreement, committing to "evaluate the potential impact of climate change on the Chesapeake Bay watershed, particularly with respect to its wetlands, and consider potential management options." In May 2008, the Bay Program's Scientific and Technical Advisory Committee (STAC) released its report, titled *Climate Change and the Chesapeake Bay: State-of-the-Science Review and Recommendations* (http://www.chesapeake.org/stac/Pubs/climatechangefinaldraft.pdf).

The EPA National Water Program recently proposed a national *Climate Change Strategy* outlining actions needed to maintain the effectiveness of clean water and drinking water programs. The public comment period closed last month and we intend to finalize the *Strategy* this summer.

A key conclusion of the draft Strategy is that coastal areas are likely to be at greater risk from the consequences of climate change than inland areas. Potential climate change impacts such as sea level rise, more intense storms, increasing temperatures, and changes in ocean chemistry may all come together to make adapting to climate change a significant challenge for coastal areas such as Chesapeake Bay. These potential impacts will be compounded by existing stressors

on coastal areas (*e.g.,* land use change and development, population growth) and will require adaption to improve ecosystem resilience. EPA is developing a Climate Ready Estuaries toolkit that will be made available to all coastal managers. EPA will also work with other Federal agencies, including USGS and NOAA, to manage potential impacts of and solutions to climate change in the Bay ecosystem.

Promoting New Approaches for Development – "No Runoff Development"

In September 2007, the EPA Inspector General concluded that growth and development in the Bay watershed are outpacing progress on Bay goals. This is one of the few pollutant sources that is increasing over time. Between 1990 and 2000, the Bay watershed population increased by 8%, while the amount of impervious surface increased by 41%. Population now grows by 130,000 annually and 100 acres of watershed forest lands are lost each day. Growth projections through 2030 show continued explosive growth is many areas.

While the States and EPA are making good progress to improve the effectiveness of our Clean Water Act regulatory program to address stormwater, the Chesapeake Bay Program is working with partners to identify situations where progressive developers, builders and homeowners keep virtually all runoff on a site through a full suite of practices that capture and reuse, infiltrate and evapotranspirate all runoff. This is just one of the innovative approaches that address the Inspector General recommendations.

Targeted and Effective Implementation of New Farm Bill Resources

On May 9, 2007, EPA and USDA committed, through a Memorandum of Understanding (MOU), to work cooperatively on nutrient reduction activities in the Chesapeake Bay watershed. The new 2008 Farm Bill authorizes additional dollars to support implementation of conservation practices on agriculture lands in the watershed. The Bill's new section on the Chesapeake Bay Watershed authorizes $188 million in additional funds for conservation activities in the region over the next five years. Building on the 2007 MOU, the Chesapeake Bay Program is helping to foster dialogues with NRCS and various partners to discuss how these resources can be best utilized and targeted to achieve nutrient and sediment reductions. On July 14, EPA joined with NRCS officials in Annapolis, Maryland to hold a public "Listening Session" attended by approximately 200 people on the Bay provisions of the new Farm Bill.

Engaging Local Governments, Local Watershed Groups and Others

On July 14, 2008, the EPA Inspector General issued an Evaluation Report on the Chesapeake Bay Program titled, *EPA Needs to Better Report Chesapeake Bay Challenges*. This report summarized six previous Inspector General Reports on the Bay Program, and focused on three challenges for the Bay partners: development; agricultural conservation practices; and air emissions.

The Federal and State governments alone cannot restore and protect the Bay and its watershed. The Chesapeake Bay Program partners recognize we must engage many more partners, and ultimately the 17 million residents of the watershed. Consistent with the IG's recommendations, we are developing a strategy to engage both local governments and local watershed groups, building on past efforts and

coordinating with our Local Government Advisory Committee. This new emphasis will help to bring local resources, tools, authorities and programs to the task of restoring the Bay and its watershed.

Continued Understanding of Stressors on the Bay and Watershed

The Chesapeake Bay Program will continue to rely on its world class science and partners to gain an improved understanding of some of the other issues and stressors in the Chesapeake watershed, including for example:

- The contribution of nutrient and pathogen pollution from onsite wastewater systems and septic tanks;
- The contribution and threat of nutrients and legacy sediments from historic dams (*i.e.*, Conowingo Dam);
- Continued investigation of the source(s) of intersex fish and fish kills in the Shenandoah and Potomac and the role of endocrine disruptors and pharmaceuticals; and
- Increased corn production in response to commodity prices and demands for ethanol and the associated increases in nutrient loads and water quality impacts http://www.chesbay.state.va.us/Publications/BiofuelsAndTheBay1.pdf.

Clean Air Interstate Rule (CAIR)

EPA is very concerned that a recent judicial decision under the Clean Air Act will have serious and adverse impacts to the health of the Bay. On July 11, 2008, the DC Circuit Court of Appeals vacated EPA's CAIR rule, which would have required

significant reductions of sulfur dioxide and nitrogen oxides (NOx) from power plants that affect east coast states – and the Chesapeake Bay. The Bay jurisdictions were relying on the CAIR rule to significantly reduce nitrogen emissions by 2010. The 8 million pounds of nitrogen entering the Bay that CAIR would have reduced annually would have improved water quality in the Bay watershed.

Development of a Total Maximum Daily Load (TMDL)

In 2003, the Chesapeake Bay partners established comprehensive nutrient reduction goals for the Bay's major tributaries. This effort has led to major investments in municipal wastewater treatment plant upgrades and reductions in nutrient loadings throughout the watershed. Consistent with this overall approach, EPA and the States have begun to lay the groundwork for development of a TMDL for nutrients and sediments, under the authority of the Clean Water Act. The TMDL for the Bay has a legal deadline of May 2011, but is expected to be completed by the end of 2010. The nutrient and sediment allocations need to be fully developed, as well as a commitment by the partners for adequate public outreach for what will be one of the largest and most complex TMDL undertakings in the Nation.

Conclusion

Thank you again to the Subcommittee for your emphasis on the importance of estuaries and watersheds and ways that we can collectively improve the delivery of existing and new tools, programs, authorities and resources to address the challenges that affect the Chesapeake Bay and other watersheds throughout the Country. EPA will continue to be an advocate for the Chesapeake Bay Program, to

build on its past success, and to adapt, innovate and implement new strategies and approaches that will accelerate restoration and protection of the Chesapeake Bay and its watershed.

CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

Statement of Roy A. Hoagland
Vice President, Environmental Protection and Restoration
Chesapeake Bay Foundation
Before the Subcommittee on Water Resources and Environment
House Committee on Transportation and Infrastructure
July 30, 2008

Madame Chair and members of the subcommittee, thank you for the invitation to be here today. My name is Roy Hoagland. I serve as Vice President for Environmental Protection and Restoration at the Chesapeake Bay Foundation, a nonprofit organization that has been working through education, restoration, and advocacy to Save the Bay since the mid-1960s. I am here today on behalf of our Board of Trustees and our more than 200,000 members.

No specific questions were posed in the subcommittee's invitation letter, but it is my understanding that the subcommittee wants to try to better understand the challenges involved in bringing the Bay back to an acceptable water quality and living resource level and the adequacy of the current federal response.

It is appropriate to begin with a brief snapshot of the Bay's current condition. Since 1998, the Chesapeake Bay Foundation has been publishing a "report card" on the health of the Bay, based on a scale of 1-100. The overall numeric score that the Bay receives each year is a composite of 12 scores on indicators such as water pollution, abundance of natural buffers such as wetlands and forests, and the health of critical species such as the oyster and blue crab. Our 2007 report gave the Bay a 28 – the same score it received in 2000.

In other words, it is our judgment that during the past several years we have neither made significant progress with Bay water quality, nor have we lost a great deal. We have, however, lost a great deal in both water quality and biological productivity over the past several generations.

The Chesapeake Bay ecosystem was once among the most biologically productive estuarine ecosystems on earth. Baltimore writer H.L. Mencken perhaps captured the idea most succinctly when he wrote that in his youth, the Bay was "an immense protein factory." However, over the last hundred years, population growth, inadequate sewage treatment, air pollution, construction runoff, overuse of both commercial and natural fertilizers, and poorly designed urban and suburban stormwater management systems have contributed to a decline in the Bay's water quality, while overfishing, stream blockages and disease have contributed to a dramatic reduction in the numbers of oysters, crabs, menhaden, shad, and other fish species in the Bay and its watershed.

The fundamental systemic challenge to the Chesapeake Bay is poor water quality caused primarily by an excess of the nutrients nitrogen and phosphorus as well as sediment in the Bay. In the world of water quality, geography is closely related to destiny. The Chesapeake Bay is a relatively shallow estuary with a large watershed that includes parts of six states as well as the District of Columbia. It receives its fresh water from a great network of streams that, together, drain more than 64,000 square miles, from north of Cooperstown, New York to west of the Blue Ridge Mountains to the southern counties of Virginia. Virtually all the pollution that runs off the land and finds its way to a stream in that 64,000 square mile area ends up in the Chesapeake Bay. More than 17 million people live in the Bay watershed, and the population continues to grow. We generate a great deal of pollution with our millions of vehicles, thousands of farms, hundreds of villages, towns, and cities, hundreds of sewage treatment plants, tens of thousands of septic systems, and untold numbers of other pollution sources. To make matters worse, nitrogen pollution from air sources from as far away as Michigan contribute to the degradation of the Bay. As the population grows, our pollution grows proportionately.

When considered in this way, holding the line over the past several years is an accomplishment in itself.

Because of the excessive levels of nitrogen and phosphorus pollution, each year there develop large areas in the Chesapeake Bay and its tidal tributaries where there simply isn't enough dissolved oxygen in the water to allow fish and shellfish to live. The common and descriptive name for these areas is "dead zones". They are a result of the process of eutrophication - when the water is overloaded with too many nutrients, predominantly nitrogen and phosphorus. Too many nutrients, combined with warm water temperatures, cause phytoplankton in the water to multiply rapidly. Untold billions of phytoplankton then die, sink to the bottom, and are consumed by bacteria, causing a depletion of dissolved oxygen in the water. Sometimes, in parts of the Bay's waters, we see consequential fish kills and "crab jubilees" due to the lack of dissolved oxygen.

The problem of eutrophication in the Bay is very serious, and seems to be getting worse. For example, a report released earlier this year by the Chesapeake Bay Program tells us that only 12 percent of the Chesapeake Bay and its tidal tributaries met water quality standards for dissolved oxygen during the 2005 to 2007 monitoring period. This is sharply down from the 28 percent of waters that met the same standards during the 2004-2006 period. Some of this particular decline can be attributed to annual variations in temperature and rainfall, which washes pollutants off the land. However, even accounting for weather variations, the problem remains that there are excessive levels of pollution degrading the Bay and the rivers and streams that feed it.

It is important to pause here to note that the problem of nitrogen pollution flowing into coastal waters and depleting the availability of dissolved oxygen is not by any means confined to the Chesapeake Bay. According to the EPA, 44 estuaries along the nation's coasts are highly eutrophic, and an additional 40 estuaries have moderate levels of eutrophic conditions. This year, the dead zone in the Gulf of Mexico is estimated to be the size of New Jersey. Worldwide surveys compiled by the World Resources Institute

have identified 415 coastal bays and estuaries experiencing some form of eutrophication. Analysis of the WRI surveys shows that an incredible 78% of assessed continental US coastal area and 65% of Europe Atlantic coast are experiencing symptoms of eutrophication. There are scientists who believe that eutrophication in estuaries and other coastal areas are a human-induced global environmental phenomenon that rivals global warming in its impact on ecosystems.

Moreover, the inevitability of warming air and water temperatures will make the challenge of eutrophication in the Chesapeake, the Gulf, and other coastal bays and estuaries worse. In the Chesapeake Bay region, it is clear that rising water temperatures and water levels will continue to adversely impact the Bay for many years, exacerbating the dead zone problem, and inundating coastal marshes and other natural buffers that serve as critical filters of pollutants heading for Bay waters.

A brief summary of the federal response to the Bay's challenges

Given the magnitude of the Chesapeake's challenges, it is not surprising that a good deal of effort has been put by into understanding what needs to be done for the Bay and beginning the hard work of pollution reduction and ecosystem restoration. Federal interest in the Bay developed rapidly in the late 1960s and early 1970s, led, at first, by the US Army Corps of Engineers. Following on a late 1960s study of the state of the Bay and projections of future conditions, Maryland Senator Charles "Mac" Mathias was able to secure in the late 1970s a five year EPA study that, among other things, recommended enhanced federal-state cooperation in protecting and restoring the Bay. The resulting Chesapeake Bay Program partnership was created by a 1983 Agreement between the federal government, with EPA as the lead agency, the District of Columbia, the state of Maryland, and the Commonwealths of Pennsylvania and Virginia. Several other federal agencies became Program partners in 1984. Dedicated funding for the activities of the Chesapeake Bay Program was secured for the first time in fiscal year 1985, and the EPA Chesapeake Bay Program Office was authorized by section 117 of the Clean Water Act in the 1987 amendments.

Section 117 was reauthorized most recently in 2000. Funding for the Chesapeake Bay Program Office and several other Chesapeake-related activities continues to be provided through the annual appropriations process and through mandatory funding associated with the Farm Bill. While exact appropriations and mandatory spending levels for programs that assist in the protection and restoration of the Bay and its resources are subject to definition and are therefore somewhat difficult to determine, it can be confidently said that all federal assistance devoted to protection and restoration of the Bay exceeds $250 million each year.

Focusing on the Clean Water Act

Although the Chesapeake Bay Program is the centerpiece of federal-state cooperation in Chesapeake Bay matters, the statutory foundation for pollution reduction activities in the Bay watershed is the federal Clean Water Act. The Clean Water Act begins with the ringing objective of restoring the "chemical, biological, and physical integrity of the Nation's waters" and the goal of completely eliminating the discharge of pollutants into the Nation's waters.

Certainly the Clean Water Act can be counted among this Committee's proudest accomplishments. However, its relative weakness in controlling non-point pollution, which constitutes a high percentage of the Bay's pollution problems, makes it a less than adequate tool for what needs to be done. In plain words, the foundation on which Bay water quality efforts are built needs to be somewhat improved.

In the late 1990s, the Chesapeake Bay and several of its tidal tributaries were formally listed by several states and the EPA on the Clean Water Act Section 303(d) "impaired waters" list due to excessive nitrogen, phosphorus and sediment pollution levels from both point sources and nonpoint sources. A subsequent lawsuit, settled in a 1999 consent decree, and further agreements made by the District of Columbia and the State of Maryland required the development of a state or EPA-developed Total Maximum Daily Load (TMDL) to address the impairments by no later than May, 2011.

A TMDL is a pollution budget specifying the steps necessary to reduce pollution and achieve restored water quality. The intent is that a TMDL will serve to clean up polluted waters. A TMDL is the last line of defense for restored water quality under the Clean Water Act – the need for a TMDL arises only after Clean Water Act permits and other pollution abatement programs have failed to protect water quality.

In June of 2000, the EPA, the Chesapeake Bay Commission, the District of Columbia, and the states of Maryland, Virginia, and Pennsylvania signed the *Chesapeake 2000 Agreement*, in which the most important commitment was to preempt the required TMDL by "correct[ing] the nutrient- and sediment-related problems in the Chesapeake Bay and its tidal tributaries sufficiently to remove the Bay and the tidal portions of its tributaries from the list of impaired waters under the Clean Water Act" by 2010. Subsequently, the EPA, the District of Columbia, Maryland, Virginia, and Pennsylvania, with cooperation from the Bay "headwater states" (New York, Delaware, and West Virginia) determined that the Bay could tolerate no more than 175 million pounds of nitrogen pollution on an annual basis. Reaching the 175 million pound goal necessitated a system-wide reduction of 110 million pounds of nitrogen pollution each year from the estimated levels the Bay was receiving in 2000. The state partners, the District, and the EPA allocated this 110 million pound reduction among themselves and developed plans and identified changes necessary to achieve the 110 million pound nitrogen pollution reduction by 2010. These commitments to achieve the requisite nitrogen and phosphorus reductions delayed the development of a Bay-wide TMDL to address these impairments for more than 10 years.

Despite its good intentions, it is now clear that this voluntary approach to meeting the requirements of the consent decree and other agreements has not been successful. Although the signatory states have each made some significant commitments toward that end, we will finish 2010 far from the achievement of the agreed-upon nitrogen pollution reduction goals. Thus we will revert to what the Clean Water Act requires: development and implementation of a Bay-wide Total Maximum Daily Load for excess nutrients and

sediment, followed by thousands of individual state and local decisions that must provide the required "reasonable assurance" that the TMDL allocations will be achieved.

