Testimony of
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Mr. Chairman and Members of the Committee, my name is Rebecca Hanmer and I am the Director of the Chesapeake Bay Program Office. Thank you for the opportunity to testify today.

The Chesapeake Bay is North America's largest and most biologically diverse estuary, home to more than 3,600 species of plants, fish and animals. For nearly 400 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. It is a resource of extraordinary productivity, worthy of the highest levels of protection and restoration.

Accordingly, in 1983 and 1987, the States of Virginia, Maryland, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the U.S. Environmental Protection Agency, representing the federal government, signed historic agreements that established the Chesapeake Bay Program partnership to protect and restore the Chesapeake Bay's ecosystem.

For two decades, the Chesapeake Bay Program partners have worked together as stewards to ensure the public's right to clean water and a healthy and productive resource. We have sought to protect the health of the public that uses the Bay and consumes its bounty. The initiatives we have pursued have been deliberate and have produced gains in the health and productivity of the Bay's main stem, the tributaries, and the natural land and water ecosystems that compose the Chesapeake Bay watershed.

While the individual and collective accomplishments of our efforts have been significant, continued effort will be required to address the challenges that lie ahead. Increased population and development within the watershed have created challenges for us in the Bay's restoration. These challenges are further complicated by the dynamic nature of the Bay and the ever-changing global ecosystem with which it interacts. The progress that we have made has been real, but work remains.The Health of the Chesapeake Bay

The Committee has asked us to provide an assessment of the health of the Bay. But the Chesapeake Bay is a complex ecosystem, and the Chesapeake Bay Watershed, of which it is the defining element, is even more complicated. Trying to assess the health of the system is, necessarily, a difficult task.
The simplest assessment of Bay health can be found on EPA's Clean Water Act 303(d) list, which is the list of the nation's impaired water bodies. Most of the Bay's waters do not attain their designated uses and fail to meet the States' water quality standards. They are currently on the 303(d) list.

Here are the results of some key assessments:

- Dissolved oxygen (DO) levels in the mainstem of the Bay become low in the summer. While lower dissolved oxygen levels in the deep waters of the Bay are a natural phenomenon during the warmer months, the extent of the low oxygen levels that we have documented for years is largely due to the amount of nutrient pollution that finds its way into Bay waters annually.
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- Bay grasses, or submerged aquatic vegetation, are another key indicator of Bay health. Bay grasses had been on a sustained upward trend for several years. Then in 2003 we saw a record decline of

30% in a single year, down to 64,709 acres, at least partly due to high rainfall and runoff volumes. The data on grasses for this summer are still being collected. We have encouraging reports in several areas that the grasses are rebounding, but we also have reports that Hurricane Isabel last fall scoured out areas that have not recovered. Overall, we are making some progress. Our grasses goal is 185,000.

- Water clarity is another key measure of Bay health. While most of the mainstem Bay, larger embayments, and lower regions of large tributaries meet the minimum light requirement for Bay grasses, upper regions of the large tributaries and many minor tributaries fail. However, there have been recent remarkable improvements in some tributaries in the Upper Bay. This summer we saw extraordinary and rapid improvements in water clarity in some Maryland waters. Watermen, local boaters and scientists alike reported water clarity to a depth of five and six feet in some of these areas. In the areas where this phenomenon is observed, the clarity depths are 2 to 4 times better than the average over the last decade. These are the kinds of clarity depths that we think we should be seeing in the shallow waters throughout a restored Bay ecosystem. We need to be careful not to extrapolate this short-term phenomenon into a Bay-wide trend, but we will continue to keep an eye on this development.

- There are literally scores of other assessments that can be considered in analyzing the health of the Bay. The number of nesting pairs of Bald eagles in the watershed has grown more than ten-fold, from 74 occupied nests in 1977 to 760 in 2003. Similarly, striped bass were officially designated as "restored" in 1995 by the Atlantic States Marine Fisheries Commission. Crabs and especially oysters, on the other hand, are at critically low levels.
- There are 100 different indicators on the chesapeakebay.net website, and we encourage you and your staff to review them all. Assembling the information for these indicators is the result of a remarkable collaborative effort of scientists from the federal and State government, academic and nonprofit organizations, and private citizens. One of the great strengths of the Bay restoration effort is the extraordinary watershed-wide collaboration and these indicators are a good example of the ways we are working together with a common purpose.
- So what can we say about the condition of the Chesapeake, beyond the fact that the Bay is "impaired"? Overall, I think it is a fair assessment to say that we have made modest progress. The key pollutants of nutrients and sediments are down, although not far enough. Some important living resource indicators show improving trends. Considering a population that grows by about 100,000 people annually and all the attendant pollution that means, these gains are not inconsequential. But we need to be measuring ourselves against what the Bay needs, not how much effort we have made. And using that method, we have work ahead of us.

