

**A RENEWED COMMITMENT TO PROTECTING
THE CHESAPEAKE BAY: REAUTHORIZING
THE CHESAPEAKE BAY PROGRAM**

HEARING
BEFORE THE
SUBCOMMITTEE ON WATER AND WILDLIFE
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED ELEVENTH CONGRESS
FIRST SESSION
AUGUST 3, 2009

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ONE HUNDRED ELEVENTH CONGRESS
FIRST SESSION

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C O N T E N T S

Page

AUGUST 3, 2009

OPENING STATEMENTS

Cardin, Hon. Benjamin L., U.S. Senator from the State of Maryland	1
Carper, Hon. Thomas R., U.S. Senator from the State of Delaware, prepared statement	132
Inhofe, Hon. James M., U.S. Senator from the State of Oklahoma, prepared statement	229

WITNESSES

Griffin, Hon. John, Secretary, Maryland Department of Natural Resources	4
Prepared statement	7
Responses to additional questions from:	
Senator Carper	11
Senator Inhofe	12
O'Mara, Hon. Collin P., Secretary, Delaware Department of Natural Resources and Environmental Control	16
Prepared statement	19
Responses to additional questions from:	
Senator Carper	24
Senator Inhofe	27
Hawkins, Hon. George S., Esq., Director, Department of the Environment, Government of the District of Columbia	33
Prepared statement	36
Responses to additional questions from:	
Senator Carper	47
Senator Inhofe	49
Douglass, Hon. Gus R., Commissioner, West Virginia Department of Agriculture	57
Prepared statement	59
Responses to additional questions from:	
Senator Carper	87
Senator Inhofe	88
Brubaker, Hon. Michael W., Vice-Chairman, Chesapeake Bay Commission, Senate of Pennsylvania	95
Prepared statement	97
Responses to additional questions from:	
Senator Carper	101
Senator Inhofe	102
Tierney, Hon. James M., Assistant Commissioner for Water Resources, New York Department of Environmental Conservation	108
Prepared statement	110
Responses to additional questions from:	
Senator Carper	116
Senator Inhofe	118
Cosgrove, Hon. John A., Chairman, Chesapeake Bay Commission, Virginia House of Delegates	133
Prepared statement	136
Responses to additional questions from:	
Senator Carper	140
Senator Inhofe	144
Wurtzel, Alan L., Chairman Emeritus, Circuit City Stores, Inc.	163

IV

	Page
Wurtzel, Alan L., Chairman Emeritus, Circuit City Stores, Inc.—Continued	
Prepared statement	167
Fults, Brent L., Managing Member, Chesapeake Bay Nutrient Land Trust, LLC	172
Prepared statement	174
Responses to additional questions from Senator Inhofe	185
Gannon, Joe III, Vice President, Envirocorp, Inc.	195
Prepared statement	199
Mitchell, Marty, Vice Chief Executive Officer, Mitchell & Best Homebuilders .	203
Prepared statement	205
Responses to additional questions from Senator Inhofe	213

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MONDAY, AUGUST 3, 2009

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER AND WILDLIFE,
Washington, DC.

The subcommittee met, pursuant to notice, at 2 p.m. in room 406, Dirksen Senate Office Building, Hon. Benjamin L. Cardin (chairman of the subcommittee) presiding.

Present: Senators Cardin and Carper.

**OPENING STATEMENT OF HON. BENJAMIN L. CARDIN,
U.S. SENATOR FROM THE STATE OF MARYLAND**

Senator CARDIN. The Subcommittee on Water and Wildlife of the Environment and Public Works Committee will come to order.

I want to thank our witnesses that are here today. This is the second in a series of hearings that the subcommittee has held on the Chesapeake Bay and the status of the Chesapeake Bay and what we can do in regards to reauthorization of the Chesapeake Bay to help strengthen the objectives that we are all trying to achieve in cleaning up the Bay itself.

I am particularly pleased today with the two panels of witnesses that we have. I know on the first panel there are a large number of people that are here. That is because there are so many jurisdictions, so many States that are involved in the work on the Chesapeake Bay. It has been one of the reasons, I think, for the success of this model is that all stakeholders are involved.

So we are particularly please on the first panel to have representatives from all of the States and the District of Columbia that are directly involved in our efforts to try to clean up the Chesapeake Bay.

And then on the second panel, we will hear from the private sector. The Chesapeake Bay Partnership between the Federal Government and the State government has been successful because of the private partnership that has worked with us. This has not just been a governmental effort, but also a private sector effort.

The partnership itself was a partnership between the Federal Government and our States in which we relied upon our States for the action plans to try to implement restoration efforts. I think we need to start with the fact that we have made progress, but not enough progress.

The United Nations Ramsar Convention recognizes the Chesapeake as an ecological region of global significance. I think we all agree with that. The Bay has been called a National Treasure from Ronald Reagan to Barack Obama. So it is generally recognized to be a very special place. But the Chesapeake Bay is also in trouble.

A recent report from the University of Maryland Center for Environment Science finds that the ecological health of the Chesapeake Bay remains poor. The Chesapeake Bay and its tributaries are unhealthy, primarily because of pollution of excess nitrogen, phosphorous and sediment entering the waters.

The main sources are known to us. We know what is causing the problem. We need to do a better job of controlling the pollutants that enter the Bay from agriculture, from urban and suburban runoff, from wastewater from sewage treatment plants and from airborne contaminants. So we basically know the problem. We need to develop an action plan and enforce an action plan that will move us forward.

We must first recognize that the Chesapeake Bay Program has played a critical role in stemming the tide of pollution. The model works. The Bay Program is a model for the national estuary programs that are helping curb pollution from Casco Bay in Maine to San Francisco's estuary in California.

Any successful program must combine the focus on the entire watershed, involve all the key stakeholders and be based on sound science. That must be continued and strengthened in the Chesapeake Bay model.

But look at some of the challenges that we now need to confront. The population of the Chesapeake Bay watershed has grown from 12 million when the program was started 25 years ago to 17 million residents today. That is a 40 percent increase. That, in and of itself, would be a challenge to try manage the Bay itself. But when you look at some of the other factors, such as the amount of impervious surface, the hardened landscape, that funnel polluted waters into the streams and rivers in the Bay, it actually has increased 100 percent since during that same period.

We are losing an astonishing 100 acres of forest land every day in the Bay watershed. In shore, there are millions more of us, and the size of our impact has grown twice as fast as our population has.

Without the Bay Program, the health of the Chesapeake would undoubtedly be much worse than it is today. But barely holding our own is not good enough. So merely fine tuning the Bay Program will not be good enough, either. We need some significant changes if we want to significantly improve the Bay, and we want to do just that.

Everywhere I go, whether it is in the State of Maryland or the State of Virginia or Pennsylvania, I hear from people over and over again that they are prepared to do what is necessary in order to save our Bay. There is tremendous public support for our efforts to curb the pollution entering the Bay.