This is, of course, problematic, when many of the non-point sources of nitrogen that create the impairment currently lie outside the reach of existing local, state or federal law and regulation. This includes, for example, many aspects of agricultural operations or homeowner practices. Other sources, while regulated, require such substantial cost for managing the pollution that local or state units of government ignore them absent strong demand from the state or federal regulators, respectively.

So we come to this: the future state of the Chesapeake Bay, as well as the ultimate success of the untold millions in federal investments that have been made towards its protection and restoration, depends to a high degree on the creation and implementation of an effective Bay-wide TMDL, which in turn depends on EPA's definition of "reasonable assurance" that the limits established in the TMDL will be met. With the current state of the Clean Water Act, "reasonable assurance" is the sole tool that the EPA has available to drive hundreds of state and local non-point source decisions.

The Chesapeake Bay Foundation believes that this is the bottom line: if the Chesapeake Bay TMDL is developed and approved but its pollution limits are not fully and timely implemented by federal, state and local governments, we will simply not be able to restore the Bay. Ongoing increases in pollution, globally warming waters and changing weather patterns in the watershed will ensure that to be the case.

Congress, through this Subcommittee, should have a very strong interest in helping EPA to clarify exactly what "reasonable assurance" means in the context of Bay restoration and long-term protection. The upcoming Bay TMDL is the largest, most complex TMDL that will likely ever have been developed. Its success or failure will say a great deal not only about the future health of the Bay, but about the ultimate value of the Clean Water Act in cleaning up thousands of waterbodies across the United States. TMDLs, to date, have, according to an EPA Office of the Inspector General Report, failed

to drive water quality improvement. This is because, to date, EPA has paid lip service to the requirement of "reasonable assurance," allowing a TMDL to be a paper exercise with little likelihood of implementation or achievement of its goals.

The Chesapeake Bay-wide TMDL offers us the opportunity to establish a new national model for success, not failure.

In 1984, President Ronald Reagan visited Maryland's Tilghman Island, and during his remarks about the importance of the Chesapeake Bay, he asserted that "clearly the time for action is now". Modest new federal programs and budgets then followed the President's remarks, ramping up the federal government's involvement in the restoration and protection of the Bay. However useful those actions have been, 24 years later they have not done the job.

Now, after a nearly ten year delay, we face potentially the most important federal action yet for the long-term health of the Chesapeake Bay. The Chesapeake Bay Foundation believes that Congress should seek to ensure, through force of law, that the development of the Bay-wide nutrient TMDL is not just a paper exercise, but has some teeth. We urge you to strongly consider how section 117 of the Clean Water Act can be rewritten to define precisely what constitutes a "reasonable assurance" that the necessary state and local regulations and budgets will be put in place across the Chesapeake Bay watershed to achieve the required pollution reductions.

I have concentrated almost exclusively today on the notion of ensuring full implementation of the upcoming Bay-wide TMDL. There are, of course, other good ideas for revising section 117 – creating cross-cutting agency budgets, seeking to involve local governments more effectively, separately authorizing grant programs, working with the Ways and Means Committee to create a dedicated source of restoration funding, and so on. We would certainly be pleased to work with you and your staffs as you consider these and other good ideas for section 117. I am grateful for your time today and would be happy to answer any questions that you might have.

STATEMENT OF WILLIAM MATUSZESKI
FORMER DIRECTOR, EPA CHESAPEAKE BAY PROGRAM
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT OF THE
HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

July 30, 2008

Madame Chairwoman and Members of the Subcommittee:

My name is Bill Matuszeski and I served as Director of the Environmental Protection Agency's Chesapeake Bay Program from 1991 to 2001. I thank you for the opportunity to provide you with my perspective on current efforts to restore the Chesapeake Bay.

To use a sailing analogy, some believe the state-federal effort to clean up the Bay has hit the doldrums. If that is so, I would assert that it is probably due in part to the success of the cooperative effort to date. The sources of the problems of the Chesapeake have been identified, and what we learned in getting there has been useful to other estuaries around the nation and throughout the world. Beyond that, the solutions are well-known and widely accepted – to reduce nutrient and sediment loadings to the Bay and to manage its fisheries for sustainability. Loads have been estimated and reductions allocated to each river system. Tributary strategies have been completed. There is frankly little more we need to know about the Bay to know what actions to take.

The problem is that those required actions involve two words that public officials are loathe to use – "taxes" and "regulation". But the simple fact is that what needs to be done requires either public funds or the willingness to make others pay through regulation.

In some areas, we seem to have been able to get this point across. The major point sources of nutrients -- phosphorus and nitrogen – are sewage treatment plants already under the regulatory control of the states and EPA. Because there are already user fees in place for water and sewer services, paying to upgrade these facilities has been relatively easy to accomplish. To their credit, Maryland and Virginia decided early on to deal with the equity issue of the variable costs of upgrading plants with different existing systems by providing state funds as an equalizer. After an initial period of using the strictly regulatory route and encountering strong opposition, Pennsylvania now seems to be moving to a similar shared state/local cost approach. All this has produced good results and promise for more in coming years as upgrades of plants are completed.

In fisheries management, there are also encouraging signs of the willingness of state regulatory agencies to take needed action. The oft-told tale of the recovery of the striped bass after a moratorium on harvest is one example. And the recent actions by Maryland and Virginia to reduce crab harvests to protect the breeding stock were politically courageous. As we learn more about fishery interactions we will need to continue making these sometimes tough decisions. One is probably long overdue with respect to

the harvest of menhaden, which is removing the major food fish of the striped bass and probably leading to higher crab mortality. Interestingly, this decision is in the hands of the Federally-established Atlantic States Marine Fishery Commission, which has been much slower than the states to take obviously-needed action.

In other areas, the willingness to take on the task has been less evident. The other major sources of nutrients and sediment are air pollution (for nitrogen), stormwater and agriculture. And here we start to encounter real reluctance to make the "taxes or regulation" decision.

Air pollution is responsible for up to one-third of the nitrogen overload to the Bay. It comes from power plants, motor vehicles and farms (fans on chicken houses and volatilization from uncovered manure storage and manure spreading). The regulatory structure is in place to deal with this, but it has been ineffective in recent years. Nitrogen controls on power plants and autos have been held up in endless legal and administrative disputes. And no one wants to even look at the farm sources. In fact, whatever the outside forces preventing progress, the use of air pollution authorities to deal with the water pollution effects of nitrogen is crippled by the inability of EPA air bureaucrats to think very far outside their narrow air focus. Rather than see their water colleagues as allies in the battle to control nitrogen, they see them as irrelevant. So the solution here is leadership and making better use of the authorities already in place.

There is similar limited thinking going on with respect to stormwater, which is the only major pollution source to the Bay that is still increasing. EPA and the states have authority and issue regional permits to urban counties and cities to manage stormwater, but the permit requirements are generally vague, hortatory or "soft" efforts like education and public information. As more local TMDL's are produced, there are opportunities to tie the stormwater permits to the required pollution reductions, but there is real reluctance to do this at EPA and the states. Right here in the Anacostia, citizens have spent five years trying to get Maryland and EPA to agree to require Montgomery and Prince Georges Counties to reduce flows and peak flows to the River and its tributaries as part of the stormwater permits, and the jury is still out. Furthermore, there is an overemphasis in state stormwater programs on controls on new development, and not enough on the more important and more difficult issues of reducing flows from existing developed areas and from redevelopment projects. These are all problems that are solvable if EPA was willing to aggressively apply its existing stormwater provisions, and states and localities were willing to respond with programs to charge users and set up stormwater utility districts. But these are not politically popular actions, and there is not an informed-enough public to force them.

Finally, agriculture remains the single largest source of nutrient and sediment pollution to the Bay, despite the widespread efforts in recent decades to reduce loadings. States have been funding programs to assist farmers, and the recent Federal Farm Bill provides for the first time funds directed to the Chesapeake region. But the funding gap is still immense and the idea of regulating farmers remains anathema to many. It has been said that a USDA employee is someone who favors money to farmers to do what they are

already doing or what they would do if they thought about it. Within that mindset, we need to get more and more farmers to "think about it". But beyond this, we need to recognize that while federal regulation of farmers is not going to happen, there may be things states should start to consider. For example, if it is widely accepted that cover crops are a cost-effective way to reduce nutrient excesses in the soil of land used for rowcrops such as corn, and if the state has refused to provide adequate funding, are the only alternatives more money or more voluntary action by farmers? What if that does not get us what we need, and what if cover crops are the most cost-effective way to get there? I am simply saying that, now that Congress has acted to provide Federal funds, at some point further progress is going to require states to make the decision between taxes and regulation for agricultural management practices.

In conclusion, it seems to me that the issue for this Subcommittee and the Congress is not the need for new federal authority in the Chesapeake; it is assuring that Federal agencies are fully and properly using the authorities already in place. Much as EPA has used its point source permit programs with the states to make real progress in sewage treatment plant upgrades, we need to see the Federal executive branch use its authorities to manage interstate fisheries, to break the logjams and recognize the water pollution effects of nitrogen under the Clean Air Act, to assure that EPA is effectively using its stormwater authorities to get on-the-ground results, and to provide help to farmers under the new Farm Bill. Similarly, the state partners need to continue funding the treatment plant upgrades and making tough decisions on fisheries management, to develop innovative stormwater solutions, and to take on the task of making choices about taxes and regulation to get the results we need from agriculture.

Madam Chairwoman, the issues facing the Chesapeake Bay Program will require leadership to address, and I appreciate the leadership you have shown in calling this hearing. Thank you.

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, House of Representatives

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CHESAPEAKE BAY PROGRAM

Recent Actions Are Positive Steps Toward More Effectively Guiding the Restoration Effort

Statement of Anu K. Mittal, Director
Natural Resources and Environment

GAO-08-1033T

GAO
Accountability·Integrity·Reliability

Highlights

Highlights of GAO-08-1033T, a testimony before the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

The Chesapeake Bay Program (Bay Program) was created in 1983 when Maryland, Pennsylvania, Virginia, the District of Columbia, the Chesapeake Bay Commission, and the Environmental Protection Agency (EPA) agreed to establish a partnership to restore the Bay. The partnership's most recent agreement, *Chesapeake 2000*, sets out five broad goals to guide the restoration effort through 2010. This testimony summarizes the findings of an October 2005 GAO report (GAO-06-96) on (1) the extent to which measures for assessing restoration progress had been established, (2) the extent to which program reports clearly and accurately described the bay's health, (3) how much funding was provided for the effort for fiscal years 1995 to 2004, and (4) how effectively the effort was being coordinated and managed. It also summarizes actions taken by the program in response to GAO's recommendations. GAO reviewed the program's 2008 report to Congress and discussed recent actions with program officials.

What GAO Recommends

In 2005, GAO recommended that the Bay Program complete efforts to develop and implement an integrated approach, revise its reports to improve their effectiveness and credibility, and develop a comprehensive, coordinated implementation strategy that takes into account available resources. GAO is not making new recommendations.

To view the full product, including the scope and methodology, click on GAO-08-1033T. For more information, contact Anu Mittal, (202) 512-3841, mittala@gao.gov.

July 30, 2008

CHESAPEAKE BAY PROGRAM

Recent Actions Are Positive Steps Toward More Effectively Guiding the Restoration Effort

What GAO Found

In 2005, GAO found that the Bay Program had over 100 measures to assess progress toward meeting some restoration commitments and guide program management. However, the program had not developed an integrated approach that would translate these individual measures into an assessment of progress toward achieving the restoration goals outlined in *Chesapeake 2000*. For example, while the program had appropriate measures to track crab, oyster, and rockfish populations, it did not have an approach for integrating the results of these measures to assess progress toward its goal of protecting and restoring the bay's living resources. In response to GAO's recommendation, the Bay Program has integrated key measures into 3 indices of bay health and 5 indices of restoration progress.

In 2005, the reports used by the Bay Program did not provide effective and credible information on the health status of the bay. Instead, these reports focused on individual trends for certain living resources and pollutants, and did not effectively communicate the overall health status of the bay. These reports were also not credible because actual monitoring data had been commingled with the results of program actions and a predictive model, and the latter two tended to downplay the deteriorated conditions of the bay. Moreover, the reports lacked independence, which led to rosier projections of the bay's health than may have been warranted. In response to GAO's recommendations, the Bay Program developed a new report format and has tried to enhance the independence of the reporting process. However, the new process does not adequately address GAO's concerns about independence.

From fiscal years 1995 through 2004, the restoration effort received about $3.7 billion in direct funding from 11 key federal agencies; the states of Maryland, Pennsylvania, and Virginia; and the District of Columbia. These funds were used for activities that supported water quality protection and restoration, sound land use, vital habitat protection and restoration, living resources protection and restoration, and stewardship and community engagement. During this period, the restoration effort also received an additional $1.9 billion in funding from federal and state programs for activities that indirectly contribute to the restoration effort.

In 2005, the Bay Program did not have a comprehensive, coordinated implementation strategy to help target limited resources to those activities that would best achieve the goals outlined in *Chesapeake 2000*. The program was focusing on 10 key commitments and had developed numerous planning documents, but some of these documents were inconsistent with each other or were perceived as unachievable by the partners. In response to GAO's recommendations, the Bay Program has taken several actions, such as developing a strategic framework to unify planning documents and identify how it will pursue its goals. While these actions are positive steps, additional actions are needed before the program has the comprehensive, coordinated implementation strategy recommended by GAO.

Madam Chairwoman and Members of the Subcommittee:

I am pleased to be here today to participate in your second hearing focusing on the importance of protecting the health of our nation's great water bodies, such as the Chesapeake Bay. As you know, the Chesapeake Bay is the nation's largest estuary and has been recognized by Congress as a national treasure. In response to the deteriorating conditions of the bay, in 1983, the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission;[1] and the Environmental Protection Agency (EPA) first partnered to protect and restore the bay by establishing the Chesapeake Bay Program (Bay Program). Subsequent agreements in 1987, 1992, and 2000 reaffirmed the partners' commitment to bay restoration, and in their most recent agreement, *Chesapeake 2000*, which was signed in June 2000, they established 102 commitments organized under five broad restoration goals to be achieved by 2010.

In October 2005, we issued a report on the Chesapeake Bay restoration effort that addressed (1) the extent to which the Bay Program had established appropriate measures for assessing restoration progress, (2) the extent to which the reporting mechanisms the Bay Program used clearly and accurately described the bay's overall health, (3) how much funding had been provided by federal and state partners for restoring the Chesapeake Bay for fiscal years 1995 through 2004 and for what purposes, and (4) how effectively the restoration effort had been coordinated and managed.[2]

Our report included six recommendations—one recommendation to develop and implement an integrated approach to measure overall progress, three recommendations to enhance the effectiveness and credibility of the Bay Program's public reporting, and two recommendations to improve the management and coordination of the restoration effort. Since our report was issued, the Bay Program, with the encouragement of Congress, has been taking steps to address the findings and recommendations we identified in our 2005 report. My testimony today will therefore cover the concerns we raised in 2005, the recommendations that we made to address these concerns, and our

[1]The Chesapeake Bay Commission is a tristate legislative assembly representing Maryland, Pennsylvania, and Virginia.

[2]GAO, *Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress*, GAO-06-96 (Washington, D.C.: Oct. 28, 2005).

assessment of the steps that the Bay Program has taken to address our recommendations.

For our 2005 report, we reviewed planning and program implementation documents and funding data from Bay Program partners. We also convened a panel of nationally recognized ecosystem restoration and assessment experts. For the 2005 report, we conducted our work from October 2004 to October 2005 in accordance with generally accepted government auditing standards. For this testimony statement, we updated our 2005 report by assessing the progress that the Bay Program has made in implementing our recommendations. We reviewed Bay Program documents, such as a July 2008 report to Congress, entitled *Strengthening the Management, Coordination, and Accountability of the Chesapeake Bay Program* and the Bay Program's Scientific and Advisory Committee bylaws and operational guidance. We also looked at partners' activities and funding data in the new Bay Program database, and spoke with officials at EPA's Chesapeake Bay Program Office. We conducted our work in July 2008 in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary:

- In 2005, we reported that the Bay Program had established over 100 measures to assess progress toward meeting some of its commitments and provide information to guide management decisions. For example, the program had measures for assessing trends in various living resources such as oysters and crabs, and pollutants such as nitrogen and phosphorus levels. However, the program had not developed an approach that would allow it to integrate all of these measures and thereby assess the progress made by the overall restoration effort in achieving the five goals outlined in *Chesapeake 2000*. We recommended that the Bay Program develop such an approach, which would allow the program to combine its individual measures into a few broader-scale measures that it could then use to assess key ecosystem attributes and present an overall assessment of this complex ecosystem restoration project. In response to our recommendation, the Bay Program integrated key measures to develop three indices of bay health and five indices of restoration progress and has used these indices to present overall assessments of the health of the bay and the restoration effort. We believe that these new indices will allow the

Bay Program to provide a better overall assessment of the bay's health and the restoration progress.