What Do We Need for a Healthy Chesapeake Bay

In a healthy Chesapeake Bay, the waters will be clear and well-oxygenated. Vast beds of Bay grasses will provide essential habitat for thriving populations of shellfish and finfish. Essential plant food will be in abundance, and harmful algae will be limited. The Bay Program has always recognized that the health of the living resources of the Bay is the final measure of our success. But in the past we had been limited in defining exactly what that meant, so we have relied heavily on measures of our progress in reducing the pollutants into the Bay. That has been an enormously useful approach, helping us to define the management strategies that will work and to assess the effectiveness of different pollution control methods. The landmark Chesapeake 2000 Agreement, however, has set us on a different course. In 2003, we completed a three-year review of how best to measure the health of Bay waters as reflected in EPA-published water quality criteria. The new criteria that we have developed cover:

- dissolved oxygen concentrations in different habitats;
- water clarity, especially in shallow water areas;
- the extent of Bay grasses, and
- the amount of chlorophyll a in the water column.

These criteria give us specific environmental endpoints on which we can base pollution reduction targets.

This change is important. These new criteria for measuring water quality have been developed in a collaborative fashion with our State partners – now including the three headwater States of Delaware, New York and West Virginia – as well as leading academic and nonprofit scientists. They are very ambitious and represent perhaps the best scientific work of its kind done anywhere in America. All of the States with tidal waters of the Chesapeake are in the process of adopting new designated uses and criteria into their water

quality standards. As they complete this process over the next several months, we will have four specific and legally-adopted yardsticks to use as we assess the water quality of the Bay.

Accounting for Pollution Reductions

Since 1987, the Chesapeake Bay Program's top priority has been controlling and reducing the Bay's number one problem – the overabundance of the nutrient pollutants nitrogen and phosphorus.

In 2003, new nutrient and sediment load allocations were produced based on the new water quality criteria. The Bay Program partners agreed to reduce nutrient loads so that by 2010 (and every year thereafter) no more than 175 million pounds of nitrogen from all sources and 12.8 million pounds of phosphorus from all sources will be delivered to the Bay in an average hydrology year. We also agreed to reduce land-based sediment loads so that no more than 4.15 million tons will be delivered to the Bay in 2010 (and every year after). The estimated loads for these pollutants in our base year of 1985 were 338 million pounds of nitrogen, 27.1 million pounds of phosphorus, and 5.8 million tons of land-based sediments. These reductions in nutrients and sediment are expected to result in improved water quality conditions necessary to support the living resources of the Bay.

All the pollution-reduction actions we have taken between 1985 and 2002 are now projected to result in an estimated reduction of 7.6 million lbs. of phosphorus loads to the Bay. Similarly, we estimate that our management actions will result in annual nitrogen load reductions of 60 million lbs. and sediment load reductions of 0.8 million tons. In order to achieve the new allocation goals, an additional 6.7 million lbs of phosphorus, 103 million lbs of nitrogen and 0.9 million tons of sediment will need to be reduced by 2010. All of these numbers are based on monitored data from wastewater treatment plants, projections from the Watershed Model based on management changes on the land, and other variables, and they are all based on an average hydrology year. Using these various assessment methods, we can project that we have taken the necessary management actions to achieve one-third of the nitrogen and about one-half of the phosphorus and sediment reductions that are needed to restore the Bay.

Recent Program Accomplishments

In 2004 the Program partners have continued to work aggressively to restore the Bay. Let me take just a few minutes to recount some of the major activities of the past year.

Fish Passage. The removal of stream blockages and construction of fish passages in 2004 reopened 352 miles of historic spawning habitat to migratory fish. Collective efforts this year in all four Bay signatory partner jurisdictions (MD, PA, VA, and DC) put us over our 5-year goal of 1,357-miles. Total miles made available to migratory fish since 1988 is 1,592. An additional 238 miles have been made available to resident fish. The Program will soon adopt a new goal of reopening an additional 1,000 miles between 2005 and 2014.

Forest Buffers. In 2004, an estimated 630 miles of streambank and shoreline in the Bay watershed were restored with forest buffers. Total miles restored in MD, PA, VA and DC since 1996 is estimated at 3,500. We need 6,500 more miles in order to achieve our 10,000 mile goal by 2010.

Biological Nutrient Removal. As of April 2004, 97 out of 317 significant wastewater treatment facilities in the Bay watershed have implemented nutrient removal technology responsible for advanced treatment of 56% of the wastewater flow to the Bay. Reduction in nitrogen loads from these facilities has totaled 14.6 million pounds/year since 1985. Maryland passed new legislation that will result in a major infusion of funds to finance nearly $1 billion in up-grades to the largest facilities in the State. We strongly support this effort and applaud Maryland for passing this important initiative.

Preserved Land. In 2004, the Bay signatory partner jurisdictions preserved 102,438 acres of land from development. The total amount preserved in MD, PA, VA and DC portions of the watershed is now estimated at 6.63 million acres. 527,329 acres of land have been preserved since 2000. In order to achieve our goal, an additional 292,963 acres need to be preserved by 2010.