So we have done some things in the past. It is time to evaluate whether they have worked. We know that much of the pollution still comes from agricultural lands. Are the major increases in Chesapeake conservation funding that we wrote into the farm bill

going to be sufficient to dramatically reduce pollution from farms? Will additional efforts be required as well?

Every day, polluted water runs off the streets and roof tops. Polluted storm water runoff is not the largest part of the problem, but it is the only source sector pollution that is still growing. What can our cities and towns do to control this growing problem? And how can we pay for it?

Nitrogen oxides from air pollution are washed out of our skies daily, showering the Bay watershed with excess nitrogen pollutants. Are there programs to reduce air pollutants stringent enough to curb this hidden source of nitrogen pollution to the Bay?

Wastewater treatment plants contribute excess nitrogen and phosphorous pollutions that are fouling the Bay. Do permit requirements need to be based on the limit of technology? Should they apply to every sewage treatment plant in the watershed regardless of size or location?

Pollution alone is not the problem. We do not have enough blue crabs or native oysters, in part because we have not managed our fisheries very well. For example, we are taking too many menhaden out of the Bay to turn them into fish oil dietary supplements, thereby losing their natural filtering capacity in the process. Do we have enough forage fish to keep our rock fish abundant and healthy? Does the Bay Program need to have a formal fisheries management component in it?

Well, these are some of the questions that I hope our panelists will discuss with us today. We are looking forward to the reauthorization of the Chesapeake Bay Program within the Clean Water Act, and I hope that the information that we receive today from these panels of witnesses will help us in crafting that bill for consideration later this year.

With that, let me turn to our first panel of witnesses, our government witnesses that are here. First, let me introduce each of you, and then we will be glad to hear from you.

First we have John Griffin. Mr. Griffin has served as Secretary of the Maryland Department of Natural Resources for two Governors. I first worked with John on Bay restoration 25 years ago when he was a staff member for Governor Harry Hughes and I was the Speaker of the Maryland General Assembly. Mr. Griffin has devoted a substantial part of his working life to Bay restoration efforts, and I am pleased that he will be our lead off witness today.

He will be followed by Secretary Collin O'Mara, Secretary of Delaware's Department of Natural Resources and Environmental Control. Secretary O'Mara serves as Governor Jack Markell's appointee on the Chesapeake Bay Program Executive Council.

George S. Hawkins is the Director of the District of Columbia's Department of the Environment. Mr. Hawkins also serves as Chair of the Green Building Advisory Council and is a board member of the D.C. Water and Sewage Authority.

Representing West Virginia will be Commissioner Gus Douglass. Mr. Douglass is currently serving his 11th term, wow, as West Virginia's Commissioner of Agriculture. He has served as President of the National Association of State Departments of Agriculture, among his numerous other boards and commissions, and is considered one of the national experts on State agricultural policy.

State Senator Mike Brubaker serves the 36th District of Pennsylvania. Senator Brubaker is the Vice-Chairman of the Chesapeake Bay Commission and leads the Pennsylvania Delegation to the Commission. It is a pleasure to have you with us.

Jim Tierney serves as the Assistant Commissioner for Water Resources with the New York State Department of Environmental Conservation. Assistant Commissioner Tierney leads the Department's management team for programs to restore and maintain New York's waters.

And then Delegate John Cosgrove currently serves in the Virginia House of Delegates and is Chairman of the Chesapeake Bay Commission. The Commission is charged with coordinating policies concerning the Chesapeake Bay across State lines.

Secretary Griffin, glad to hear from you.

**STATEMENT OF HON. JOHN GRIFFIN, SECRETARY,
MARYLAND DEPARTMENT OF NATURAL RESOURCES**

Mr. GRIFFIN. Thank you, Chairman Cardin. On behalf of my boss, Governor Martin O'Malley, and all of my colleagues in his Bay sub-cabinet, I certainly appreciate the opportunity to come here before you, staff and perhaps other members today to talk about a matter of critical importance to our region, to the Nation and indeed to the world.

If you would allow me a moment of personal reflection. Going back to the 25 years ago that you spoke of, I wanted to mention unequivocally that that happened to be a point in time in Maryland's history, as well as the other primary Bay States, when the EPA had just completed its 7 or 8 year study of the ills of the Bay and we in Maryland, as well as was true elsewhere, were developing our State level response.

As you pointed out, you were the Speaker of the House then, and I can state unequivocally that that initial program of budgetary and legislative initiatives would never have passed without your leadership as Speaker of the House. So we are very pleased to see that leadership continuing during your years here in Congress and now as the Chair of this important subcommittee. I am thinking of bills like the Chesapeake Bay Critical Area Law, the phosphate ban and many others which, clearly, without your leadership, would never have been enacted. And we thank you for that.

Senator CARDIN. For those nice comments, I will give you the extra minute and a half that took you.

[Laughter.]

Mr. GRIFFIN. Thank you.

Speaking of 25 years ago, that is when this effort in an official way started following the EPA's Bay study, and it is clear that despite a great effort over those last many years, we are not getting the results we want. As the old adage goes, so we need to change the way we do business.

We have started to do that in Maryland, and that has been happening regionally in Maryland. Governor O'Malley, when he came into office 2 and a half years ago, felt that these longer-term goals allowed everybody to rest on their laurels. Therefore, we have developed this idea of shorter-term goals or milestones. They also

allow more immediate ongoing measurement of progress, and they also allow us to hold ourselves accountable.

So in Maryland, as elsewhere in the region, earlier this year we committed to our first set of 2-year milestones that would, if we achieve them in Maryland, increase our rate of nitrogen reduction by 138 percent and our rate of phosphorous reduction by over 500 percent. We hope to do this by the end of calendar year 2011, which is the first milestone period for Maryland and the other States in the region. That would keep us on pace to meet our Maryland goal of achieving Bay restoration over current levels of nutrient pollution by the year 2020.

Regionally, we sense a growing sense of urgency to take the necessary actions, most of which we know, and we have most of the delivery mechanisms in place. Not all of them. The path is not easy. It is getting harder. And it will not be cheap, and it will not be without controversy. At the end of the day, we believe that we need widespread public support and involvement for bold action, not just at the governmental levels but also in the way people in this watershed go about their daily lives. So it really comes down to choices, we think, for everyone in this watershed.

You had asked us to provide some specific recommendations, Mr. Chair, as you consider the reauthorization of the Chesapeake Bay Program section of the Clean Water Act, and we have several that we would like to offer. Some of them are not new, and I am sure that you have heard them before, but they are important to keep.

No. 1, we think that we need to establish and statute in this reauthorization a deadline. The region agreed to a 2025 deadline to meet our nutrient and sediment reduction goals. Very recently, we think it is important to have a statutory deadline as a stake in the ground. Otherwise, these interim milestones become somewhat meaningless.

No. 2, we need to establish an independent scientific evaluation mechanism to promote more accountability. We have initially established, through contract with the National Academy of Science, an effort to perform that function for us. Obviously, accountability and getting results have been a big part of what you and others in Congress have been looking at over the last several years as it has been obvious that we have not achieved the results that we want.