- In 2005, we also found that the Bay Program's primary mechanism for reporting on the health status of the bay—the *State of the Chesapeake Bay* report—did not provide an effective or credible assessment of the bay's current health status. These reports were not effective because, like the program's measures, they focused on individual species and pollutants instead of providing an overall assessment of the bay's health. Often, these reports showed diverging trends for certain aspects of the ecosystem, making it difficult for the public and other stakeholders to determine what the current condition of the bay really was. These reports were also not credible because they (1) commingled data on the bay's health with program actions and modeling results, which tended to downplay the deteriorated conditions of the bay and (2) were not subject to an independent review process. As a result, we concluded that the Bay Program reports may have been projecting a rosier picture of the health of the bay than may have been warranted. In response to our recommendations, the Bay Program took several steps to improve the effectiveness and credibility of its reports. However, we believe the Bay Program can take additional steps to establish an independent peer review process that will enhance the credibility and objectivity of its reports.

- For fiscal years 1995 through 2004, we reported that about $3.7 billion in direct funding was provided for the Chesapeake Bay restoration effort by 11 key federal agencies; the states of Maryland, Pennsylvania, and Virginia; and the District of Columbia.[3] An additional $1.9 billion was provided for activities that had an indirect impact on bay restoration. Although we did not make any recommendations about the need to collect and aggregate information on the amount of funding contributed by the various partners to the effort, since we issued our report, the Bay Program has set up a formal data collection effort. The Bay Program has established a Web-based system for collecting information from its partners on the amount and source of funding being used and planned for restoration activities.

[3]Key federal agencies include the U.S. Department of Agriculture's Farm Service Agency, Forest Service, and Natural Resources Conservation Service; Department of Commerce's National Oceanic and Atmospheric Administration; Department of Defense's Army, Army Corps of Engineers, and Navy/Marine Corps; Department of the Interior's Fish and Wildlife Service, U.S. Geological Survey, and National Park Service; and EPA. For purposes of our report and this testimony, we defined direct funds as those that are provided exclusively for bay restoration activities (e.g., increasing the oyster population) or those that would no longer be made available in the absence of the restoration effort.

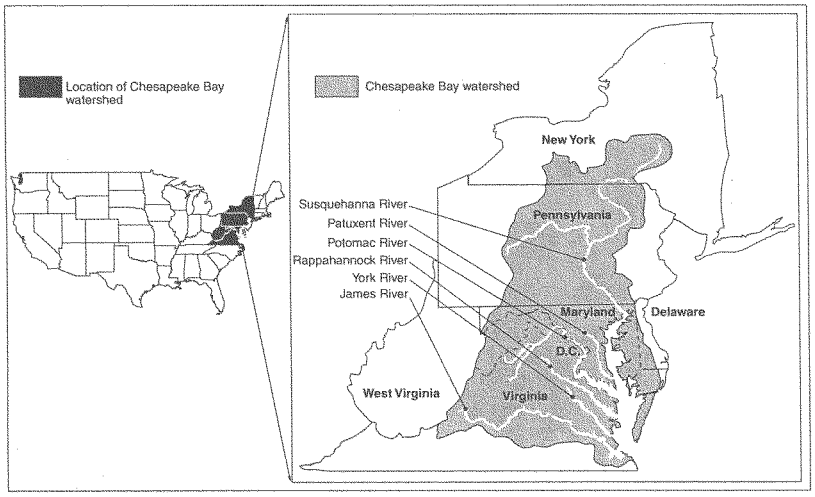
- Finally, in 2005 we reported that the Bay Program did not have a comprehensive, coordinated implementation strategy that would allow it to strategically target limited resources to the most effective restoration activities. Recognizing that it could not manage all 102 commitments outlined in *Chesapeake 2000*, the Bay Program had focused its efforts on 10 keystone commitments. We also found that although the Bay Program had developed numerous planning documents, some of these documents were inconsistent with each other and some of the plans were perceived to be unachievable by stakeholders. Moreover, the program invested scarce resources in developing and updating certain plans, even though it knew that it did not have the resources to implement them. While we recognized that the Bay Program often had no assurance about the level of funds that may be available beyond the short term, we concluded that this large and difficult restoration project cannot be effectively managed and coordinated without a realistic strategy that unifies all of its planning documents and targets its limited resources to the most effective restoration activities. In response to our recommendations, the Bay Program has taken several actions to improve the coordination and management of the restoration effort, such as developing a strategic framework to articulate how the partnership will pursue its goals. While these actions appear to be positive steps in the right direction, we believe that additional actions, such as identifying resources and assigning accountability to partners for implementing the strategy, are needed for the Bay Program to move forward in a more strategic and well-coordinated manner.

We discussed our assessment of the Bay Program's actions taken in response to our recommendations with program officials. Based on this discussion, we incorporated technical changes to this statement.

Background

The Chesapeake Bay is the largest of the nation's estuaries, measuring nearly 200 miles long and 35 miles wide at its widest point. Roughly half of the bay's water comes from the Atlantic Ocean, and the other half is freshwater that drains from the land and enters the bay through the many rivers and streams in its watershed basin. As shown in figure 1, the bay's watershed covers 64,000 square miles and spans parts of six states—Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia—and the District of Columbia.

Figure 1: Chesapeake Bay Watershed



Sources: Chesapeake Bay Program Office and GAO.

Over time, the bay's ecosystem has deteriorated. The bay's "dead zones"—where too little oxygen is available to support fish and shellfish—have increased, and many species of fish and shellfish have experienced major

declines in population. The decline in the bay's living resources has been cause for a great deal of public and political attention.

Responding to public outcry, on December 9, 1983, representatives of Maryland, Pennsylvania, and Virginia; the District of Columbia; EPA; and the Chesapeake Bay Commission signed the first Chesapeake Bay agreement. Their agreement established the Chesapeake Executive Council and resulted in the Chesapeake Bay Program—a partnership that directs and conducts the restoration of the bay. The signatories to the agreement reaffirmed their commitment to restore the bay in 1987 and again in 1992. The partners signed the most current agreement, *Chesapeake 2000*, on June 28, 2000. *Chesapeake 2000*—identified by the Bay Program as its strategic plan—sets out an agenda and goals to guide the restoration efforts through 2010 and beyond. In *Chesapeake 2000*, the signatories agreed to 102 commitments—including management actions, such as assessing the trends of particular species, as well as actions that directly affect the health of the bay. These commitments are organized under the following five broad restoration goals:

- *Protecting and restoring living resources*—14 commitments to restore, enhance, and protect the finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem;
- *Protecting and restoring vital habitats*—18 commitments to preserve, protect, and restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the bay and its rivers;
- *Protecting and restoring water quality*—19 commitments to achieve and maintain the water quality necessary to support the aquatic living resources of the bay and its tributaries and to protect human health;
- *Sound land use*—28 commitments to develop, promote, and achieve sound land use practices that protect and restore watershed resources and water quality, maintain reduced pollutant inputs to the bay and its tributaries, and restore and preserve aquatic living resources; and
- *Stewardship and community engagement*—23 commitments to promote individual stewardship and assist individuals, community-based organizations, businesses, local governments, and schools to undertake initiatives to achieve the goals and commitments of the agreement.

As the only federal signatory to the Chesapeake Bay agreements, EPA is responsible for spearheading the federal effort within the Bay Program through its Chesapeake Bay Program Office. Among other things, the Chesapeake Bay Program Office is to develop and make available information about the environmental quality and living resources of the Chesapeake Bay ecosystem; help the signatories to the Chesapeake Bay agreement develop and implement specific plans to carry out their responsibilities; and coordinate EPA's actions with those of other appropriate entities to develop strategies to improve the water quality and living resources in the Chesapeake Bay ecosystem.

The Bay Program Has Developed an Integrated Approach to Better Assess Overall Restoration Progress

In October 2005, we found that the Bay Program had established 101 measures to assess progress toward meeting some restoration commitments and provide information to guide management decisions. For example, the Bay Program had developed measures for determining trends in individual fish and shellfish populations, such as crabs, oysters, and rockfish. The Bay Program also had a measure to estimate vehicle emissions and compare them to vehicle miles traveled to help establish reduction goals for contaminants found in these emissions.

While the Bay Program had established these 101 measures, we also found that it had not developed an approach that would allow it to translate these individual measures into an overall assessment of the progress made in achieving the five broad restoration goals. For example, although the Bay Program had developed measures for determining trends in individual fish and shellfish populations, it had not yet devised a way to integrate those measures to assess the overall progress made in achieving its *Living Resource Protection and Restoration* goal. According to an expert panel of nationally recognized ecosystem assessment and restoration experts convened by GAO, in a complex ecosystem restoration project like the Chesapeake Bay, overall progress should be assessed by using an integrated approach. This approach should combine measures that provide information on individual species or pollutants into a few broader-scale measures that can be used to assess key ecosystem attributes, such as biological conditions.

According to an official from the Chesapeake Bay Program Office, the signatories to the Chesapeake Bay agreement had discussed the need for an integrated approach for several years, but until recently it was generally not believed that, given limited resources, the program could develop an approach that was scientifically defensible. The program began an effort in November 2004 to develop, among other things, a framework for

organizing the program's measures and a structure for how the redesign work should be accomplished. In our 2005 report, we recommended that the Chesapeake Bay Program Office complete its efforts to develop and implement such an integrated approach.

In response to our recommendation, a Bay Program task force identified 13 key indicators for measuring the health of the bay and categorized these indicators into 3 indices of bay health. With the development of these indices, the Bay Program should be in a better position to assess whether restoration efforts have improved the health of the bay. These indices will also help the Bay Program determine whether changes are needed to its planned restoration activities. The task force also identified 20 key indicators for measuring the progress of restoration efforts and categorized these indicators into 5 indices of restoration efforts. According to the Bay Program, these indices are now being used to assess and report on the overall progress made in restoring the bay's health and in implementing restoration efforts. The Bay Program has linked these restoration effort indices to the overall restoration goals and this should help the program better evaluate the progress it has made toward meeting the overall goals.

The Bay Program Has Improved Report Formats but Has Not Taken Adequate Steps to Enhance the Independence of the Reporting Process

In 2005, we determined that the Bay Program's primary mechanism for reporting on the health status of the bay—the *State of the Chesapeake Bay* report—did not effectively communicate the current health status of the bay. This was because it mirrored the shortcomings in the program's measures by focusing on the status of individual species or pollutants instead of providing information on a core set of ecosystem characteristics. For example, the 2002 and 2004 *State of the Chesapeake Bay* reports provided data on oysters, crab, rockfish, and bay grasses, but the reports did not provide an overall assessment of the current status of living resources in the bay or the health of the bay. Instead, data were reported for each species individually. The 2004 *State of the Chesapeake Bay* report included a graphic that depicted oyster harvest levels at historic lows, with a mostly decreasing trend over time, and a rockfish graphic that showed a generally increasing population trend over time. However, the report did not provide contextual information that explained how these measures were interrelated or what the diverging trends meant about the overall health of the bay. The experts we consulted agreed that the 2004 report was visually pleasing but lacked a clear, overall picture of the bay's health and told us that the public would probably not be able to easily and accurately assess the current condition of the bay from the information reported.

We also found that the credibility of the *State of the Chesapeake Bay* reports had been undermined by two key factors. First, the Bay Program had commingled data from three sources when reporting on the health of the bay. Specifically, the reports mixed actual monitoring information on the bay's health status with results from a predictive model and the progress made in implementing specific management actions, such as acres of wetlands restored. The latter two results did little to inform readers about the current health status of the bay and tended to downplay the bay's actual condition. Second, the Bay Program had not established an independent review process to ensure that its reports were accurate and credible. The officials who managed and were responsible for the restoration effort also analyzed, interpreted, and reported the data to the public. We believe this lack of independence in reporting led to the Bay Program's projecting a rosier view of the health of the bay than may have been warranted. Our expert panelists also told us that an independent review panel—to either review the bay's health reports before issuance or to analyze and report on the health status independently of the Bay Program—would significantly improve the credibility of the program's reports.

In 2005, we recommended that the Chesapeake Bay Program Office revise its reporting approach to improve the effectiveness and credibility of its reports by (1) including an assessment of the key ecological attributes that reflect the bay's current health conditions, (2) reporting separately on the health of the bay and on the progress made in implementing management actions, and (3) establishing an independent and objective reporting process.

In response to our recommendation that reports should include an ecological assessment of the health of the bay, the Bay Program has developed and used a set of 13 indicators of bay health to report on the key ecological attributes representing the health of the bay. In response to our recommendation that the program should separately report on the health of the bay and management actions, the Bay Program has developed an annual reporting process that distinguishes between ecosystem health and restoration effort indicators in its annual report entitled *Chesapeake Bay Health and Restoration Assessment*. The most recent report, entitled *Chesapeake Bay 2007 Health and Restoration Assessment*, is divided into four chapters: chapter one is an assessment of ecosystem health, chapter two describes factors impacting bay and watershed health, chapter three is an assessment of restoration efforts, and chapter four provides a summary of local water quality assessments. We believe that the new report format is a more effective communications

framework and clearly distinguishes between the health of the bay and management actions being taken.

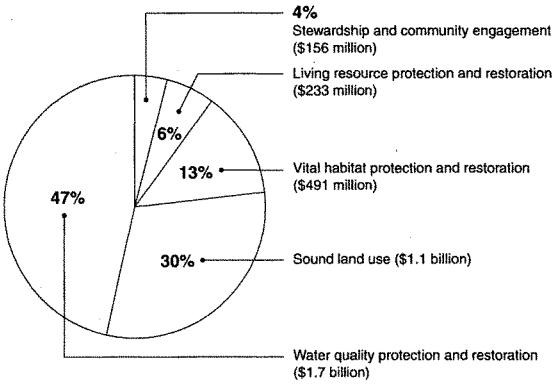
In response to our recommendation to establish an independent and objective reporting process, the Bay Program has charged its Scientific and Technical Advisory Committee with responsibility for assuring the scientific integrity of the data, indicators, and indices used in the Bay Program's publications. In addition, the Bay Program instituted a separate reporting process on the bay's health by the University of Maryland Center for Environmental Science. This report, which is released on the same day as the Bay Program's release of the Chesapeake Bay Health and Restoration Assessment, provides an assessment of the bay's health in a report card format. While we recognize that the changes are an improvement over the reporting process that was in place in 2005, we remain concerned about the lack of independence in the process. Although members of the Scientific and Technical Advisory Committee are not managing the day-to-day program activities, this committee is a standing committee of the Bay Program and provides input and guidance to the Bay Program on how to develop measures to restore and protect the Chesapeake Bay. In addition, we do not believe that the report card prepared by the University of Maryland Center for Environmental Science is as independent as the Bay Program believes, because several members of the Scientific and Technical Advisory Committee are also employees of the University of Maryland Center for Environmental Science. We therefore continue to believe that establishing a more independent reporting process would enhance the credibility and objectivity of the Bay Program's reports.

Federal Agencies and States Provided Billions of Dollars in Both Direct and Indirect Funding for Restoration Activities

From fiscal years 1995 through 2004, we reported that 11 key federal agencies; the states of Maryland, Pennsylvania, and Virginia; and the District of Columbia provided almost $3.7 billion in direct funding to restore the bay. Federal agencies provided a total of approximately $972 million in direct funding, while the states and the District of Columbia provided approximately $2.7 billion in direct funding for the restoration effort over the 10-year period. Of the federal agencies, the Department of Defense's U.S. Army Corps of Engineers provided the greatest amount of direct funding—$293.5 million. Of the states, Maryland provided the greatest amount of direct funding—more than $1.8 billion—which is over $1.1 billion more than any other state. Typically, the states provided about 75 percent of the direct funding for restoration, and the funding has generally increased over the 10-year period. As figure 2 shows, the largest

percentage of direct funding—approximately 47 percent—went to water quality protection and restoration.