Science-based Bay Water Quality Standards are Going into Place. In 2004, the Chesapeake Bay tidal water States made notable progress in adopting the 2003 EPA Chesapeake Bay tidal water quality criteria into their water quality standards. As I noted earlier, the new criteria being adopted are: dissolved oxygen, chlorophyll-a, and water clarity. These are state-of-the art criteria, which establish a much better scientific

and regulatory basis for both regulation of point sources (like sewage treatment plants) and allocations for non-point source best management practices. The criteria apply to the Bay and its tidal tributaries. Delaware has just completed its standards adoption process. Maryland will be publishing its proposed revisions within a week. The District of Columbia is in the final stages of its process, and Virginia is going through its first public hearing process.

Tributary Strategies are Being Completed by All Jurisdictions in the Bay Watershed. During 2004, all States in the Chesapeake Bay basin except New York (a newcomer to the Bay program) are completing river-specific cleanup plans (or "tributary strategies"). These tributary strategies identify the levels of nutrient control measures required from sewage treatment plants and other point sources, and the best management practices needed for nonpoint sources and urban stormwater sources.

EPA Plans to Promulgate the Clean Air Interstate Rule Which Will Have Major Bay Benefits. Almost one-third of the nitrogen that enters the Bay and its tidal tributaries is from deposition of air emissions. EPA's Clean Air Interstate Rule will establish a cap and trade program for nitrogen oxides emissions from power plants. The Chesapeake Bay Program model estimates that, by 2010, implementation of this rule will reduce nitrogen input to the Bay by 10 million pounds annually. This measure will, by itself, provide about 10% of the nitrogen reduction required to achieve the new Bay criteria. Other Clean Air rules already in effect will provide additional reductions.

EPA and the Chesapeake Bay Watershed Jurisdictions Have Just Completed a Basinwide Clean Water Act Permitting Strategy. For years, permits have required nutrient removal to achieve localized water quality standards, but the lack of science-based and achievable standards for the mainstem of the Bay prevented States and EPA from being able to regulate the additional nutrient reductions needed for Bay protection. As noted earlier, a progressive program has been underway since 2000 to remedy this situation and provide a basis for using Clean Water Act regulatory tools effectively. During 2004, EPA and the States have developed a basin-wide strategy for nutrient permit limits, which will implement the newly-established water quality standards. This strategy has just been completed and will be announced this month. It covers the entire 64,000 sq. mile watershed, and commits all States to write permit limits based on the living resource needs of the Bay. In the Chesapeake Watershed we already have 97 facilities treating wastewater to remove excess nutrients. No other watershed in America has more plants using this technology. But as the permitting strategy takes hold, starting in 2005, the number of plants using nitrogen removal technology will jump to over 300, resulting in additional 23 million lb/yr reduction of nitrogen from these facilities and an additional 2.04 million lb/yr of phosphorus from the facilities.

Chesapeake Bay Program & U.S. Integrated Ocean Observing System (IOOS). EPA Chesapeake Bay Program and our colleagues at the NOAA Chesapeake Bay Office are working with the their parent agencies, the Ocean.US Office, and a diverse array of regional partners to develop and implement the U.S. Integrated Ocean Observing System (IOOS) in the Chesapeake Bay region. {please see http://www.ocean.us} The IOOS Regional Coastal Ocean Observing Systems will include all of EPA's National Estuary Programs (NEPs) and the Chesapeake Bay Program. Specifically, the Chesapeake Bay Program will be an active part of the Chesapeake Bay Observing System. The U.S. Integrated Ocean Observing System, including the Regional Coastal Ocean Observing Systems, is a U.S. contribution to the Global Earth Observation System of Systems (GEOSS) {please see http://www.epa.gov/geoss/}, currently under development with strong support from the national and international scientific community.

As requested by the President, the 2005 Omnibus Appropriations Bill Provides Funding for a Regional Pilot for the Bay. The bill provides $8 million for competitive grants to address nutrient reduction from nonpoint sources in innovative and sustainable ways. We encourage our partners in the region to consider projects in which they may most effectively use this funding.

Conclusion

The Chesapeake Bay and its watershed are incredibly complex and dynamic. We have made gains in reducing the number of pollutants flowing into the Bay, in improving habitat in tributaries, and with several important species. But work remains, and population growth will continue to provide additional stresses to the resource. To restore the Bay we will need additional, ongoing levels of effort from all partners. Homeowners and apartment dwellers alike will need to consider their impacts on their local environment. We will also need help from academia to make sure that we get the science right.

While the task ahead of us is challenging, I truly believe that the Chesapeake Bay Program has developed

the expertise and the partnerships that will enable us to succeed. With your leadership and that of those in other key positions throughout the 64,000 square mile watershed, we can succeed.

Thank you for the opportunity to testify. I am happy to answer any of your questions.

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