And not unlike the legislation that was passed for the Everglades, we think that you ought to memorialize sections in your reauthorization that call for the National Academy to perform this function on an ongoing basis for the benefit of everyone.

Three, we think, despite the tough times in which we are operating, we should give careful consideration to some increase in the level of funding provided through the Chesapeake Bay Implementation Program. Forty million has been authorized. Roughly \$20 million, plus or minus, has been funded, or appropriated, in recent years. Our thoughts are that should be, we should try to get to the \$40 million authorization level but with two conditions.

First, that each State, each member of the compact, be required to match that dollar for dollar. And second, at least that amount of funding would be allocated proportionately to the level of reduction each jurisdictions is required to make.

No. 4, address urban and suburban runoff. You spoke of this in your introductory comments, Mr. Chair. You know that it contributes about 23 percent of the Bay's pollution. Restoring urban rivers and green infrastructure makes areas attractive for infill development and redevelopment, which is critical from a growth standpoint to the Chesapeake Bay.

For example, we are here sitting in the Anacostia Watershed, which is the focus, as you know, of a major restoration effort. That plan which has been adopted for the Anacostia Watershed identifies 5,000 restoration projects, 1,700 of them are storm water retrofit projects designated as priorities.

And we all know what happens when storm events hit urban and suburban streets and roofs and the runoff and the degradation that has occurred in the Anacostia and the Potomac. Of course, many of the lands and facilities that we are talking about on the Anacostia Watershed are owned by the Federal Government. This is a great opportunity for the Federal Government to lead by example.

But we need more technical and financial assistance to try to make a dent in seemingly a growing and almost insurmountable problem of retrofitting all of our developed areas. And there are other areas, of course, that are kind of priorities in the region for this, the Elizabeth down in Virginia, and your home city of Baltimore.

No. 5, fund core water-related programs. I am really offering this one in particular on behalf of our sister agency in the State of Maryland, the Maryland Department of the Environment's Secretary Wilson, mandating increases federally, whether by law or regulation, while funding is decreasing. We are speaking specifically here about programs to support the NPDES permitting programs, storm water, wastewater and others. And so restoring some of the EPA funding that has been decreasing recently through increases in section 106 and other sections.

Senator CARDIN. I have to ask you to summarize so that we have time for questions.

Mr. GRIFFIN. Of course. A couple of more points.

Create greater accountability. We are very pleased that the President's Executive Order includes elevating regionally something we started in Maryland which Governor O'Malley called BayStat which is a fiscal dashboard to measure success. It is accessible to the public.

Finally, we really need to establish in the reauthorization effective and enforceable implementation plans. I draw for you the parallel to the Clean Water Act, or excuse me, the Clear Air Act, and we need requirements on the States to develop plans approvable by EPA and then enforced by them. I think the era of general volunteerism has to be over.

I guess I would just end by saying, as you just suggested, that I would be happy to answer any questions.

[The prepared statement of Mr. Griffin follows:]



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary

Testimony of
 John R. Griffin
 Before the Subcommittee on Water Resources and the Environment
 Reauthorization of the Chesapeake Bay Program
 Washington, D.C. 20515

July 30, 2009

Chairman Cardin and members of the Subcommittee on Water Resources and the Environment, thank you very much for the invitation to appear before you today. On behalf of the Administration of Governor Martin O'Malley, I appreciate having the opportunity to testify on behalf of the protection and restoration of the Chesapeake Bay. My name is John Griffin and I am the Secretary of Maryland's Department of Natural Resources.

Please allow me a personal moment to reflect on the long standing leadership of the Chairman on Chesapeake Bay issues. Twenty-five years ago Senator Cardin was the speaker of the Maryland House of Delegates and I was on the staff of then-Governor Harry Hughes. I had worked with the Governor's cabinet and other staff to develop a series of legislative and budgetary initiatives to respond to the results of the 8-year EPA study of the reasons for the declines in the Chesapeake Bay.

I can state unequivocally that without the leadership of then-Speaker Cardin, many of these initiatives — in particular our Critical Areas program and our phosphate ban — would have failed.

The Chesapeake Bay is an unparalleled resource — possibly the most productive and fragile ecosystem on the planet. Years ago, the states of Maryland, Pennsylvania, Virginia and Washington D.C. and the Federal Government realized that they could wait no longer to preserve this great resource. The leaders of these jurisdictions recognized that the Bay's problems could not be solved by any one of them acting alone, so they resolved to act together. It was their belief then and it is our belief now, that without leadership from all levels of government — federal, state, and local — we will not realize our goal of restoring and protecting this most vital resource... an effort that, if successful, will serve as a model for the nation and the world.

To that end, we are very encouraged by President Obama's new Executive Order on the Chesapeake Bay and the unprecedented level of federal cooperation and leadership it calls for. At the State level, under the leadership of Governor Martin O'Malley, we recently set plans to accelerate — significantly — the Bay restoration effort. For Maryland, our commitment represents a 138 percent increase in our rate of nitrogen reduction and an over 500 percent increase in our rate of phosphorus reduction, to put Maryland on a pace to meet our Bay Restoration Goals by 2020.

We share your sense of urgency for a renewed effort to restore the Chesapeake Bay, at all levels of government – federal, state and local. Now, some 25 years since the first Chesapeake Bay Agreement, what can be done to further accelerate progress in restoring this treasured ecosystem? 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 most of the delivery mechanisms already in place at federal, state and local government levels. The path ahead will not be easy, cheap or without controversy, and I would respectfully request that this Subcommittee and the Congress play a catalytic role for action in the region and consider the following ideas in the reauthorization of the Chesapeake Bay Program.

This effort will not succeed unless we garner widespread public support for bold action to restore the Chesapeake.

Establish a Restoration Deadline

We recommend the Subcommittee adopt new language in the reauthorization of Section 117 of the Clean Water Act that requires a deadline no later than 2025 to meet the nutrient reduction goals of the Chesapeake Bay Agreement. Such a statutory deadline would allow us to place a stake in the ground, without which each state's new milestones become somewhat meaningless.

Establish Independent Scientific Evaluation

We further recommend the language call for the National Academy of Sciences to serve as an independent scientific and programmatic evaluator of the Bay Program and its partners as was called for by Congress to ensure timely and successful restoration of the Everglades.

Provide Adequate Funding

It is also important to assure adequate funding for this Program is authorized under section 117. Our understanding is that the funding for the Bay program has remained steady at approximately \$20 million for well over a decade, while the authorized spending level is \$40 million. We believe that the Program should be fully funded at its authorized level of \$40 million, with the increases provided to the States through their implementation grants. In Maryland, we are using our Implementation Grant to assist local communities in taking the necessary steps to control and abate non-point source pollution. We recommend that any increase in funding to the States require an equal match from each State, and that the increases in funding provided to jurisdictions be proportional to the nutrient allocations.