Figure 2: Percentage of the Total Direct Funding Provided for Addressing Each of the Five *Chesapeake 2000* Goals, Fiscal Years 1995 through 2004



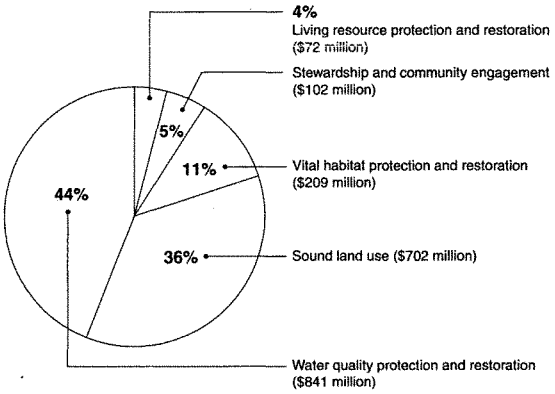
Source: GAO analysis of agency data, in constant 2004 dollars.

We also reported that 10 of the key federal agencies, Pennsylvania, and the District of Columbia provided about $1.9 billion in additional funding from fiscal years 1995 through 2004 for activities that indirectly affect bay restoration. These activities were conducted as part of broader agency efforts and/or would continue without the restoration effort. Federal agencies provided approximately $935 million in indirect funding, while Pennsylvania and the District of Columbia together provided approximately $991 million in indirect funding for the restoration effort over the 10-year period.[4] Of the federal agencies, the U.S. Department of Agriculture provided the greatest amount of indirect funding—$496.5 million—primarily

[4]In addition to the funding provided for the restoration of the bay, EPA provided more than $1 billion to Maryland, Pennsylvania, and Virginia through its Clean Water State Revolving Fund program during fiscal years 1995 through 2004. The funds provide low-cost loans or other financial assistance for a wide range of water quality infrastructure projects and other activities, such as implementing agricultural best management practices.

through its Natural Resources Conservation Service. Of the states, Pennsylvania provided the greatest amount of indirect funding—$863.8 million. As with direct funding, indirect funding for the restoration effort had also generally increased over fiscal years 1995 through 2004. As figure 3 shows, the largest percentage of indirect funding—approximately 44 percent—went to water quality protection and restoration.

Figure 3: Percentage of the Total Indirect Funding Provided for Addressing Each of the Five *Chesapeake 2000* Goals, Fiscal Years 1995 through 2004



Source: GAO analysis of agency data, in constant 2004 dollars.

Despite the almost $3.7 billion in direct funding and more than $1.9 billion in indirect funding that had been provided to restore the bay, the Chesapeake Bay Commission estimated in a January 2003 report that the restoration effort faced a funding gap of nearly $13 billion to achieve the goals outlined in *Chesapeake 2000* by 2010. Subsequently, in an October 2004 report, the Chesapeake Bay Watershed Blue Ribbon Finance Panel estimated that the restoration effort is grossly underfunded and recommended that a regional financing authority be created with an initial

capitalization of $15 billion, of which $12 billion would come from the federal government.[5]

Although we did not recommend that the Bay Program consider developing a formal process for collecting and aggregating information on the amount of funding provided by the various restoration partners, the program has developed a database to capture this information. Recognizing the need to centrally and consistently account for the activities and funding sources of all Bay Program partners, the program created a Web-based form to collect information on the amount and source of funding being used and planned for restoration activities. Currently, the Bay Program has collected funding data for 2007 through 2009. However, according to the Bay Program, only the 2007 data—totaling $1.1 billion—represents a comprehensive, quality data set, and the program has plans to improve this database by having additional partners provide data and increasing the scope and quality of the information.

The Bay Program Has Established a Strategic Framework but Key Elements to More Effectively Coordinate and Manage the Restoration Effort Are Still Needed

In our 2005 report we found that although *Chesapeake 2000* provides the current vision and overall strategic goals for the restoration effort, along with short- and long-term commitments, the Bay Program lacked a comprehensive, coordinated implementation strategy that could provide a road map for accomplishing the goals outlined in the agreement. In 2003, the Bay Program recognized that it could not effectively manage all 102 commitments outlined in *Chesapeake 2000* and adopted 10 keystone commitments as a management strategy to focus the partners' efforts. To achieve these 10 keystone commitments, the Bay Program had developed numerous planning documents. However, we found that these planning documents were not always consistent with each other. For example, the program developed a strategy for restoring 25,000 acres of wetlands by 2010. Subsequently, each state within the bay watershed and the District of Columbia developed tributary strategies that described actions for restoring over 200,000 acres of wetlands—far exceeding the 25,000 acres that the Bay Program had developed strategies for restoring. While we recognize that partners should have the freedom to develop higher targets

[5]The Chesapeake Bay Watershed Blue Ribbon Finance Panel was established to identify funding sources sufficient to implement basinwide cleanup plans so that the bay and tidal tributaries would be restored sufficiently by 2010 to remove them from the list of impaired waters under the Clean Water Act. The panel was composed of 15 leaders from the private sector, government, and the environmental community.

than established by the Bay Program, we were concerned that having such varying targets could cause confusion, not only for the partners, but for other stakeholders about what actions are really needed to restore the bay, and such varying targets appeared to contradict the effort's guiding strategy of taking a cooperative approach to achieving the restoration goals.

We also found that the Bay Program partners had devoted a significant amount of their limited resources to developing strategies that were either not being used by the Bay Program or were believed to be unachievable within the 2010 time frame. For example, the program invested significant resources to develop a detailed toxics work plan for achieving the toxics commitments in *Chesapeake 2000*. Even though the Bay Program had not been able to implement this work plan because personnel and funding had been unavailable, program officials told us that the plan was being revised. It was therefore unclear to us why the program was investing additional resources to revise a plan for which the necessary implementation resources were not available, and which was also not one of the 10 keystone commitments. According to a Bay Program official, strategies are often developed without knowing what level of resources will be available to implement them. While the program knows how much each partner has agreed to provide for the upcoming year, the amount of funding that partners will provide in the future is not always known. Without knowing what funding will be available, the Bay Program has been limited in its ability to target and direct funding toward those restoration activities that will be the most cost effective and beneficial.

As a result of these findings in 2005, we recommended that the Bay Program (1) develop a comprehensive, coordinated implementation strategy and (2) better target limited resources to the most effective and realistic work plans. In response to our recommendation to develop a comprehensive and coordinated implementation strategy, the Bay Program has developed a strategic framework to unify existing planning documents and articulate how the partnership will pursue its goals. According to the Bay Program, this framework is intended to provide the partners with a common understanding of the partnership's agenda of work, a single framework for all bay protection and restoration work, and, through the development of realistic annual targets, a uniform set of measures to evaluate the partners' progress in improving the bay. However, while this framework provides broad strategies for meeting the Bay Program's goals, it does not identify the activities that will be implemented to meet the goals, resources needed to implement the activities, or the partner(s) who will be responsible for funding and

implementing the activities. Therefore, we continue to believe that additional work is needed before the strategy that the Bay Program has developed can be considered a comprehensive, coordinated implementation strategy that can move the restoration effort forward in a more strategic and well-coordinated manner.

In response to our recommendation that the program target resources to the most cost-effective strategies, according to the Bay Program, in addition to the strategic framework described above, it has developed

- annual targets that it believes are more realistic and likely to be achieved;
- an activity integration plan system to identify and catalogue partners' current and planned implementation activities and corresponding resources; and
- program progress dashboards, which provide high-level summaries of key information, such as status of progress, summaries of actions and funding, and a brief summary of the challenges and actions needed to expedite progress.

According to the Bay Program, it has also adopted an adaptive management process, which will allow it to modify the restoration strategy in response to testing, monitoring, and evaluating applied strategies and incorporating new knowledge, and thereby, better inform partners' actions, emphasis, and future priorities. Bay Program officials told us that these actions have started to have the intended effects of promoting enhanced coordination among the partners, encouraging partners to review and improve their progress in protecting and restoring the bay, increasing the transparency of the Bay Program's operations, and improving the accountability of the Bay Program and its partners for meeting the bay health and restoration goals. We believe these actions are positive steps toward responding to our recommendation and improving the management and coordination of the Bay Program.

In addition, the Bay Program partners have established a funding priority framework that lists priorities for agriculture, wastewater treatment, and land management activities. While these priorities can be used to help achieve some of the annual targets established by the program, other annual targets—such as those for underwater bay grasses and oysters—do not have priorities associated with them. We believe that a clear set of priorities linked to the annual targets can help the partners focus the limited

resources available to those activities that provide the greatest benefit to the health of the bay.

In closing, Madam Chairwoman, it is well recognized that restoring the Chesapeake Bay is a massive, difficult, and complex undertaking. Our October 2005 report documented how the success of the program had been undermined by the lack of (1) an integrated approach to measure overall progress; (2) independent and credible reporting mechanisms; and (3) coordinated implementation strategies. These deficiencies had resulted in a situation in which the Bay Program could not present a clear and accurate picture of what the restoration effort had achieved, could not effectively articulate what strategies would best further the broad restoration goals, and could not identify how to set priorities for using limited resources. Since our report was issued, the Bay Program, with encouragement from Congress, has taken our recommendations seriously and has taken steps to implement them. The Bay Program has made important progress, and we believe that these initial steps will enable better management of the restoration effort. However, additional actions are still needed to ensure that the restoration effort is moving forward in the most cost-effective manner.

Madam Chairwoman, this concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have.

Contacts and Acknowledgments

Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. For further information about this testimony, please contact Anu Mittal at (202) 512-3841 or mittala@gao.gov. Other individuals making significant contributions to this testimony were Sherry McDonald, Assistant Director, and Barbara Patterson.

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Testimony of
W. Tayloe Murphy, Jr.
Before the
Subcommittee on Water Resources and Environment
United States House of Representatives
Protecting and Restoring America's Great Waters II: The Chesapeake Bay
Washington, D.C. 20515

July 30, 2008

Chairwoman Johnson and members of the Subcommittee on Water Resources and Environment, thank you very much for the invitation to appear before you today. I always appreciate having the opportunity to testify on behalf of the protection and restoration of the Chesapeake Bay. My name is Tayloe Murphy. I am an attorney with an office in Warsaw, Virginia, located in the Northern Neck, the peninsula bounded by the Potomac and Rappahannock Rivers and the Chesapeake Bay. I reside on a family farm in Westmoreland County that fronts the Potomac. My entire life has been spent in this area, and I have personally witnessed the deterioration in water quality, loss of habitat and dwindling living resources that plague this unique estuary even as we discuss its future here today.

From 1982 to 2000 I was a member of the Virginia House of Delegates representing the Northern Neck . During that same time I was also a member of the Chesapeake Bay Commission and three times its Chairman. From 2002 to 2006, I served the Commonwealth as Secretary of Natural Resources in the administration of Governor Mark R. Warner whom I represented on the Commission for four years. Accordingly, I have served a total of 22 years on the Chesapeake Bay Commission. I was present at the 1983 Chesapeake Bay Conference at George Mason University where the Bay Program as we know it today was launched pursuant to a short agreement signed by the Governors of Maryland, Pennsylvania and Virginia, the Administrator of the U. S. Environmental Protection Agency, the Mayor of the District of Columbia and the Chairman of the Chesapeake Bay Commission.

In the two succeeding decades I worked closely with the Chesapeake Bay Program office in Annapolis. The Program Office Directors and their staff personnel have been an invaluable resource to the bay watershed jurisdictions. Without them the successes of the Bay Program would have been impossible. The scientific data developed through the Program Office's modeling capabilities and the monitoring of Bay conditions have formed the basis for the programs that have been adopted. Unfortunately, many of those programs have gone unfunded and have not accomplished the goals that they were designed to achieve.

I hope that today's hearing will help to increase the federal legislative support that is necessary to reach our water quality goals – not goals that will bring back the Bay that Captain John Smith explored 400 years ago , but rather goals that give the Bay a fighting chance to heal itself and once again serve as a valuable economic and

environmental engine for the District of Columbia, the six states that share its watershed, and the nation.

Although much remains to be done, I do not mean to suggest that the efforts we have made in the past have been wasted. In many respects, those efforts have allowed us to hold the line against further degradation in the face of a fast growing population. We have made progress through the efforts of farmers, local governments, sewage treatment plant operators, developers and many others who, through incentives or by regulation, have installed and maintained nutrient and sediment reduction practices. As with any complex and complicated venture of this magnitude, the more we have done, the more we have learned, and the more we learn causes us to realize that the problems are deeper and require a more vigorous and advanced set of solutions and a long term commitment.

The Chesapeake Bay Program that was initiated in 1983 may not have come about at all had it not been for congressional authorization of the decade long study by EPA that was released late in 1982. This study found that there were three factors that resulted in the Bay's decline: an overabundance of nutrients, the decline of underwater grasses (known as submerged aquatic vegetation or SAV) and the presence of toxic chemicals in the water. These very same problems confront us today. However, it was the case then – and it is the case now – that excess nutrients and sediments constitute the most significant and widespread problem facing the Bay and its tributaries.

The second Chesapeake Bay Agreement, signed by the original signatories in 1987, set – for the first time – measurable goals for the reduction of nutrients. This agreement was amended in 1992 to require the preparation of the first "tributary strategies." Despite the commitments contained in these documents and our efforts at nutrient reduction , in 1999 the Environmental Protection Agency added the Chesapeake Bay and its tidal tributaries to its list of "impaired waters" because excessive amounts of nitrogen and phosphorous were causing violations of water quality standards for dissolved oxygen. The Chesapeake 2000 Agreement was adopted in response to this action by EPA. It went much further than its predecessors, and it is a detailed document with commitments ranging from land use to water quality to habitat protection. It also set forth a process to remove the Bay and its tidal tributaries from EPA's "dirty waters" list by 2010.

The Environmental Protection Agency has been an invaluable partner in the effort to meet this goal. Since the issuance of the 1982 EPA report identifying and documenting the problems facing the Chesapeake Bay, the agency has done the research and conducted the scientific studies, in conjunction with other federal and state agencies and academic institutions, that have told us how much we must reduce the flow of nitrogen and phosphorus, as well as sediments, into the Bay and its tributaries in order to achieve healthy water quality conditions.

First, the Environmental Protection Agency, with the advice and guidance of the states and the public, established criteria for the development of new water quality standards for the Bay and its tributaries. These criteria were established for dissolved

oxygen, chlorophyll "a" and water clarity. This set the stage for determining the nutrient and sediment reductions necessary to meet the new standards and thereby restore water quality. Following the establishment of the new water quality standards, the Chesapeake Bay Program Office advised the other Bay partners that in order to improve water quality conditions throughout the length and breadth of the Bay and its tidal tributaries, it would be necessary to cap annual nitrogen loadings at 175 million pounds and annual phosphorous loadings at 12.8 million pounds.

In March of 2003 Maryland, Pennsylvania and Virginia, the District of Columbia and EPA were joined by the "headwater states" of Delaware, New York and West Virginia through a Memorandum of Agreement in adopting these reduction goals. In December of 2003 the Chesapeake Executive Council endorsed the goals. With the help of EPA and the Program Office, the six Bay states and the District of Columbia agreed to the allocation of these caps among themselves so each would then know what reductions would be necessary to meet its nitrogen and phosphorous caps. In order to achieve its reduction goals and thereafter stay within its cap, each jurisdiction must change agricultural practices, land development standards, waste water treatment and storm water management requirements, and the way in which septic tanks are used. They must even change the way they control air pollution in order to protect the Bay from harmful nutrients.

Since these allocations were made, each jurisdiction has undertaken the process of refining its tributary strategies to determine the extent of the non-point practices and the levels of wastewater treatment that are necessary to achieve its reduction goals and then maintain its caps. The programs that we are working to put in place throughout the Chesapeake Bay Watershed recognize this new environment, but in order for them to be successful all affected parties must learn to live under a cap. In order to meet our obligations under the Chesapeake 2000 Agreement new and expanded efforts will be required. It means that the measures we put in place now, and in the future, must be operated and maintained so that we can achieve our reduction goals and thereafter remain under our cap loads. Moreover, the caps must be maintained in the face of an ever increasing population, additional treatment plant flows and a changing landscape.

The question before us today is this: How do we reach our reduction goals and how do we thereafter live within our caps?

The Chesapeake Bay Program is often referred to as a "voluntary" program. Some would argue, therefore, that it is inappropriate to use regulatory means to reach our program goals. While it is true that the Bay states, the District of Columbia and the Federal government have voluntarily participated in the regional compacts that define the Chesapeake Bay Program, individually they have used regulatory means, as well as financial incentives, to meet their commitments. Blue crab management, wetlands protection, toxics control and, more recently, point source nutrient reductions have been achieved through the regulatory process. A clean and healthy Bay demands that we use all available tools to reach our objectives.