Our efforts to accelerate the restoration of the Chesapeake Bay must address pollution from urban and suburban waters because they contribute almost a quarter (23%) of the Bay's pollution. Cleaning and restoring urban rivers and greening urban infrastructure also helps to make these areas attractive for infill development, which is much needed in the Bay watershed. For example, today we are sitting in a building that is located in the Anacostia Watershed, which is the focus of a major restoration effort by the federal government, Maryland and DC. Anacostia Watershed Restoration Plan is a comprehensive approach for restoring the watershed.

The team developing the plan has identified over 5000 restoration projects needed—the highest priority of these are over 1700 stormwater retrofit projects. Every time it rains polluted runoff from DC and the surrounding suburbs flows into the Anacostia and the Potomac, just like every other urban and suburban area

in the Bay watershed. Much of the land in the Anacostia Watershed that contributes this polluted runoff is owned or controlled by the federal government and federal leadership as well as technical and financial support is critical to the success of the Anacostia restoration and other similar urban/suburban areas throughout the Bay watershed. To restore the Anacostia and Potomac Rivers' water quality, and ultimately the Bay, we must control the Combined sewer system overflows (CSOs) from the DC part of the watershed and sanitary sewer overflows (SSOs) from the suburban area in Prince Georges and Montgomery County, we must complete the upgrade of the Blue Plains wastewater treatment plant. Urban and suburban areas must be retrofitted with green roofs, rain gardens, and other low impact design features to reduce runoff. At the same time, the federal government must follow through with stronger air pollution controls to reduce the nitrogen emissions and resulting deposition to the watershed, which is particularly problematic in our highly impermeable urban/suburban watersheds like the Anacostia. Maryland recently implemented Healthy Air Act for power plant emission controls and the Clean Cars Act.

I know that the State of Maryland, District of Columbia, Montgomery County, and Prince George's County will do what they can to fund and implement these projects, but they will need the support and help of the federal government as well. A reauthorization of Section 117 could include provisions for funding and other authorities needed to help implement the plan when it is completed. These authorities might also extend to Baltimore Harbor and the Elizabeth River as they are the two other priority urban waters that have been identified in the Bay.

In addition to Section 117, it is a fact that over the past eight years the core water programs implemented by the States have been crumbling around us. You have heard many times that mandates for States have increased while funding to states from EPA has decreased. This is reaching a critical tipping point in what we call the core water programs – NPDES permitting, stormwater, wastewater and others. At a time when the Bay jurisdictions are accelerating efforts on top of already depleted programs, this is becoming more critical to our success. Restoring EPA funding through increases in the CWA Section 106 and other program support grants is critical to our future success -- as well as that of the EPA -- in restoration efforts.

Create Greater Accountability

Bay related agencies in Maryland have come to appreciate the value and importance of Governor O'Malley's BayStat program. Lessons can be learned and practices adapted from this program. BayStat is being used 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. Most importantly, we monitor our progress against established benchmarks and make adjustments where necessary. In other words, we're building into BayStat the whole concept of adaptive management. Over the past two and a half years, BayStat has helped Maryland state agencies work smarter...

- basing decisions on the best available science
- targeting resources to get the biggest bang for the buck and
- being more open and accountable to Maryland citizens

We in Maryland are very heartened that President Obama and EPA Administrator Jackson have called have elevated the BayStat concept regionally in the new Presidential Executive Order

Require Binding and Enforceable Implementation Plans

Finally, and importantly, there is a need for new language to ensure the development of an enforceable and effective Total Maximum Daily Load (TMDL) for the Chesapeake, one containing requirements for specific implementation plans with short term deadlines which will ultimately achieve our nutrient and sediment reduction goals. These plans must be binding and enforceable. The Administrator of the Environmental Protection Agency (EPA) needs the clear authority to require and enforce the implementation of these plans and identify appropriate consequences if they are not successfully implemented.

The Clean Air Act is a good model upon which to pattern amendments to the Clean Water Act. During the period from 1990 to 2008, the Clean Air Act successfully reduced ozone levels by 40 percent. The Clean Air Act uses many of the same permitting and planning tools that are prevalent in the Clean Water Act, but there is one critical difference between the two environmental statutes. If a state fails to produce an air quality control plan that demonstrates the state's ability to achieve attainment with federal ambient air quality standards, the Clean Air Act imposes meaningful sanctions on the state, including loss of transportation and other federal funding, more stringent permit requirements on new and modified regulated facilities in the non-attainment area and limits on initiation of new transportation projects.

It is less clear what the ramifications are for failure to meet Clean Water Act standards, or to have a credible plan to do so. We urge the Subcommittee to establish clear requirements on the states to develop implementation plans subject to approval and enforcement by EPA if plans are not approved or satisfactorily implemented. Perhaps the most effective sanctions for non-compliance that we would recommend the committee consider are the suspension of authority to issue new hook-ups to public wastewater systems and the ability of local governments to issue building permits.

Mr. Chairman, again, all of us in Maryland are grateful for your commitment to the Chesapeake Bay restoration effort we appreciate this opportunity to be heard. We urge this Subcommittee to fully explore opportunities to strengthen the restoration effort and the mechanisms by which all levels of government will be held accountable for accelerating restoration while you consider the reauthorization of Section 117.

I will be happy to answer any questions that you might have.

Thank you.

Responses to Questions

Senator Thomas R. Carper

- 1) As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating -- both to understand the role of air emissions and to address the impact of these emissions on water quality?

RESPONSE:

Atmospheric deposition of nitrogen is a major concern for the Bay since it is estimated to comprise 25-30% of the total nitrogen loads to the watershed. There are three key sources of nitrogen from air pollution that adversely impact the Bay. The largest source is nitrogen oxides imported into the Bay from the airshed, which includes mid-western states. Emissions from Maryland stationary and mobile sources that are deposited in Maryland and ammonia emissions from both municipal and agricultural waste are also significant. If we cannot control and reduce a significant portion of that load it may be unlikely that the Bay can be fully restored. Maryland has made its own aggressive efforts at reducing this source through the Healthy Air Act and the Clean Car program, but only so much can be accomplished at the state level to address a regional/national pollution source. Congress and EPA should carefully consider the opportunity to reduce water quality impacts in revising CAIR.

- 2) Runoff from our roads is a significant source of water pollution -- contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?

RESPONSE:

Historically, program management decisions have been constrained by the "stovepipe" or programmatic nature of agencies' enabling legislation and the resulting organizational structure. This "vertical approach," while useful to address specific resource concerns, impedes broad-based collaborative planning, application and evaluation of environmental programs and ultimately the desired outcome. All of these programs should ultimately result in one outcome - Clean Water. However, in many instances, the requirements from each of these programs are conflicting and misleading to its purpose. *Integration of authorities under the Clean Water Act (CWA) is necessary.* § 401, §402, §404, §303(d), §305(b), §319

Utilizing a stormwater approach at the watershed scale is essential and is not conducive under current regulations. The current understanding of Highway impact on the watershed is misleading and the data needs to be verified and understood. Significant data is available from highways, however it is not being appropriately analyzed to make policy decisions. In almost all instances, pollutant contribution from highways is only a fraction of pollution from urban watershed. (Nutrient discharge generated from urban stormwater in Maryland ranks 2nd for phosphorous and 3rd for nitrogen - DNR 2004 Tributary Strategy).

A strategic planning and collaborative approach to reduce pollution from all of the urban stormwater generators is essential. Highways needs to reduce their fair share but can not be expected to reduce pollutants to account for all of the urban stormwater polluters.

Stormwater Regulations are in their third generation in Maryland since its inception in early 1980s. All new impervious surface can be expected to be treated by stormwater facilities that meet these third generation standards. A major challenge remains with impervious surfaces built prior to such regulations. Treating such impervious surfaces require additional land and

construction resources. Maryland estimates approximately 201,000 acres of impervious surface between nine urban counties, State Highways, and Baltimore City. The cost of retrofitting this significant impervious land is immense at the current level of treatment and by current standards. A fiscal analysis with regard to the desired level of water quality will demonstrate the need for serious investment and commitment.

Maryland's State Highway Administration and other transportation entities employ a multifaceted approach to address stormwater (runoff) pollution which includes several management programs and practices:

- Integrated Vegetation Management to reduce Herbicides and Pesticides runoff;
- Nutrient Management planning to reduce Fertilizer runoff;
- Permanent vegetation stabilization management to control sediment runoff;
- Inspections of major stormwater outfalls to identify illicit discharge detection and erosion issues;
- Adopt-a-Highway Program to promote voluntary participation in the control of litter; and
- Use of State approved Stormwater Design Standards and Stormwater Management Facilities.

Senator James M. Inhofe

- 1) The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

RESPONSE:

In general the federal agencies have been a good partner in our collective efforts to restore the Bay providing financial and technical assistance, yet we continue to fall far short in our efforts. We strongly support an expanded Federal role under President Obama's Executive Order and through reauthorization of Section 117 of the Clean Water Act that includes a strong partnership with the states. However, Federal capability is dependent on the budget authorized and appropriated by Congress. In many respects funding has decreased proportional to need for standard operations as well as for support of capital infrastructure. Balancing more aggressive Federal leadership with respect for state rights can be done through increased communication at the regional Bay Program and State level and by running Federal funding through partner state agencies. These actions will create an even playing field throughout the Bay region at the federal, state and local level.

- 2) We understand that in order to have a successful Chesapeake Bay program, there must be wider spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

RESPONSE:

In 1994, the Bay Program efforts finally recognized the importance of the inputs that the tributaries had on the Bay. Maryland responded by establishing the Tributary Strategy Implementation Teams made up of representation from all of the stakeholders in the watersheds. This program has continued for the past 15 years and has provided an opportunity for the exchange of information and experiences between the farmers, urbanites, environmental groups and local governments. It has also provided access for these groups to decision makers at all levels from the local elected officials to the Governor and the legislature.

The lesson to be learned from this process is that all sectors of the community need to have an opportunity to have a voice and be heard. They need to be recognized and encouraged to take

ownership of their piece of the problem and their contributions to the solutions. Furthermore, they need to be presented with clear and definitive consequences for failure to act upon their responsibility. Clear allocation of waste load, and total load allocation at the basin, county, sector and segment level will allow this level of local accountability. The provision of additional Federal funding would make this new accountability more palatable.

Finally, I want to emphasize that we progress most effectively when all involved understand the innate relationships between a healthy environment and sustainable businesses, including agriculture. Thriving communities, profitable businesses and sustainable agriculture can not exist outside of a healthy environment.

- 3) Please describe what your state is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

RESPONSE:

Maryland's Non-Point Source (NPS) Program is supporting voluntary action to reduce water quality pollutants, mostly in the urban and agriculture sectors, by leveraging millions of Federal dollars. (About \$13 million FFY05 through FFY09.) It is addressing a wide range of pollution types: nutrients, sediment, hydrological impacts, acid mine drainage, metals and bacteria. In all three major watershed systems across the State (Chesapeake Bay, Coastal Bays and the Youghiogheny (Ohio) River), the NPS Program is supporting implementation, evaluation of progress, and public education.

Part of the NPS Program directs 319(h) Grant funds for implementation (at least 56%) but is also for monitoring and field assessment (22%), program functions including analysis, technical assistance and public education (17%) and watershed planning to prioritize implementation (5%). Currently, 16 implementation projects are using about \$3.5 million of grant funds to restore streams and wetlands, to provide technical assistance to farmers installing best management practices, to reduce erosion/sedimentation by improving stormwater infiltration, and to reduce impacts of acid mine drainage. These funds are supporting programs and projects led by counties, municipalities and Soil Conservation Districts in their efforts to reduce nonpoint source water quality impairments. 319(h) Grant funded projects reported significant nonpoint source pollution reductions through voluntary projects in Federal Fiscal Year 2008: Nitrogen: 140,000 lbs/yr; Phosphorus: 12,500 lbs/yr; Sediment: 1,600 tons/yr.

- 4) Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some example of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?

RESPONSE:

Clearly articulated pollution reduction goals that allow for flexible, performance based approaches to meeting them provide the greatest opportunities for success. Inputs from agricultural and urban stormwater, point sources, and air deposition, compounded by the influence of different hydrologic patterns, soils, topography and climate, create unique micro environments that should be considered when developing restoration strategies. The State has created a multiple program approach that provides funding, accountability and support to ensure that water quality goals are met.

These programs include, but are not limited to: The Chesapeake and Atlantic Coastal Bays Trust Fund, a non-reverting dedicated fund to implement non-point source related projects; the Bay Restoration Fund, which is also a dedicated fund financed by wastewater treatment plant users, is used to upgrade Maryland's wastewater treatment plants to help them achieve wastewater effluent quality; BayStat, Governor O'Malley's new statewide tool designed to assess, coordinate and

target Maryland's Bay restoration programs, and to inform its citizens on progress; the Watershed Assistance Collaborative, a new program that provides grant assistance, outreach and training and dedicated staff to assist with on-the-ground non-point source implementation projects at the local government level; and Maryland's Tributary Teams, a program that has been in place for many years, meet regularly in each of the Bay's ten major tributaries to help implement pollution prevention measures needed to address local water quality problems. These teams help lay the groundwork to ensure clean water and healthy rivers for future generations.

- 5) Does your state have a preferred method of setting up targets for the Bay Program? What intervals does your state believe are reasonable and achievable?

RESPONSE

Maryland is a leader targeting financial and technical resources geographically and by best management practices to achieve the greatest reductions in nutrient and sediment pollution. We believe that the establishment of two year milestones is the most reasonable, transparent and achievable approach to setting nutrient reduction targets. Longer term goals that extend beyond political terms have proven insufficient to adequately focus attention and accountability. Two year milestones, goals set within a political term provide the impetus and political will needed to implement necessary conservation measures in a timely fashion.