I believe that we need to take a fresh look at our federal and state laws that are designed to achieve our water quality objectives in order to determine where new regulation is appropriate and where voluntary programs, backed up with adequate federal and state financial incentives, are a preferred course of action.

I would argue that the provisions of the Federal Clean Water Act should be amended to require that all NPDES permits, or at least those issued to applicants who discharge to streams in the Chesapeake Bay watershed, contain effluent limitations for nitrogen and phosphorous based on limits of technology. Existing Federal regulation of storm water should be reviewed on a periodic basis to determine if enhanced regulation is appropriate.

The fact that an activity is regulated does not mean that federal and state financial assistance is inappropriate to help the regulated party achieve the requirements of the regulation or the permit issued pursuant to a regulation. The existence of the regulation provides an incentive to the regulated community to seek financial help, whereas now the only incentive they have is to oppose any applicable measures designed to correct the impairments that continue to plague the Bay.

On the non-point source side the economics of agriculture, a major contributor of nitrogen and phosphorous pollution, makes it difficult to regulate. Incentive programs, such as those contained in the recent Farm Bill, are more likely to be effective in meeting our non-point reduction goals. There are other programs throughout the federal agencies that either directly, or indirectly, contribute to better water quality in the Bay and its tributaries. Unfortunately, there is not a lot of coordination by these agencies with the Chesapeake Bay Program office. I think it would be helpful if there were more accountability from these federal agencies.

The aggregate cost of the financial assistance required to get the job done, whether to a regulated entity or to a voluntary participant, is enormous. Amounts ranging from $19 billion to $28 billion have been suggested as necessary. However, regardless of the cost, it is a shared responsibility. As in so many other areas, the United States Congress has appropriated dollars for various programs that require matching appropriations from the states. I suggest that this approach be carefully studied to determine if it constitutes a means for greater financial participation by the states.

Statement of Wade T. Najjum
Assistant Inspector General for Program Evaluation
Office of Inspector General
U.S. Environmental Protection Agency
Before the
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
U.S. House of Representatives
July 30, 2008

Good afternoon Madam Chairwoman and Members of the Subcommittee. I am Wade Najjum, Assistant Inspector General for Program Evaluation with the U.S. Environmental Protection Agency (EPA) Office of Inspector General (OIG). I am pleased to be here today to discuss the OIG's evaluation work that examined how well EPA is working with its Chesapeake Bay partners in cleaning up the Bay. The Bay partners face significant challenges to meeting their cleanup goals: 1) increasing implementation of agricultural conservation practices; 2) managing land development; 3) seeking greater reductions in air emissions; and 4) upgrading wastewater treatment facilities. Despite some noteworthy accomplishments by EPA and the Bay partners, the Bay remains degraded. Moreover, achieving the Chesapeake Bay water quality goals is in serious jeopardy. EPA can do more to assist its partners and to improve its communication with Congress and residents of the Bay watershed. But our work shows that EPA also lacks the resources, tools, and authorities to fully address these challenges.

Congressional Request to Review Chesapeake Bay Cleanup Progress

In 2000, Maryland, Pennsylvania, Virginia, and the District of Columbia renewed their agreement to reduce nutrient and sediment loads in the Chesapeake Bay. Nutrient and sediment overloading was identified as the primary cause of water quality degradation within the Bay. Known as the *Chesapeake 2000* agreement, it established the goal of improving water quality in the Bay and its tributaries so that these waters could be removed from the EPA's impaired waters list by 2010. However, Bay stakeholders have questioned whether the needed load reductions will be met.

In response to a 2005 request from Senator Barbara Mikulski of Maryland, the OIG conducted four reviews of the EPA Chesapeake Bay Program's efforts in reducing excess nutrients and sediments into the Bay. We focused on the key sources of nutrients and sediments: agriculture; air deposition; developing land; and wastewater treatment facilities. The diagram in Figure 1 shows how excess nutrients from all four sources end up in the Bay. We issued separate reports for each topic, which contained recommendations to the EPA Regional Administrator for Region 3. In addition, we issued a report on July 14, 2008, entitled *EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report*, that summarizes these evaluations and includes additional recommendations on overall issues to the EPA Administrator. A listing of our relevant Bay reports along with brief summaries is attached.

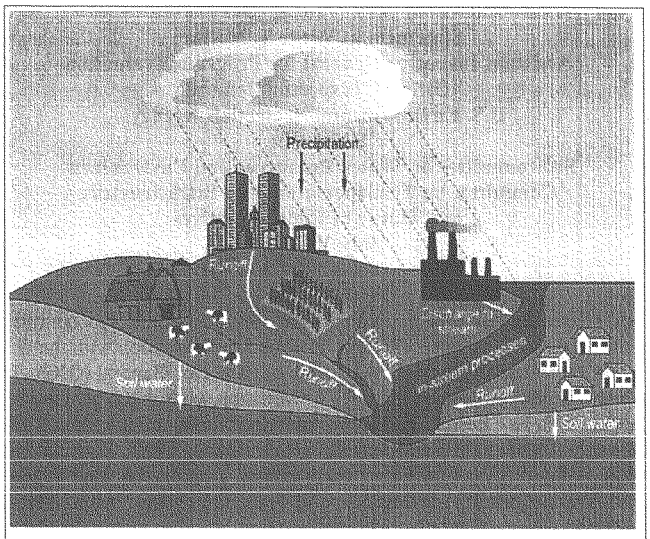

Figure 1: Conceptual Diagram of Nutrient and Sediment Sources and Pathways in the Chesapeake Bay Watershed
Source: U.S. Geological Survey

State of the Chesapeake Bay

The Chesapeake Bay is North America's largest and most biologically diverse estuary and provides the region significant economic and recreational benefits. The Bay watershed covers 64,000 square miles and includes parts of six States – Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia – and all of the District of Columbia. A watershed refers to a geographic area in which water drains to a common outlet. As of 2005, about 16 million people lived within the Bay watershed. According to a 1989 economic study by Maryland, the Bay provides economic and recreational opportunities estimated to exceed $33 billion annually.

However, most of the Bay's waters are degraded. Sediment from urban development, agricultural lands, and natural sources is carried into the Bay and clouds its waters. Algal blooms fed by nutrient pollution also block sunlight from reaching underwater bay grasses and can lead to low oxygen levels in the water and fish kills. Many of the Bay's fish and shellfish populations are below historic levels. The blue crab population has been below management targets for the past 10 years. Fish and shellfish are at about two-fifths of desired levels.

In 2006, after we had started our reviews, EPA acknowledged that the nutrient goals established in the *Chesapeake 2000* agreement would not be met by 2010, but it has not set a new target date. Restoring the Bay's water quality is still far from being

accomplished. However, it is clear that at the current rate of progress, the Bay will remain impaired for decades. In addition, because the Chesapeake Bay Program is the most mature watershed restoration program in the nation, successful approaches and solutions for organizing and managing cleanup will be highly relevant to stakeholders in other watershed throughout the nation. For these reasons, the OIG earlier this month designated the Chesapeake Bay Program a top management challenge facing EPA (http://www.epa.gov/oig/reports/2008/FiscalYear2008mgmtchallenges.pdf).

EPA's Role in the Chesapeake Bay

EPA has multiple responsibilities in the Bay watershed including overseeing States' implementation of the Clean Water Act, issuing and renewing permits for point sources, and ensuring compliance with those permits. EPA also has direct implementation responsibility for permittees within the District of Columbia. However, EPA's principal role in promoting water quality goals for the Bay involves running the Chesapeake Bay Program. The Program is a regional partnership of State and Federal agencies, academic institutions, and non-governmental organizations formed in 1983 to lead and direct restoration of the Chesapeake Bay. It supports the goals of the Chesapeake Bay Agreements (1983, 1987, and 2000) signed by the States of Maryland, Pennsylvania, and Virginia (referred to as the "signatory States"); the District of Columbia; the Chesapeake Bay Commission (a tri-state legislative advisory body); and EPA, representing the Federal Government. Representatives of the "headwater" States of Delaware, New York, and West Virginia also participate in decisions including setting nutrient and sediment cap load allocations. The Program is comprised of numerous committees and sub-committees responsible for technical and administrative actions. They work under the umbrella of the Chesapeake Executive Council, which consists of the governors of the signatory States; the Mayor of the District of Columbia; the Chair of the Chesapeake Bay Commission; and the EPA Administrator, who represents the Federal Government on the council.

Under section 117 of the Clean Water Act, Congress charged EPA's Chesapeake Bay Program Office (CBPO) with the responsibility to coordinate cleanup efforts with other Federal agencies and State and local governments. CBPO was also given the responsibility to report to Congress on the progress in cleaning up the Bay. Congress provides a higher level of funding to CBPO than it does for any other geographically-based program within EPA's appropriation. The 2009 budget requests $29 million for CBPO within EPA's appropriation. These funds support operations of the CBPO and provide significant funds to States to support Bay goals. For the years 2003-2005, EPA awarded $8 million for State implementation grants and $7 million for technical assistance and other grants for specific purposes. CBPO, located in Annapolis, Maryland, is part of EPA's Region 3.

Noteworthy Achievements of EPA and its Bay Partners

EPA and its Bay partners have played a beneficial role in cleaning up the Bay. EPA assisted the States in adopting stronger water quality standards to control nutrient discharges. This laid the groundwork from which EPA Regions 2 and 3 and the Chesapeake Bay jurisdictional partners developed and agreed to the *NPDES Permitting*

Approach for Discharges of Nutrients in the Chesapeake Bay Watershed for municipal and industrial wastewater NPDES discharge sources. With this approach, EPA and State NPDES permitting authorities agreed to place annual total nitrogen and phosphorus load limits and monitoring requirements in the permits of all significant dischargers in the Chesapeake Bay watershed. This is particularly noteworthy considering some dischargers are hundreds of miles upstream and may not directly benefit from improvements to the Bay.

Also noteworthy, a 2006 OIG audit found that EPA grants contributed toward meeting the goals of the Clean Water Act and the *Chesapeake 2000* agreement. These grants funded activities designed primarily to reduce nutrients and sediment entering the Bay and its tributaries; monitor ongoing efforts to restore Bay quality; and model the results of Bay implementation strategies, among others. Such efforts contributed to EPA's overall Bay restoration effort. A 2007 OIG evaluation found EPA and the States are successfully managing how major Federal facilities comply with their National Pollutant Discharge Elimination System (NPDES) permits. In EPA's last reporting period (2004), major Federal facilities in the Chesapeake Bay watershed had a lower rate of Significant Noncompliance than other Federal and non-Federal major-permit facilities nationwide.

States have also played a significant role in cleaning the Bay. For example, Maryland created the Bay Restoration Fund of 2004 that established fees to support enhanced nutrient removal upgrades at wastewater treatment facilities, septic system upgrades, and planting of cover crops. Virginia enacted its Water Quality Improvement Act of 1997, which established the Water Quality Improvement Fund to provide 50 percent of the capital costs to install nutrient removal facilities. Finally, Pennsylvania and Virginia created nutrient trading programs for their wastewater treatment facilities and, in Pennsylvania, agricultural producers. EPA has assisted Pennsylvania and Virginia in developing these programs.

Challenges Facing the Bay Partners in Cleaning Up the Bay

Despite the accomplishments made by the Chesapeake Bay partners, the Bay remains degraded. At the current rate of nutrient and sediment reductions, it will take decades to meet the 2010 goals, a challenge that calls for a fundamental reexamination of current approaches and strategies. The Bay partners need to address current and emerging challenges involving limited implementation of agricultural conservation practices; uncontrolled land development; limited control over air emissions; and progress in upgrading wastewater treatment facilities. In addition, the Bay partners need to improve its communication to Congress and Bay residents on what it will take to clean the Bay and when the water quality goals will be achieved. These challenges will not be easy to address. They require resources, tools, and authorities that EPA lacks; and changes in individual lifestyles and local government practices.

Agricultural Conservation Practices

The Federal Government needs to ensure national agricultural and environmental programs work together to support common goals. The Federal Government needs to establish policies that both protect the Nation's waters and support agricultural issues.

The agricultural sector is the single largest contributor of the pollutants harming the Bay. Based on 2007 data, 65 percent of nitrogen, 60 percent of phosphorus, and 86 percent of sediment reductions needed to meet reduction goals are expected to come from agriculture. The U.S. Department of Agriculture (USDA), a Bay partner, provides leadership on agricultural and conservation practices. In our joint 2006 report with the USDA OIG on agricultural practices, we reported that few of the agricultural practices were reported to have been implemented.

Agricultural pollution can be controlled through regulation or sound conservation practices. However, EPA's regulatory authority and financial aid for agriculture is limited. EPA is only allowed to regulate concentrated animal feeding operations that discharge into the Nation's waters, but EPA was unable to provide us with information on how many farms or how much pollution is under EPA regulatory control in the Chesapeake Bay watershed. Nationwide, EPA estimates that only about 5 percent of animal feeding operations are regulated; the others operate under voluntary programs.

EPA provides a small amount of incentive funding to agricultural producers, usually just for one-time demonstration projects. USDA provides substantially more financial funding plus technical assistance. For example, from 2003 to 2005, EPA awarded approximately $11 million from its nonpoint source program for agricultural projects statewide in Maryland, Pennsylvania, and Virginia. In contrast, for the same period and scope, USDA provided over $250 million for conservation practices. It should be noted, the recently passed Farm Bill does provide substantial amounts of money for conservation projects. Regardless, current budgets cannot fill the demand for assistance programs, making it difficult to expand incentives for agricultural producers.

Even though USDA has been encouraging science-based conservation practices in the region for years, it has not significantly adapted its strategies to meet the specific needs of the Chesapeake Bay. Many agricultural conservation practices must be implemented on a consistent basis to improve water quality, and substantial, long-term financial commitments will be needed. Obtaining sufficient data on the actual extent and success of agricultural conservation estimates has also been limited. To address this, the Bay partners need to work with USDA and the agricultural community to develop a better reporting and measurement system. In our November 2006 report on agriculture, we recommended that EPA and USDA improve their coordination and better track progress of conservation practices. EPA and USDA concurred with our recommendations and have taken steps, such as signing a memorandum agreement, to improve coordination efforts.

Bay partners have recently identified the emerging biofuel industry as another challenge to reducing nutrients from the agricultural sector. To lessen dependence on imported oil and reduce green-house gases, the Nation is exploring homegrown

renewable fuels. With its proximity to oil refineries and rising corn prices, agricultural producers in the Chesapeake Bay region may decide to expand their acreage devoted to corn – the primary source for grain-based ethanol. The Chesapeake Bay Commission estimated that Bay area agricultural producers growing corn to support the emerging ethanol industry could introduce as much as an additional 5 million pounds of nitrogen per year to the Bay. If this takes place, it will add an additional burden on the Bay partners' efforts.

Managing Growth

New development is increasing nutrient and sediment loads at rates faster than restoration efforts on developed lands are reducing them. Further, while developed lands contribute less than one-third of the Bay loads, they are expected to require about two-thirds of the overall estimated restoration costs. New development also places a burden on existing drinking water and wastewater systems. Systems across the country are already failing to keep up with repairs and new construction necessary to comply with current Federal water standards because of the funding gap. Municipalities must pass increasing costs of meeting new standards to the facilities' consumers. But some municipalities are resisting these new standards. For example, Pennsylvania is being sued by a group of localities over more stringent permit limits required to meet Bay water quality standards, which localities view as an unfunded mandate.

The key decision-makers in how the Chesapeake Bay watershed develops will be the local governments and citizens, not EPA. However, "smart growth" techniques can be a cost-effective way for communities to manage new development, and EPA should encourage such growth. Communities could incorporate smart growth practices into local codes and regulations.

While smart growth practices can lessen development impact, they do not eliminate it. EPA needs to engage the States, local governments and watershed organizations to agree to a strategy on how communities in the Bay watershed will continue to develop while improving water quality. Such a strategy should identify actions needed, responsible action officials, and funding. In our September 2007 report on development growth, we recommended that EPA develop such a strategy and include local governments in planning. EPA concurred with our recommendations. EPA can also impact local decision making by establishing a strong stormwater permit program, and sharing knowledge on smart growth best management practices. In its annual reporting, EPA should identify the economic and social challenges that the partners and local governments are facing in managing development so that citizens and political leaders will be able to make informed decisions about meeting the challenges.