Two year milestones also provide a predictable budgetary timeframe. To expect States to project out ten years clearly has not worked. The current approach that sets a time frame for completion of the restoration implementation and then calculated what increase in effort would be needed to meet that target every two years is a practical approach. Flexibility within that context that recognizes that some efforts, especially large capital projects, will not show linear, but rather intermittent or final progress is necessary.

- 6) I was very disappointed with your statement that "volunteerism is over" for environmental programs. In my home state of Oklahoma, we have had enormous, documentable success thru our voluntary non-point source program and have seen reductions of phosphorous load and nitrogen in our streams and rivers of up to 69%. The lack of support from Federal government for voluntary programs seems to be a self fulfilling prophecy that if they don't work, don't fund them and then they're guaranteed to fail. I believe that it is almost always better to go into a situation where you deal with pollution on a locally-lead, voluntary, educational format rather than a heavy handed, top down, regulatory schemes that do not take into account the interests and situation of the regulated entity. How hard has Maryland worked at implementing voluntary programs? How much funding do you give voluntary non-point source programs? What kind of on the ground community systems and voluntary organizations, such as co-ops or do you propose implementing a non-voluntary program without alienating the community you seek to regulate?

RESPONSE:

I would agree with Senator Inhofe that when we talk about the success of voluntary non-point source programs we need to point to the success we have had with the farm community. Maryland agriculture has demonstrated excellent documentable success through voluntary programs. The Chesapeake Bay program office reports reductions through 2008, for Maryland agriculture, of 62 % nitrogen and 72 % phosphorus. While laudable, that progress will not be enough and still more needs to be done to meet our aggressive nutrient and sediment reduction goals for every sector impacting the Chesapeake Bay.

Part of that success was attributable to engaging farmers and landowners at the local level. Through a strong partnership approach, agriculture has made a positive contribution to addressing the challenges we face. At the inception of the statewide tributary strategy process to address Chesapeake Bay issues, input was sought from the agricultural community. Agricultural teams with representatives of Cooperative Extension, Natural Resource Conservation Service, Soil

Conservation Districts, Farm Service Agency, agribusiness, farmers, local government representatives, and environmental groups all contributed to setting achievable goals.

Technical and financial assistance is provided to the farmers to implement these agricultural conservation practices through the partnership of the 24 Soil Conservation Districts, the USDA, Natural Resource Conservation Service, and the Maryland Department of Agriculture.

Financial assistance provided from the Maryland Agricultural Water Quality Cost-Share (MACS) Program which celebrated its 20 year anniversary in 2004 has also been essential to our implementation success. It remains an essential tool in helping the farm community implement best management practices that control nutrients and protect water quality. The program has provided Maryland farmers with up to 87½% of the cost of these practices or approximately \$118 million in recognition of the public benefits accrued from the installation of over 22,000 projects. Farmers have personally invested approximately \$12 million to install these BMPs and are responsible for all maintenance costs to keep BMP's in good working order.

Although Maryland has been more successful than other Chesapeake Bay states in receiving funds for assistance in implementing agriculture practices, public expenditures are low in light of the importance of these practices in reaching Chesapeake Bay tributary strategy goals. As a result, the proportional shortfall in funding for agriculture is higher than other categories. Additional resources need to be directed to agriculture if goals are to be met. Adequate technical staff is necessary to prepare soil conservation and water quality implementation plans and assist farmers in implementing best management practices to sustain and improve soil conservation and water quality on individual farms. Maryland has experienced significant reductions of State staff in the Soil Conservation District offices. Without this staff to provide assistance to farmers, optimal use of the funds available for implementation of practices is not achievable.

Maryland agriculture has an excellent record of farm stewardship and reducing nitrogen and phosphorus loads. The Bay did not get in its current condition overnight. Farmers are committed to the restoration effort for the long haul and Maryland and our partners in Soil Conservation will continue to work to make sure programs are implemented strategically to get the best results for the public investment.

- 7) Maryland and Virginia are the states with the closest ties to the Chesapeake Bay. What lessons has your state learned that could help states up-watershed from the Bay?

RESPONSE:

Even in Maryland, many local governments and residents may not understand how they are impacted by an impaired Chesapeake Bay and its tributaries. In these areas it is important to focus on local water quality issues that have relevance to that community. In some cases it may be a focus on water supply and in others it may be the importance of clean streams to tourism for fishing or water sports. The important lesson is to make the message relevant to the community. Many Pennsylvania and New York communities address local water quality issues that support Bay restoration. These actions should be celebrated for their local impact as much as, if not more, than the impact to the Chesapeake Bay.

Senator CARDIN. Well, thank you.

We will put each of your entire statements in our record, and you can proceed as you wish. We are trying to hold it to 5 minutes, panelists, so that can have some time to get into a discussion.

Secretary O'Mara.

**STATEMENT OF HON. COLLIN P. O'MARA, SECRETARY,
DELAWARE DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**

Mr. O'MARA. Thank you, Chairman Cardin.

On behalf of Governor Jack Markell, I would like to thank you for inviting Delaware to this important discussion.

Delaware joined the Chesapeake Bay family in September 2000, well after the initial authorization when then-Governor Carper committed to working with the Chesapeake Partners to achieve water quality goals. Under the leadership of Jack Markell and our new administration, we are entirely committed to this effort.

Today, more than 25 years after the first multi-State agreement to address water quality concerns in the Bay, we still have much to do. Over the course of our next decade, our efforts to combat nutrient problems in the Chesapeake Bay will also be complicated by another vexing problem, that of climate change. No single environmental issue is as sweeping and potentially catastrophic as the potential impacts from a changing climate.

But before I address the impacts of climate change on the Bay, please allow me to first discuss a few key steps that Delaware has taken to improve the water quality and various programs that we believe could potentially serve as national models as we consider reauthorization.

Only 2.5 percent of nutrient loading from Delaware comes from well regulated point sources. The vast majority comes from non-point sources such as agricultural, residential, commercial, recreational, and transportation development. Non-point sources have been a much more difficult challenge. Agricultural, septic systems, diverse urban and residential transportation sources all impact our water quality.

Agriculture is Delaware's No. 1 industry, and we are committed to ensuring that farming remains a sustainable and profitable endeavor in Delaware. Our farmers really see themselves as part of the solution, as stewards of the land and of the water. However, such productivity and increased development across Sussex County, in particular, in southern Delaware places special stresses on our natural resources.

To reduce non-point sources and ensure that we protect our natural resources while supporting a vibrant economy, Delaware has adopted programs that we believe can serve as national models.

In 2000, under the leadership of then-Governor Carper, Delaware adopted a nutrient management law. This unique law requires nutrient management plans for the vast majority of farms in Delaware that brings together stakeholders, contains certification requirements for nutrient applications, reporting requirements, and phosphorous-based and nitrogen-based planning where needed. By bringing stakeholders together, we were able to achieve significant impacts in a very short time.

Delaware is currently working with EPA officials to strengthen the existing program to ensure that key environmental outcomes are being achieved. We believe this could be a successful model for the region-wide reauthorization.

Similar to our Nutrient Management Program, we believe that our pollution control strategies could also serve as a model because they are implementing non-point source reductions required by the TMDLs. Recommendations include both regulatory and voluntary mechanisms for controlling nutrients, reducing nutrient management loadings that are beyond EPA's authority. Strategies originally designed to meet local water quality standards are being updated to achieve the reductions necessary for the TMDL.

These approaches, especially including stakeholder engagement throughout the entire process, could have the greatest impact if adopted watershed-wide and a unique role for the member States in this region.

Further, Delaware is developing regulations to implement nutrient reductions from onsite wastewater treatment and disposal systems for new development through enhanced storm water and sediment control and riparian buffers, all of which will be important to achieving our TMDL.

While eutrophication is the most important and critical water quality concern for the Bay, I believe there will soon be a time when tackling water quality issues and implementing the solutions seem perfunctory. The impacts from a changing climate are going to dwarf the known and foreseen problems acknowledged when the Chesapeake Bay Program's enabling legislation was penned just a quarter-century ago. I propose that the two interconnected challenges of climate and water quality, along with air quality, are best addressed holistically.

As a peninsular State almost entirely surrounded by tidal waters and with the lowest mean elevation of any State, Delaware will likely be more affected by sea level rise than any State in the Nation. Like our neighbors in the Mid-Atlantic, we have high population density, aging infrastructure, critical agricultural resources, and several cities exposed to the front levels of sea level rise.

As we move forward with efforts to improve water quality and address climate change, we must ensure that we are using the best science to drive our decisionmaking and making sure that States have the tools to make this kind of land use planning.

In the Delaware River Valley, we need numerous mitigation and adaptation strategies to protect both the health and the safety of our residents. We need policies to promote buffers on our tidal lands and non-tidal wetlands in order to give rising waters room to flow, studies to prepare for the salinity impacts on our water supply for both potable consumption and agricultural production, as well as the policy tools to align our nutrient reduction policies with our carbon sequestration to promote practices with multiple benefits.

We need to incorporate sea level rise and climate change realities into our regulatory and incentive programs in order to efficiently and effectively promote best management practices State-wide. We need the resources to provide Delaware and all of the other juris-

dictions for the science, tools and policies to prepare for this new challenge.

For example, we know that forested buffers along our waterways are the most effective way to reduce nutrient management. And they also provide great carbon sequestration benefits. However, in the farming community, grassed and planted buffers and cover crops are much more preferred over these forestry practices. Would this still be the case if we actually paid farmers for these practices by actually providing the resources to capture the value of the carbon sequestration that they are providing?

I am confident that if we use market-based mechanisms, rather than traditional command and control approaches, we can incent the environmental outcomes that we need while keep our industries strong. We must seek solutions that make it economically advantageous to adopt practices that will improve water quality and confront climate change. And we need to make sure that our farmers and other stakeholders have sufficient access to capital to make these important investments during this tough economic time.

Finally, let me close by saying that we must hold ourselves accountable, measure progress and verify the environmental benefits to regain the trust of taxpayers. Commitments have been made several times in the last 25 years, and I have been working closely with Senator Carper's office, along with the Environmental Defense Fund, to look at their key principles to come up with a more comprehensive, outcome driven approach.

We believe that if we develop and track performance measures, really assign responsibility and hold ourselves accountable to achieving progress as we did with Governor Kaine and Governor O'Malley's leadership at this most recent Chesapeake Bay announcement, that we can make substantial progress.

These are the challenges that we look forward to working with you on, and I am available for any questions.

Thank you, sir.

[The prepared statement of Mr. O'Mara follows:]

Draft Testimony of Collin P. O'Mara, Secretary, Delaware Department of Natural Resources and
Environmental Control
before the Subcommittee on Water and Wildlife,
Committee of Environment and Public Works,
United States Senate

Hearing on A Renewed Commitment to Protecting the Chesapeake Bay:
Reauthorizing the Chesapeake Bay Program

August 3, 2009

Good Afternoon Chairman Cardin, Ranking Member Crapo and Members of the Subcommittee. My name is Collin O'Mara and I serve as Secretary of Natural Resources and Environmental Control for the State of Delaware. On behalf of Governor Jack Markell, I would like to thank you for inviting Delaware to participate in this discussion on the Chesapeake Bay Program.

Today, I pledge Delaware's support for restoring the Chesapeake Bay. While not directly bordering on the Bay proper, 35% of our state lands drain into the Bay. We count on its resources for sustenance and recreation and we have a stake and a responsibility to ensure its restoration. Delaware joined the Chesapeake Bay family in September 2000 when then-Governor Carper committed to working with the Chesapeake partners to achieve water-quality goals. Under the leadership of Governor Markell, we have renewed our committed to the Bay to this day, as recently evidenced by our partnership in the development of the Captain John Smith National Historic Trail.

Today, more than 25 years after the first multi-state agreement to address water quality concerns in the Bay, we still have much left to do. The Bay's water quality continues to suffer, and the challenges to its restoration are more complex than when the original program was authorized. To achieve healthy waters, we need new, creative mechanisms to address the number one water quality concern facing the bay – nutrients – and in particular nitrogen. We need the right combination of incentives and authorities, to guarantee improvement in the Bay that we have been unable to achieve thus far. We need to utilize every tool at our disposal to reduce the

multiple, diffuse sources of nutrients entering the Bay to avoid finding ourselves back at this table discussing the same challenges ten years from now.

Over the course of the next decade, our efforts to combat the nutrient problem in the Chesapeake Bay will also be complicated by another vexing problem – that of climate change. No single environmental issue is as sweeping and potentially catastrophic as the projected impacts from a changing climate.

Before I address the impacts of climate change on the Bay, please allow me to first discuss a few key steps that Delaware has taken to improve water quality and programs that we believe can potentially serve as national models. As background, Delaware comprises less than two percent of the total landmass of the watershed and contributes less than two percent of the total nutrients. Approximately, two and a half percent of nutrient loading from Delaware comes from point sources while the vast majority derive from nonpoint sources such as agriculture and residential and commercial development. Delaware's relatively few point source dischargers are well regulated. Of the three municipal wastewater treatment plants impacting the watershed, one has installed the limit of technology one utilizes biological nutrient reduction processes, and one utilizes spray irrigation. Delaware has invested over \$27.8 million in these three plants since 1997 – \$8.4 million in State grant dollars, the balance in low interest SRF loans.

Nonpoint sources have been the more difficult problem for not only the Chesapeake Bay, but for all Delaware waterways. Agriculture, septic systems, diverse urban and residential sources all impact water quality. Farms comprise forty-one percent of the total land area in Delaware and in 2007, Delaware ranked first in the United States in both the agricultural production value per farm (\$520,090) and per acre (\$2,222) with Sussex County producing more broiler chickens than any other county in the nation. We are committed to ensuring that farming remains sustainable and profitable in Delaware. Our farmers see themselves as stewards of the land and of the water; however such high productivity and density of poultry operations places special stresses on our natural resources.