Air Emission Reductions

Airborne emissions of nitrogen oxide in the eastern United States can eventually deposit back to the earth and contribute to the overall nitrogen loads of the Chesapeake Bay. Atmospheric deposition of nitrogen oxide (NOx) emissions is a significant contributor to the Bay's overall nitrogen loads, and accounts for about one-fourth to one-third of the nitrogen loads to the Bay. As part of nation's ongoing efforts to meet the

Clean Air Act (CAA) National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter, EPA and States have implemented and planned numerous actions to reduce NOx emissions. CBPO is relying on the anticipated nitrogen deposition reductions from these CAA-related actions, combined with anticipated reductions from other non-air sources, to meet water quality goals for the Bay watershed.

Since non-air sectors have not reduced their nitrogen loads as planned, additional reductions in NOx air emissions and its resulting atmospheric deposition may be needed. Two recent Clean Air Act-related actions could result in additional decreases in nitrogen deposition to the Bay. EPA recently lowered its 8-hour ozone standard, which could require nonattainment areas to make additional reductions in NOx emissions since NOx reacts with volatile organic compounds in the presence of sunlight to cause ground-level ozone. Also, EPA is reviewing its secondary standard for nitrogen dioxide (NO2). The secondary standard addresses the impact of air pollutant emissions on the environment. If EPA tightens this standard, States may need to further reduce NOx emissions. Importantly, EPA plans to address the impact of ammonia emissions on the Bay's nitrogen loads as part of its review of the secondary standard. Our prior report on air deposition in the Bay reported that ammonia emissions from animal feeding operations represent a potentially significant uncontrolled contributor of nitrogen loads to the Bay. CBPO should have the opportunity to review and comment on any proposed rulemaking resulting from EPA's review of the secondary standard because of the potential impact that revision of the secondary standard for NO2 could have on the Bay.

Absent any new CAA requirements, additional NOx reductions would likely have to be State-initiated. We identified several opportunities for reducing mobile source emissions, the predominant source of atmospheric deposition to the Bay, which would not require additional CAA regulations or revisions. Some of these actions are voluntary initiatives while others would require State regulatory action. These initiatives can be controversial (e.g., adopting Low Emitting Vehicle standards) or difficult to implement (e.g., voluntary programs). Consequently, States may be reluctant to take such initiatives, particularly those outside the Bay watershed.

It should be noted that a recent Federal Court of Appeals decision to vacate EPA's 2005 Clean Air Interstate Rule (CAIR) significantly impacts State plans for meeting the NAAQS for ozone and fine particulate matter, as well as the CBPO's estimates for reducing nitrogen load in the Bay. EPA had estimated that the NOx emission reductions obtained from CAIR would result in an 8 million pound annual reduction in nitrogen deposition to the Bay beginning in 2010. If the CAIR vacature is upheld and comparable NOx reductions cannot be obtained from alternative CAA-related actions, the CBPO would need to revise its current load allocations to reflect these lost reductions.

Wastewater Treatment Upgrades

EPA and its State partners have taken a number of steps to lay the foundation to achieve wastewater nutrient loading goals. Water quality standards have been set, nutrient loadings have been allocated, and nutrient limits are beginning to be incorporated into permits. However, States need to finish adding nutrient limits to the permits, and significant and costly upgrades will need to be made to wastewater treatment facilities.

These facilities will need to overcome significant challenges to achieve and maintain their nutrient reduction allocations. Significant challenges include generating sufficient funding and addressing population growth. As stated in our January 2008 report on wastewater facilities, we recommended that EPA work with the States to establish interim construction milestones for priority facilities; monitor milestone and financial funding progress for these facilities; and continue efforts in developing effective and credible water quality trading programs. EPA concurred with our recommendations and is in the process of carrying out these activities.

Reporting of Bay Challenges to Congress and Bay Citizens

Surmounting the challenges of excessive nutrient and sediment loadings calls for concerted action by States, local governments, watershed organizations, and Federal agencies. EPA's principal role will be to facilitate and motivate these other key stakeholders to take the necessary steps, many of which will be expensive and politically difficult. A key task for EPA will be to provide Congress and Bay citizens with a realistic picture of what it will take to clean the Bay, challenges and obstacles, and a realistic timeframe for when the water quality goals will be achieved. Providing sound information to decision makers and stakeholders will allow them to make decisions about whether to take the steps needed to restore the Bay.

The Clean Water Act requires the EPA Administrator to report to Congress every 5 years on the state of the Bay and to make recommendations for improvement. EPA has not yet utilized these reporting vehicles to provide complete information on Bay activities and challenges. CBPO did not effectively use its first Chesapeake Bay 5-year report, issued in 2003, to make recommendations for improved management strategies. CBPO missed the opportunity to inform Congress of higher-level challenges, delaying the success of the program. Congress' requirement for the 5-year report also directs that the information be presented in such a format as to be readily transferable to and useable by other watersheds. Since Congress provides CBPO with the highest level of funding among all of EPA's great waters programs, CBPO needs to ensure that other estuary programs can benefit from the Chesapeake Bay experience.

CBPO should work with its partners to determine appropriate mechanisms for reporting. This should include funding gaps, the status of wastewater treatment facility construction, local regulatory issues, and other impediments to cleaning up the Bay. By improving the information it shares with Congress and the public and further leveraging partner resources, EPA can facilitate bringing about the changes needed to achieve the goals desired by the Chesapeake Bay watershed stakeholders.

How EPA Can Help Its Bay Partners Achieve Water Quality Goals

In our prior reports, the OIG made recommendations to the EPA Regional Administrator for Region 3 to address individual sector needs (agricultural, developing lands, air deposition, and wastewater). We addressed our summary report to the EPA Administrator because EPA's implementation of all the previously issued recommendations alone cannot ensure that the Bay partners will achieve their water quality goals. Other Federal agencies, along with State and local governments and

watershed organizations, have responsibilities to clean up the Bay. Restoration cannot succeed without their active involvement.

We made three specific recommendations to the EPA Administrator. One, improve reporting to Congress and the public on the actual state of the Chesapeake Bay and actions necessary to improve its health. Information that should be included in an appropriate report are the activities and resources necessary to accomplish the *Chesapeake 2000* agreement goals; activities that are not supported with funding or a commitment from the responsible Federal, State, or local government; challenges significantly hindering Bay partners in adequately reducing nutrients and sediment; milestones for generating funding and accomplishing activities; and the impact on the health of the Bay if those milestones are not met. Two, develop a strategy to further engage local governments and watershed organizations to capitalize on their resources, tools, authorities, and information to advance the mission of the Chesapeake Bay Program and include key actions as developed into the Chesapeake Action Plan. Finally, provide CBPO with the opportunity to review and comment on any proposed rulemakings resulting from the EPA Office of Air and Radiation's review of the secondary standard for NO_2.

In response to our draft report, the EPA Administrator concurred with our recommendations and will provide us a corrective action plan detailing actions the EPA will take or have taken to address our recommendations within 90 days of the final report date.

The Status of OIG Recommendations

We made a total of 16 recommendations to EPA and four recommendations to USDA in our five Bay evaluation reports. Progress is being made on all of our recommendations. EPA has successfully completed five of the recommendations, including agreeing to a Memorandum of Understanding with USDA and enhancing grant guidance. In addition, USDA has assigned a senior level Departmental official to better coordinate USDA goals and programs with EPA and the Chesapeake Bay Program. A complete listing of our recommendations and their status is attached.

Conclusion

At the current rate of progress, it will take decades to achieve the water quality goals established in the *Chesapeake 2000* agreement. Implementing the OIG's recommendations will be helpful but much more is needed. Meeting the various challenges facing the Bay will require a fundamental reexamination of current approaches and strategies used by EPA and its Bay partners at the Federal, State, and local levels. For example, the Federal Government needs to establish a coherent national policy that helps agricultural producers be protective of water quality while remaining profitable. Local communities will need to incorporate broader concerns when deciding how to develop. Given its limited financial resources and regulatory authority, EPA's greatest role will be in facilitating and motivating States and local governments and watershed groups to address the challenges and consider the sacrifices that will be required. EPA also needs to more clearly communicate to its partners and Congress the

extent of the challenges and chart a realistic path for achieving and sustaining water quality goals. But EPA alone cannot restore the Bay since it lacks the resources, tools, and authorities to fully address the challenges posed by agricultural runoff, new development, air pollution, and wastewater treatment upgrades. Lastly, because the Chesapeake Bay Program is at the forefront of watershed restoration, finding successful solutions to cleaning up the Bay is important to estuaries across the country experiencing similar challenges.

Thank you for inviting me to testify before you today. I would be pleased to answer any questions the Subcommittee may have.

Attachment A

Summaries of EPA Office of Inspector General Reports on the Chesapeake Bay

Summaries of Five Prior Reports Issued in Response to Congressional Request

Below are summaries on the five reports we have already published in response to the congressional request by Senator Mikulski.

Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources	2007-P-00004 November 20, 2006

State-level partners have committed the agricultural community to making nutrient reductions, but numerous practices abound and are generally performed on a voluntary basis. Few of the agricultural practices in the tributary strategies have been implemented because the agricultural community considers many of these practices as either being unprofitable or requiring significant changes in farming techniques. Although the State-level partners have provided substantial funding to implement these practices, one of the key State partners acknowledged substantial additional funding is still needed. At the federal level, applications for USDA's technical and financial assistance programs went unfunded, making it difficult to expand incentives for Bay area agricultural producers.

EPA must improve its coordination and collaboration with its Bay partners and the agricultural community to better reduce nutrients and sediment entering the Chesapeake Bay watershed. However, members of the agricultural community have been reluctant to participate with EPA because of EPA's regulatory enforcement role. USDA, a Bay partner at the federal level, could significantly assist EPA in implementing the needed conservation practices within the agricultural community, given its many conservation programs, extensive field organization, and long experience working with the agricultural community. However, USDA has not coordinated a Department-wide strategy or policy to address its commitment as a Bay partner.

EPA Relying on Clean Air Act Regulations to Reduce Atmospheric Deposition to the Chesapeake Bay and Its Watershed	2007-P-00009 February 28, 2007

CBPO is relying on anticipated nitrogen deposition reductions from Clean Air Act regulations already issued by EPA, combined with anticipated reductions from other non-air sources, to meet water quality goals for the Bay watershed. EPA

believes these activities will provide sufficient nitrogen deposition reduction to enable the Bay to meet its overall nitrogen cap load, assuming non-air activities achieve planned reductions. EPA estimates that Clean Air Act regulations already issued will reduce nitrogen that falls directly into the Bay, as well as nitrogen deposited to the Bay watershed, by 19.6 million pounds annually by 2010. Even greater reductions should occur as States undertake additional measures in the next few years to meet the ozone and fine particulate matter standards. State and EPA strategies do not include additional air reduction activities specifically designed to clean up the Bay, although many State activities should have the co-benefit of reducing nitrogen deposition in the Bay.

If additional reductions in air emissions are needed to clean up the Bay, one potentially significant source of deposition not currently controlled is ammonia emissions from animal feeding operations. The magnitude of these emissions to nitrogen deposition in the Bay is uncertain. Ammonia emissions monitoring of animal feeding operations, expected to begin in the spring or early summer of 2008, should provide data to help EPA better determine the amount of such emissions from farming operations.

Development Growth Outpacing Progress in Watershed Efforts to Restore the Chesapeake Bay	2007-P-00031 September 10, 2007

EPA and its Chesapeake Bay watershed partners will not meet load reduction goals for developed lands by 2010 as established in the *Chesapeake 2000* agreement. In fact, new development is increasing nutrient and sediment loads at rates faster than restoration efforts are reducing them. Developed lands contribute less than one-third of the Bay loads but would require about two-thirds of the overall estimated restoration costs. Consequently, EPA and its Bay partners focused on more cost-effective approaches, such as upgrading wastewater facilities and implementing agricultural best practices. Additional challenges impeding progress include:

- Lack of community-level loading caps.
- Shortage of up-to-date information on development patterns.
- Ineffective use of regulatory programs to achieve reductions.
- Limited information and guidance on planning and applying environmentally sensitive development practices.
- Limited funding available for costly practices.

A cost-effective start to reversing the trend of increasing loads from developed land is for communities to concentrate on new development. Opportunities abound for EPA to show greater leadership in identifying practices that result in no-net increases in nutrient and sediment loads from new development and assisting communities in implementing these practices. If communities do not sufficiently address runoff from new development, loads from developed lands will continue to increase rather than diminish.

Despite Progress, EPA Needs to Improve Oversight of Wastewater Upgrades in the Chesapeake Bay Watershed	08-P-0049 January 8, 2008

Chesapeake Bay wastewater treatment facilities risk not meeting the 2010 deadline for nutrient reductions if key facilities are not upgraded in time. In the 7 years since signing the *Chesapeake 2000* agreement, EPA and its State partners have taken a number of steps to lay the foundation for achieving the 2010 wastewater nutrient reduction goals. Water quality standards have been set, nutrient loadings have been allocated, and nutrient limits are beginning to be incorporated into permits. However, States need to finish adding nutrient limits to the permits, and the facilities will need to make significant reductions by 2010. Crucially, these reductions will need to be maintained once achieved. Significant challenges include generating sufficient funding and addressing continuing population growth. EPA needs to better monitor progress to ensure needed upgrades occur on time and loading reductions are achieved and maintained. Otherwise, Bay waters will continue to be impaired.

EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report	08-P-0199 July 14, 2008

Despite many noteworthy accomplishments by the Chesapeake Bay partners, the Bay remains degraded. This has resulted in continuing threats to aquatic life and human health, and citizens being deprived of the Bay's full economic and recreational benefits. Through its reporting responsibilities, EPA could better advise Congress and the Chesapeake Bay community that (a) the Bay program is significantly short of its goals and (b) partners need to make major changes if goals are to be met. Current efforts will not enable partners to meet their goal of restoring the Bay by 2010. Further, new challenges are emerging. Bay partners need to address:

- uncontrolled land development
- limited implementation of agricultural conservation practices
- limited control over air emissions affecting Bay water quality

EPA does not have the resources, tools, or authorities to fully address all of these challenges. Farm policies, local land development decisions, and individual life styles have huge impacts on the amount of pollution being discharged to the Bay. EPA needs to further engage local governments and watershed organizations in efforts to clean up the Bay.

Summaries of Two Additional Reports Involving Chesapeake Bay

EPA Grants Supported Restoring the Chesapeake Bay	2006-P-00032 September 6, 2006

EPA awarded assistance agreements (grants) that contributed toward meeting the goals of the Clean Water Act and the *Chesapeake 2000* agreement. These grants funded activities designed primarily to: reduce the nutrients and sediment entering the Bay and its tributaries, monitor ongoing efforts to restore Bay water quality, and model (estimate) the results of Bay implementation strategies. In Fiscal Years 2003, 2004, and 2005, Congress appropriated $23 million each year for EPA's Chesapeake Bay Program. In each of those years, EPA awarded about $8 million for State implementation grants and $7 million for technical and other grants for specific projects. EPA used the remaining $8 million to fund EPA personnel and office management, interagency agreements, and congressional earmarks. The efforts contributed to EPA's overall Bay restoration program. This report did not contain recommendations.

Federal Facilities in Chesapeake Bay Watershed Generally Comply with Major Clean Water Act Permits	2007-P-00032 September 5, 2007

Overall, EPA and the States are doing well managing how major federal facilities comply with their NPDES permits. In EPA's last reporting period (2004), major federal facilities in the Chesapeake Bay watershed had a lower rate of Significant Noncompliance than other federal and non-federal major-permit facilities nationwide. EPA and States have a variety of formal and informal tools available to enforce federal facility compliance with NPDES permits. These tools included: multimedia, voluntary agreement, and media press release approaches; Notices of Violation; an administrative order; and a Federal Facility Compliance Agreement. Also, EPA developed the Wastewater Integrated Strategy, which seeks to eliminate federal facility Significant Noncompliance with NPDES permit limits. EPA also worked with the Department of Defense to make NPDES permit compliance a higher priority at military installations (eight of the nine federal facilities with major NPDES permits are at military installations). We made no recommendations in this report.

Attachment B

Status of Recommendations for EPA Office of Inspector General Reports on the Chesapeake Bay

Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources	2007-P-00004 November 20, 2006

The OIG has accepted EPA's corrective action plan for all recommendations.

Recommendation 1: We recommend that the EPA Administrator propose executing a Memorandum of Agreement with the USDA to assist the Bay partners in meeting their nutrient reduction goals by:

a. Identifying conservation practices USDA will promote with either technical assistance or cost-share programs.
b. Developing procedures for promoting and fast-tracking alternative practices for cost-share programs and technical assistance.
c. Establishing a task force to identify how USDA cost-share programs can better assist the States in carrying out their tributary strategies.
d. Establishing demonstration projects to emphasize producer benefits, not just environmental benefits of best management practices in tributary strategies.
e. Conducting research to quantify accurately the nutrient load reductions from alternative best management practice strategies to ensure these practices are the best for removing nutrients and to improve the models.
f. Developing a tracking system to determine a more accurate picture of the agricultural community's commitment to implementing the tributary strategies.

Status: Completed. On May 9, 2007, EPA and USDA agreed to a Memorandum of Understanding to carry out activities to help Chesapeake Bay Program partners meet their nutrient reduction goals.

Recommendation 2: We recommend that the EPA Region 3 Regional Administrator instruct EPA/CBPO to work with USDA, the States, local governments, land grant universities, and agricultural organizations to revisit State tributary strategies to ensure that the mix of best management practices chosen are those most suitable to the area, have the greatest potential for implementation, and can effectively reduce nutrient and sediment loss.

Status: Task ongoing. As of March 9, 2007, EPA plans to actively participate in USDA priority-setting activities and program guidance forums to advance the Bay Program nutrient reduction priorities. The Nutrient Subcommittee and its Agricultural Nutrient Reduction Workgroup is critically

evaluating cost-effective practices and developing a plan for how to accelerate implementation of these practices. EPA is working to finalize the Chesapeake Bay Watershed Model (Phase 5.0). EPA has funded the Cooperative State Research, Education, and Extension Service Mid-Atlantic Regional Water Program to improve the description of pollutant removal efficiencies of agricultural best management practices. Several Bay States are using nutrient trading as a tool to help meet Chesapeake Bay water quality goals.

Recommendation 3: We recommend that the EPA Region 3 Regional Administrator instruct EPA/CBPO to include development of implementation plans as a special condition in Chesapeake Bay Program grant agreements for States that have not submitted an implementation plan.

Status: Completed. In the 2007 Grant Guidance, EPA requires that any signatory jurisdiction or headwater State that does not have an approved Tributary Strategy implementation plan work directly with its Project Officer to assure that any missing elements of Tributary Strategy implementation plans are incorporated into its Work Plan.

NOTE: *The four following recommendations were made to USDA for which the USDA OIG is conducting the audit follow-up.*

USDA OIG has accepted USDA's corrective action plan for all recommendations.

Recommendation 4: We recommended that the USDA Secretary or Deputy Secretary assign a senior level Departmental official to coordinate USDA goals and programs with EPA and the Chesapeake Bay Program. Delegate to that official authority to direct and coordinate goals and programs across USDA mission areas and agencies and to monitor USDA actions to meet the Chesapeake Bay Program goals.

Status: Completed. On February 18, 2007, USDA Secretary Mike Johanns designated the Under Secretary, Natural Resources and Environment (NRE), as the USDA official responsible for coordinating USDA program activities and initiatives with the Environmental Protection Agency, its Chesapeake Bay Program Office, and others that have an interest in restoring the Chesapeake Bay. This designated official will also provide the leadership necessary to monitor USDA actions and results in meeting mutual goals and objectives of the Bay, as well as provide periodic briefings regarding USDA's coordinated efforts.

Recommendation 5: We recommended that the USDA Secretary or Deputy Secretary review the feasibility of targeting or redirecting USDA funds (or allocating USDA funds) on a regional and/or geographical basis to coordinate with the environmental restoration of the Chesapeake Bay, including the possibility of linking the availability of financial and technical assistance to proximity to the Chesapeake Bay watershed.

Status: Completed. On March 11, 2008, NRCS, as the lead agency for NRE, achieved final action when it provided evidence that USDA had reviewed the

feasibility of targeting or redirecting USDA funds (or allocating USDA funds) on a regional and/or geographical basis to coordinate with the environmental restoration of the Chesapeake Bay, including the possibility of linking the availability of financial and technical assistance to proximity to the Chesapeake Bay. An independent third party contactor, selected competitively to examine the efficacy of its program allocation formula, concluded that NRCS needs to (1) develop better outcome based performance information and integrate the information into its allocation formulas; (2) improve the analytical soundness of the allocation models, factors, weights and data particularly through the elimination of redundant factors; and (3) improve the transparency of the budget allocation formula. The contractor's report also recommended that NRCS minimize the use of factors which are not related to performance. The prime example of this is the use of base factors which attempt to define the landmass being addressed by the program. (i.e., NRCS should avoid targeting or redirecting funds on a regional and/or geographical basis.)

Recommendation 6: We recommended that the USDA Secretary or Deputy Secretary direct USDA agencies to expedite the development and implementation of outcome-based performance measurements for evaluating the effectiveness of their conservation efforts and programs.

Status: Task ongoing. In its October 12, 2006 response, NRCS, as lead agency for NRE, stated it has directed USDA agencies to expedite the development and implementation of outcome-based performance measurements through the Conservation Effects Assessment Project (CEAP), a significant multi-agency effort designed to quantify the benefits of conservation practices implemented by private landowners participating in selected USDA conservation programs. The agencies expect that CEAP will provide much needed data, methods, and information to improve measurement of program performance, and will also assist in development of improved measures that better reflect desired environmental outcomes. NRCS' leadership is scheduled to meet again by June 2008 to assess the direction needed to accomplish the recommendation.

Recommendation 7: We recommended that the USDA NRCS Chief develop a tracking system for maintaining a list of technical assistance and financial assistance requests from landowners and agricultural producers that cannot be completed due to limited funding.

Status: Task ongoing. In its October 12, 2006 response, NRCS agreed to develop a tracking system for technical assistance requests. In January 2008, NRCS advised it no longer intends to develop a tracking system for technical assistance requests. Instead, NRCS will seek a change in management decision (a new corrective action plan) and request final action. NRCS stated it is developing of a new agency-wide tracking system for all its program activity. The creation of an interim process to track unfunded technical and financial assistance requests is no longer a prudent use of limited resources.

NRCS leadership is scheduled to meet again by June 2008 to assess the direction needed to accomplish the recommendation.

EPA Relying on Clean Air Act Regulations to Reduce Atmospheric Deposition to the Chesapeake Bay and Its Watershed	2007-P-00009 February 28, 2007

The OIG has accepted EPA's corrective action plan for the recommendation.

Recommendation 1: We recommend that the EPA Region 3 Regional Administrator instruct CBPO to use the results of the animal feeding operations emissions monitoring studies to determine what actions and strategies are warranted to address animal feeding operations' nitrogen deposition to the Chesapeake Bay.

Status: Task ongoing. CBPO and its partners continue to use the results of the Community Multiscale Air Quality Model to factor in the estimated water quality benefits of Clean Air Act regulations within the development of the Chesapeake Bay watershed TMDL currently underway. The Mid-Atlantic Water Quality Program has completed development of best management practices and efficiencies for application to animal feeding operations that will yield reductions in ammonia emissions. These best management practices and efficiencies are currently undergoing review through the Chesapeake Bay Program's Nutrient Subcommittee and technical workgroup prior to submission to the Program's Water Quality Steering Committee for final approval for application by the watershed partners.

Development Growth Outpacing Progress in Watershed Efforts to Restore the Chesapeake Bay	2007-P-00031 September 10, 2007

The OIG has accepted EPA's corrective action plan for all recommendations.

Recommendation 2-1: We recommend that the EPA Region 3 Regional Administrator charge the CBPO Director to prepare and implement a strategy that demonstrates leadership in reversing the trend of increasing nutrient and sediment loads from developed and developing lands. Such a strategy should include steps to:

- develop a set of Environmentally Sensitive Development practices that result in no-net increase in nutrient and sediment loads and flows in new developments and may be applicable to existing development and redevelopment;
- work with State and local partners, developers, federal agencies, and other stakeholders to implement these practices through regulatory, voluntary, and incentive approaches;
- educate municipal officials on these practices and other aspects of Environmentally Sensitive Development;

- target technical assistance to local governments interested in pursuing tools and strategies for reducing runoff from development;
- identify progressive local governments and leaders in the housing and commercial development fields and create forums for sharing information;
- report on progress through the existing annual reporting structure; and
- evaluate the effectiveness of the strategy.

Status: Task ongoing. CBPO has agreed to formulate a strategy for developed and developing lands by September 10, 2008. Also, CBPO, will issue an annual report on progress toward reducing nutrient and sediment loads from developed and developing lands, starting in September 2009.

Recommendation 2-2: We recommend that the EPA Region 3 Regional Administrator charge the CBPO Director to work with the Chesapeake Bay partners to set realistic, community-level goals for reducing nutrient and sediment loads from developed and developing lands.

Status: Task ongoing. By March 2009, EPA and State partners will begin to reach agreement on needed changes to Bay-wide caps and allocate those caps by tributary. By July 2010, EPA will confirm that the individual jurisdictional allocation and implementation strategies that States will develop will result in achievement of Chesapeake Bay water quality standards. These allocations will be reflected in the draft watershed TMDL expected to be published in 2011.

Recommendation 2-3: We recommend that the EPA Region 3 Regional Administrator charge the Water Protection Division Director to establish, with the delegated States, a documented permitting approach that achieves greater nutrient and sediment reductions in municipal separate storm sewer system permits across the watershed by:

- incorporating measurable outcomes in line with waste load allocations, when established for local waters and the Chesapeake Bay, through the TMDL regulatory program;
- including retrofitting of developed areas where these actions would benefit local waters as well as the Bay; and
- disallowing increases in loads and flows.

Status: Task ongoing. EPA has agreed to develop a technical support document to establish common expectations with respect to the municipal separate storm sewer system program for permit writers and the regulated community by April 2008. EPA will establish a permitting approach with States by October 2008.

The OIG has accepted EPA's corrective action plan for recommendations 2-1 thru 2-5. The OIG's acceptance of Recommendation 3-1 is pending EPA's submission of dates when proposed actions will be completed.

Recommendation 2-1: We recommend that the EPA Region 3 Regional Administrator instruct staff to review and comment on State-drafted NPDES permits for significant facilities to ensure that interim construction milestones are included in compliance schedules longer than 1 year to meet the Chesapeake Bay allocations. The milestones should include:

- design construction
- construction start
- construction completion
- compliance with permit limits

Status: Task ongoing. EPA will continue to review and comment on State-drafted NPDES permits for significant facilities. EPA will assure that milestones are in place if the compliance schedule to achieve the permit limit exceeds 1 year. EPA will seek to include the following milestones, as appropriate in the permits: design completion, construction start, construction completion, and compliance with permit limits.

Recommendation 2-2: We recommend that the EPA Region 3 Regional Administrator instruct staff to obtain from NPDES-authorized States information on progress in achieving the milestones above the "select priority facilities." Such priority facilities include those that are identified as needing the largest nutrient reductions and are identified by the States as missing the interim milestones noted in Recommendation 2-1. If milestones are missed, EPA will work with the States to take appropriate follow-up action to ensure compliance with the milestones.

Status: Task ongoing. By October 1, 2008, EPA will:

- Initiate milestone tracking for 10 designated priority facilities. These priority facilities are estimated to achieve about 75 percent of the total nitrogen reductions and about 50 percent of the phosphorus reductions planned for significant facilities.
- Identify interim milestones for each design completion, construction start, construction completion, and compliance with permit limits.

After October 1, 2008, EPA will commit to:

- Identify those facilities that have not met their interim or final milestones.
- Within 60 days of identifying such a facility, will initiate a corrective action dialogue with the State.

Recommendation 2-3: We recommend that the EPA Region 3 Regional Administrator instruct staff to collect information and report on the amount and source of funding for the aforementioned "select priority facilities" as part of the CBPO's annual reporting process.

> **Status:** Task ongoing. Starting on January 1, 2009, and every year thereafter until the priority facilities have completed their upgrades, EPA will track the amount and source of funding allocated for undertaking the required treatment upgrades for each of the priority facilities identified by EPA. This information will be included in the Chesapeake Action Plan's operation data base, which will be updated at least annually and distributed to the Bay partners.

Recommendation 2-4: We recommend that the EPA Region 3 Regional Administrator instruct staff to promote awareness of and use of the "Financing Alternatives Comparison Tool" and other financial analysis tools within the Chesapeake Bay community.

> **Status:** Task ongoing. To promote greater awareness and use of the "Financing Alternatives Comparison Tool," EPA will: continue to develop and implement webcasts on the tool for States and grantees; streamline the tool to make it easier to use for local governments; and expand the existing user guide and release it by October 1, 2008.

Recommendation 2-5: We recommend that the EPA Region 3 Regional Administrator instruct staff to continue to assist States in their development of effective trading programs by ensuring that: (a) States establish a common nutrient trading currency, and (b) lessons learned are captured and disseminated. In addition, if an interstate trading protocol program is developed, EPA should develop a formal mechanism to track water quality trading across State lines.

> **Status:** Task ongoing. EPA is providing assistance to States in developing effective trading programs by: (a) establishing the "delivered load" as a common currency using the Chesapeake Bay watershed model, and (b) sharing lessons learned through a standing EPA-State nutrient trading workgroups. EPA will also document the lessons learned on the Chesapeake Bay trading programs to share with other watersheds. EPA will develop a process for tracking interstate trades if they occur that will transparently track trades across State lines and assure that such trades use the same trading "currency."

Recommendation 3-1: We recommend that the EPA Region 3 Regional Administrator work with NPDES-delegated States to complete current efforts, related to industrial discharges, to: (a) characterize current nutrient discharge levels; (b) refine nutrient cap loads, where appropriate; and (c) issue permits reflecting modified cap load.

> **Status:** Task ongoing. (a) EPA has already worked with key States to obtain the necessary data to properly characterize the nutrient loadings from industrial dischargers. These point sources are being required through their

permits to conduct the appropriate monitoring. By May 2011, EPA will work with the States to: (b) develop facility specific nutrient loading targets for those facilities and (c) place these loading targets, where appropriate, into the NPDES permits for these facilities as permit limits.

EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report	08-P-0199 July 14, 2008

Recommendation 1: Improve reporting to Congress and the public on the actual state of the Chesapeake Bay and actions necessary to improve its health by including the following information in an appropriate report:

- Activities and resources necessary to accomplish the Chesapeake 2000 agreement goals;
- Activities that are not supported with funding or a commitment from the responsible federal, State, or local government;
- Challenges significantly hindering the Bay partners in adequately reducing nutrients and sediment;
- Milestones for generating funding and accomplishing activities; and
- Impact on the health of the Bay if milestones are not accomplished.

Status: EPA is reviewing this recommendation. Its written response including its corrective action plan is due on October 13, 2008.

Recommendation 2: Develop a strategy to further engage local governments and watershed organizations to capitalize on their resources, tools, authorities, and information to advance the mission of the Chesapeake Bay and include key actions as developed into the Chesapeake Action Plan.

Status: EPA is reviewing this recommendation. Its written response including its corrective action plan is due on October 13, 2008.

Recommendation 3: Provide CBPO with the opportunity to review and comment on any proposed rulemakings resulting from the Office of Air and Radiation's review of the secondary standard for NO2.

Status: EPA is reviewing this recommendation. Its written response including its corrective action plan is due on October 13, 2008.

Testimony of Ann Pesiri Swanson, Executive Director, Chesapeake Bay Commission before the Subcommittee on Water Resources and Environment Committee on Transportation and Infrastructure United States House of Representatives

Hearing on Protecting and Restoring America's Great Waters Part II: Chesapeake Bay July 30, 2008

Thank you Mr. Chairman and members of the Committee for conducting this hearing on the protection and restoration of coasts and estuaries, with a specific focus today on the Chesapeake Bay. My name is Ann Pesiri Swanson. I am here representing the Chesapeake Bay Commission, for which I have had the privilege of serving as its Executive Director for the past 20 years.

THE CHESAPEAKE BAY COMMISSION:

In order for you to place my comments in a context, allow me to provide for the record a description of the Chesapeake Bay Commission, its composition and its work:

The Chesapeake Bay Commission is a tri-state legislative commission, established in 1980 prior to the creation of the Chesapeake Bay Program, to advise the members of the general assemblies of Maryland, Virginia and Pennsylvania on matters of Baywide concern. The catalyst for our creation was the Environmental Protection Agency's (EPA) landmark seven-year study (1976-1983) on the decline of the Chesapeake Bay. Congressional concern prompted our beginnings and has since contributed handsomely to our success.

The Commission is a partner in the Chesapeake Bay Program – one of six signatories to the agreements that make up its leadership. What makes the Commission unique is the simple fact that it is *not* an Executive Branch agency (like the other five partners) and it is not of a single state. Instead, 21 members from three states, 15 of whom are legislators, provide a regional voice for the Legislature Branch within the Program.

RESTORING A NATIONAL TREASURE:

As the largest estuary in North America and, to this day, one of the most biologically productive, the Chesapeake Bay is not only one of America's great waters but, as President Ronald Reagan described it in his 1984 State of the Union Message, a "national treasure." It was the first estuary in the Nation targeted for restoration as a single ecosystem and the model on which the national estuary program was built.

Let me say right upfront that without enhanced state and federal support, in both dollars and policy, we do not believe that the Bay's health can be restored. Federal interest and funding has served a catalytic role for action in the region. Thus, garnering

increased financial support (at both the state and federal levels) has been and remains a principal focus of the Commission's work. You have recently responded to this need with significant increases in agricultural support via the 2008 Farm Bill. Agriculture presents the most cost-effective opportunities in the Bay region to reduce nutrient and sediment loads. On behalf of every member of the Commission and its staff, let me extend a heartfelt thank you. The U.S. Congress has invested wisely and the onus is now on the region to deliver the anticipated water quality gains.

Your subcommittee has asked me to provide my views on "*the adequacy of the current approach to protecting the Bay and new approaches better aimed at improving the health of the Bay.*" The Bay Restoration effort is and will always be defined by the sum of its parts – the many Federal agencies, the states, the local governments, NGO's and private sector. For this reason, I have attached for the record a copy of the Commission's Congressional Agenda for 2008-2010 which describes the many constructive Federal actions that can be taken to authorize and reauthorize Federal programs to do much more. I ask that you give this Agenda your full consideration.

Let me also begin by recognizing that the efforts to date have been substantial and laudable. Yet, despite two decades of exemplary effort, restoration continues to stall. Reductions in the nutrient load, both above and below the fall line, have yet to translate into measurable increases in the concentration of dissolved oxygen in the mainstem of Chesapeake Bay. Whether from Congressmen like you, state legislators like my bosses or the press corps, the question remains the same: *Why so little improvement?*

All of the preceding speakers have grappled with this dilemma. Groundwater lag time, weather variability, lack of funding and enforcement power and the sheer size of the watershed all factor into the equation. But, at the end of the day, this lack of improvement seems to boil down to three essential needs: funding, regulation and enforcement, and targeted implementation. These three needs will be central to my advice today.

THE EPA CHESAPEAKE BAY PROGRAM:

For the most part, concerted Federal involvement in the Bay restoration, and specifically EPA's participation, began with the signing of the Chesapeake Bay Agreement in 1983 and was formally authorized in the Water Quality Act of 1987. Three million dollars annually was authorized under the Act to support the activities of the EPA's Chesapeake Bay Program Office and $10 million annually was authorized for matching Interstate Development grants. The program was reauthorized in the Estuaries and Clean Waters Act of 2000, P.L. 106-457. That Act directed the EPA to ensure that management plans were developed and implementation was initiated to achieve and maintain the goals of the Bay Agreement. It also authorized the Small Watershed Grants Program and required federal agencies in the watershed to comply with the commitments in the Chesapeake Bay Agreement. A total of $40 million a year was authorized from fiscal years 2001 to 2005 for the Program.

The Program certainly has had its successes. In the past quarter century, since the signing of the first Chesapeake Bay Agreement, EPA, and the financial assistance made available under the EPA Bay Program, has played a critical role in helping to bring together some of the most diverse and broad stakeholder interests – initially three, but now parts of six states, the District of Columbia, more than a dozen Federal agencies, thousands of local governments, academic and scientific institutions, private and non-profit organizations, and citizens – all with their own particular interest and capacity in restoring the health and vitality of this 64,000 square mile watershed. It has helped advance the scientific understanding about the Bay. Perhaps no where else on earth is the science of an estuary more advanced. This science has been solidified through both world class modeling and extensive monitoring. Not only do we understand what is causing the Bay's decline, we also know how to restore it.

The science, expertise, and crucial relationship-building among Bay Program partners led to the development of the *Chesapeake 2000* agreement, a blueprint for addressing watershed degradation that is considered a model nationwide. Since then, the EPA Bay Program has led a rigorous process to establish new water quality goals and standards and has embarked on an innovative basin-wide permitting approach that will achieve major nutrient reductions from wastewater treatment facilities in our region.

Unfortunately, despite these successes in partnership building, advancement of science, and 25 years of effort, we are still falling far short of achieving our water quality and living resource goals. It is now recognized that the goal of restoring the Chesapeake Bay by the year 2010 will not be reached. Why? Simply, there are inadequate resources and programs to get the job done. The EPA Chesapeake Bay Program is managing a restoration effort that carries with it a price tag in the multiple billions of dollars, yet it is operating on only $20 million per year. Annual funding from all sources – Federal, state, and local – is at minimum roughly one-quarter of the funding needed.

NEW APPROACHES BETTER AIMED AT IMPROVING THE BAY'S HEALTH:

During the 109th Congress, the Chesapeake Bay Commission strongly supported legislation that was introduced in both the House and the Senate to reauthorize and enhance the EPA Chesapeake Bay Program and improve its accountability. We would urge the Committee to, at a minimum; incorporate the following provisions of those bills in a reauthorization of the Chesapeake Bay Program.

First, direct the Administrator to develop and submit to the Congress a strategy for reaching the goals agreed to in the *Chesapeake 2000* agreement including an estimated timeline with specific annual goals for nutrient and sediment reduction and the associated costs. The report should also identify any federal or non-federal parties responsible for carrying out the activities needed to reach the goals. Let me make it clear that we are not calling for a plan. We have plenty of those, the most recent of which, the *Chesapeake Action Plan*, was just submitted to the OMB by the EPA Bay Program Office. Instead, we are calling for a strategy that identifies timelines, along with the funding and regulations needed to get the job done.

In the conference report to accompany the Consolidated Appropriations bill for Fiscal 2008, the Congress directed the EPA to develop a Chesapeake Bay action plan for the remaining years of the *Chesapeake 2000* agreement setting realistic targets, identifying activities and funding to be undertaken to meet those targets, and to track progress. While this CAP provides an excellent inventory of all that is being done and identifies opportunities for improvement, it falls short in two areas; areas that you, through your reauthorization, may be able to fix:

1. It does not offer a timeline; and
2. It does not identify the total funding necessary to restore the Bay.

Instead, it only illustrates the funding available which gives the false impression that these areas of need are adequately addressed. The EPA must be required to identify funding gaps along with opportunities for Federal Agencies to fill those gaps, at least in part.

The Congress should call for a strategy that explicitly includes these provisions.

Second, direct the Administrator to publish and widely circulate an annual report card for each major tributary or tributary segment describing the progress made in achieving and maintaining the nutrient and sediment reduction goals. Because the health of the rivers and streams that flow into the Bay directly impacts the health of the Bay, we believe that EPA should develop and implement action plans and report cards for each of the major rivers that flow into the Bay. If the Bay is to be restored, action must be taken on a river-by-river basis. Many of the rivers and streams that drain into the Bay, and the Bay itself, are on the Federal impaired waters list. These action plans should build upon the work of the State Tributary Strategies teams which are focused on water quality improvements, engage local governments, but also address the other four principal Bay restoration goals: living resources, vital habitats, sound land use, and stewardship and community engagement. These report cards would provide the public with a clear and accurate picture of the progress toward restoring these rivers and ultimately the Bay, which is currently lacking.

Third, call upon the Chesapeake Bay region to create a TMDL that calls for Reasonable Assurance and margins of safety that are enforceable. Reasonable assurances to date have varied widely and contain varying levels of specificity and interpretation. They have achieved varying levels of assurance of meeting water quality goals. There simply has not been a TMDL with a solid, precedent-setting reasonable assurance provision yet in this nation. We thus have a tremendous opportunity before us – an opportunity to set a national precedent, and what better place than the nation's largest and most treasured body of water but the Chesapeake Bay?

Congress has the opportunity to determine, with absolute certainty, that load allocations from nonpoint sources and wasteload allocations from point sources are met within the Chesapeake Bay watershed. To achieve this, we recommend the following parameters be

included in calling for a clear and enforceable reasonable assurance provision of a TMDL mandated through the reauthorization of the Chesapeake Bay Program:

1. Any Chesapeake Bay watershed-wide TMDL must include an implementation schedule with incremental benchmarks and metrics;
2. A Bay TMDL must include serious and sobering legal and/or financial consequences for unattained load allocation goals;
3. Enforcement and verification that practices and loads are being met, particularly with nonpoint source control plans, must play a critical role;
4. Both wasteload allocations from point sources as well as load allocations from nonpoint sources needed to remove the Chesapeake Bay from EPA's "impaired waters" list must be quantifiable and consistently, amply, and comprehensively measured;
5. For nonpoint sources, actions taken by the Federal government, states, or local authorities to implement load allocations should include the four points outlined in EPA's withdrawn final rule of 2000 (65 FR 43599).

Two examples of past TMDLs that we suggest may be helpful guides for developing a sound and enforceable TMDL for the Bay watershed are (1) Long Island Sound Nutrients TMDL (decision rationale published April, 2001) and the Northeast Regional Mercury TMDL (decision rationale expected December, 2008).

The Long Island Sound Nutrients TMDL offers a good example that can be expanded and improved upon for integrating a schedule with metrics into a TMDL. And the Northeast Regional Mercury TMDL offers a good example for a multi-jurisdictional plan that can involve all stakeholders at all levels of government in achieving load allocations outlined in a TMDL.

Fourth, direct the appropriate federal agency to establish a watershed-wide stormwater action plan. Unabated development and urban/suburban sprawl is quickly overwhelming Bay restoration efforts. Land use planning at the local level just simply isn't taking into consideration its inevitable impacts on local waterways and the Chesapeake Bay. We therefore recommend an expanded role of the U.S. Army Corps of Engineers in stormwater management and tributary and small watershed restoration. The Corps has been engaged in Bay restoration from very early on – it was the first Federal agency to complete a comprehensive study of the Chesapeake Bay's water and related land resources, for example. But we believe there are additional opportunities to further engage the Corps of Engineers in Bay restoration. The Corps therefore should be directed to develop a Chesapeake comprehensive plan, and the Corps' authorities should be expanded to cost-share stormwater management solutions as well as enable the agency to pursue other fish and wildlife and habitat restoration work such as underwater grasses.

We understand that this Committee is currently considering H.R. 6550, a bill that amends Section 510 of the Water Resources Development Act of 1996 to make modifications to the Chesapeake Bay environmental restoration and protection program by expanding the role of the Corps in Bay restoration. We encourage your careful consideration of this

legislation; it contains many of the suggestions we have just made.

Finally, I close by once again appealing to the members of this Subcommittee for substantially increased Federal support, including an increase in the authorization of the Bay Program to at least $50,000,000 a year. The Chesapeake Bay Commission recognizes the budgetary constraints under which the Congress is operating. We also recognize that the EPA Bay Program funding represents only one of a wide array of programs and funding that are needed to protect and restore the Bay and its resources. As I mentioned at the start of this testimony, earlier this year the Commission developed and submitted a proposed Federal agenda for 2008 – 2010, program-by-program, as a limited set of recommendations on ways the Congress can move Bay restoration forward over the next three years. I ask that you review this report and consider the advice that we have offered.

The Commission and its colleagues appreciate your commitment to improve the environmental results that flow from Federal, state and local investments in the Bay. With the improvements that we proffer, comprehensive reporting and clear accounting of progress is at hand. For those reports to detail significant, measurable improvements in water quality and ecosystem health, I urge you to make every effort to enhance the Federal investment in the Bay. We still have an enormous task before us, and it can not be done without you.

Thank you. I am happy to answer any questions you may have.

DUCKS UNLIMITED

GREAT LAKES/ATLANTIC REGIONAL OFFICE

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July 30, 2008

The Honorable Eddie Bernice Johnson
Chairwoman
House Committee on Transportation and Infrastructure
Subcommittee Water Resources and Environment
B-376 Rayburn House Office Building
Washington, DC 20515

The Honorable John Boozman
Ranking Member
House Committee on Transportation and Infrastructure
House Water Resources and Environment Subcommittee
B-375 Rayburn House Office Building
Washington, DC 20515

Dear Chairwoman Johnson and Ranking Member Boozman:

On behalf of more than one million supporters, thank you for allowing Ducks Unlimited the opportunity to submit written testimony in support of your Subcommittee's efforts to protect and restore one of our national treasures, the Chesapeake Bay. Ducks Unlimited is the world's largest and most effective private, nonprofit wetland and waterfowl conservation organization with more than 12 million acres of wetlands conserved in North America.

The Chesapeake Bay is world famous for its once abundant resources of waterfowl, fish, and shellfish populations. Unfortunately, the Bay has been severely impacted by land use alterations resulting in widespread degradation of water quality that has diminished the Bay's ecological health. To date, the Chesapeake Bay has lost more than 2.5 million acres of wetlands, and 50% of waterways lack buffers, resulting in unabated non-point source runoff of excess nutrients and sediments into the Bay. Additionally, the Bay area is becoming highly urbanized resulting in excessive point source pollution from the more than16 million people who call the watershed home. This trend is expected to continue well into the future and without careful planning will accelerate a decline in Bay natural resources.

The combined impact of land use changes and growing human populations have degraded water quality, ultimately resulting in a drastic loss of submerged aquatic vegetation (SAV) in the Bay of up to 90 percent. This in turn has resulted in major declines of wintering waterfowl and other Bay resources. More than 2,700 plant and animal species live within the Bay watershed, including many federally endangered and threatened species. Because of the critical importance of the Chesapeake Bay for waterfowl and many other species, the area is designated as a high priority under Ducks Unlimited's International Conservation Plan. The goal of this plan is to deliver an integrated conservation initiative to accelerate habitat conservation, improve water quality, conduct applied research, educate citizens, and communicate these successes. Ducks Unlimited has taken dramatic

steps to conserve hundreds of thousands of acres in the Bay watershed, as the enclosed map demonstrates.

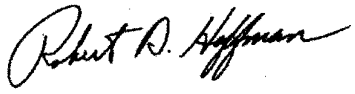
As a step toward implementing our plan, Ducks Unlimited partners with the Chesapeake Bay Program to achieve the Program's goal to restore 25,000 wetland acres to meet its Chesapeake 2000 wetland restoration commitment. Ducks Unlimited has conserved approximately 113,000 acres of habitat in Virginia, Maryland and Pennsylvania in the past 10 years, and therefore is ideally positioned to continue to lead wetland restoration efforts in the Bay watershed. Ducks Unlimited serves as Co-Chairman of the Chesapeake Bay Program's Wetland Evaluation Taskgroup (WET) that oversees wetland restoration strategy in the Bay watershed. As Co-Chairman, we will transfer our leadership and experience in wetland conservation to the Program's efforts for the Bay.

As your Subcommittee moves forward with restoration efforts in the Chesapeake Bay, Ducks Unlimited respectfully requests the Subcommittee remember the importance of wetlands to the Bay watershed. Wetlands act as kidneys to the Bay filtering harmful nutrients and sediments that choke the life out of the Bay. Wetlands provide habitat for countless amphibians, birds, mammals, and shellfish. Finally, wetlands act as a barrier to protect the mainland from storm surges that can have devastating effects as we saw with Hurricane Isabel in 2003.

The *Chesapeake 2000* agreement commits the Chesapeake Bay Program partnership to restore or create 25,000 acres of tidal and non-tidal wetlands in the watershed by 2010. The Program has accomplished over 50% of its wetlands goal. Ducks Unlimited stands ready to help the Chesapeake Bay Program achieve its 2010 goals, but this will be difficult to realize without enhanced federal resources. This farsighted wetland goal will help ensure the long term sustainability of the Chesapeake Bay while taking a major step toward Ducks Unlimited's vision of wetlands sufficient to fill the skies with waterfowl today, tomorrow, and forever.

Once again, thank you for the opportunity to submit testimony to the Subcommittee. Ducks Unlimited looks forward to the working with the Subcommittee as it takes steps to ensure future generations enjoy the Chesapeake Bay. If you need assistance in the future, please do not hesitate to contact Bernie Marczyk, Governmental Affairs Representative, at 410-224-6620 or bmarczyk@ducks.org.

Sincerely,



Robert D. Hoffman
Director Great Lakes and Atlantic Regions

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