To reduce nonpoint source pollution and ensure that our agricultural community protects our natural resources while remaining profitable, Delaware has adopted two programs that we

believe can serve as national models. In 2000, under the leadership of then Governor Carper, Delaware adopted a nutrient management law, which placed authority for on-farm nutrient management with an 18-member Nutrient Management Commission. This unique law requires nutrient management plans for the vast majority of farms, contains certification requirements for nutrient application, reporting requirements, and phosphorous-based planning where needed. Delaware is currently working with EPA officials to strengthen the existing program to ensure that key environmental outcomes are being achieved and we believe that adopting a similar approach across the entire watershed would have a dramatic and measurable impact.

Similar to our Nutrient Management Program, we believe that our Pollution Control Strategy program could serve as a national model for implementing the nonpoint source reductions required by Total Maximum Daily Loads (TMDLs). Recommendations being developed by diverse stakeholder groups coordinated on a watershed basis include both regulatory and voluntary mechanisms for controlling and reducing nutrient loadings beyond EPA's authority. Strategies were originally designed to meet local water-quality standards and they are being updated to achieve the reductions needed in the Chesapeake TMDL—these approaches, especially comprehensive stakeholder engagement, could have the greatest impact if adopted watershed-wide. Further, Delaware is developing regulations to implement nutrient reductions from on-site wastewater treatment and disposal systems for new developments through enhanced storm water controls and riparian buffers, which will be a key aspect of the Bay TMDL.

While eutrophication is the most critical water quality concern, I believe there will soon be a time when tackling water quality issues and implementing solutions seems perfunctory. The impacts from a changing climate are going to dwarf the known and foreseen problems acknowledged when the Chesapeake Bay Program's enabling legislation was penned a quarter of a century ago—and I propose that the two interconnected challenges of climate and water quality are best addressed holistically.

As a peninsular state almost entirely surrounded by tidal waters and with the lowest mean elevation of any state, Delaware will likely be more affected by sea-level rise than any state in the nation. Like our neighbors in the Mid-Atlantic Region, we have high population density, aging infrastructure, critical agricultural resources, and several cities located at the head of tide,

exposing them to the front line of sea level rise.

Some of the Chesapeake's tidal wetlands, such as those at Blackwater River in Maryland are already being covered with water due to sea-level rise today. Delaware witnessed change during the Mother's Day Nor'easter last May which flooded many areas for the first time in decades. Rising sea levels will submerge low-lying lands, erode beaches and shorelines, covert wetlands to open water, cause more severe coastal flooding and increase the salinity of the Chesapeake and its aquifers. The loss of tidal wetlands alone will reduce flood control, reduce storm surge buffering capacity, and lose important water quality buffer and fish nursery areas.

As we move forward with efforts to improve water quality and address climate change, we must ensure that we are using the best science to drive our decision-making. In Delaware, we are currently evaluating numerous mitigation and adaptation strategies to protect the health and safety of residents. We understand the importance and interconnectivity of the Chesapeake Bay and all of our estuaries throughout the Mid- Atlantic. A loss of habitat in the Chesapeake's wetland nursery grounds has a domino effect on fisheries management throughout the region. The lessons learned in Chesapeake Bay Region provide us great insights throughout other estuaries in the region and nation.

We need policies to promote buffers on our tidal and non-tidal wetlands in order to give rising waters room to flow, studies to prepare for potential salinity impacts on our water supply for both potable consumption and agricultural production, and policy tools to align our nutrient reduction policies with carbon sequestration to promote practices with multiple benefits. We need to incorporate climate change realities into our regulatory and incentive programs in order to efficiently and effectively promote best management practices statewide. We need resources to provide Delaware and all other Bay jurisdictions with the science, tools, and policies to prepare for this new challenge.

For example, we know that forested buffers along our waterways reduce nutrient run off, but they also can provide carbon sequestration benefits. In the farming community, grassed buffers and cover crops are preferred over forested practices. Would this still be the case if farmers were paid for the value of the carbon sequestration? What if buffer resources were preferentially

allocated to individuals adopting forested buffers, because they provide greater water quality and carbon mitigation benefits?

I am confident that we can use market based mechanisms, rather than traditional command-and-control approaches, to incent our needed environmental outcomes while spurring economic growth in a carbon constrained world. We must seek solutions that make it economically advantageous to adopt practices that will improve water quality and confront climate change, especially during this difficult economic time. We need a clear price signal on carbon, creative financing mechanisms such as a carbon credits trading structure, and federal dollars to jump start programs to reduce initial risks in the creation of new markets. We need to reward actions that produce multiple benefits. We need to ensure sufficient access to capital to assist farmers and other stakeholders to make necessary improvements, despite limited access to private funding.

Finally, we must hold ourselves accountable, measure progress, verify the environmental benefits, and gain the trust of taxpayers. Environmental Defense Fund has advanced five key principles that align with my vision of a more comprehensive, outcome-driven solution. We need to meticulously develop and track performance metrics, use this data to drive policy decision-making, assign responsibility and hold ourselves accountable to achieve progress, and constantly work to align economic incentives to achieve both environmental and economic progress. Most importantly, success will require engaging all stakeholders in a meaningful way if we are to achieve lasting progress—government cannot solve this challenge alone from the top down. Under the leadership of Governor Kaine, the Bay Governors have begun to take this approach and now we must deliver measurable results.

These are the challenges that we look forward to facing with you and our Chesapeake Bay partners. As we consider the reauthorization of the Chesapeake Bay Program, I believe there is no better place to think about the need to adjust our sails. The task will not be easy – for if it was, we would not be here today. The Bay needs more attention than ever before and achieving our goals will require relentless pursuit of creative and effective means at controlling nutrient sources and addressing climate change.

I appreciate the opportunity to speak with you today. I would be happy to take questions.



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Responses to Questions from the Subcommittee on Water and Wildlife
Committee of Environment and Public Works
United States Senate

Regarding Testimony Provided During an August 3, 2009, Hearing
A Renewed Commitment to Protecting the Chesapeake Bay:
Reauthorizing the Chesapeake Bay Program

Senator Thomas R. Carper

1. As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating - both to understand the role of air emissions and to address the impact of these emissions on water quality?

Delaware's air and water programs coordinate closely on the interaction of air and water pollutants. The wet and dry deposition of nitrogen, phosphorus, and several toxic air pollutants is an important consideration for bodies of water that have large surface areas. In 1998, the Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources adopted a Total Maximum Daily Load (TMDL) for Delaware's Inland Bays that included a 20% reduction in nitrogen a portion of which was to be achieved through the implementation of the State Implementation Plan as required under the Clean Air Act. Our air and water divisions have also worked together in Delaware's Whole Basin Assessment approach to address the effects of wet and dry deposition on water quality. Additionally, they cooperatively addressed mercury contamination in various water bodies which resulted in the adoption of new air regulations and permit conditions which have led to huge reductions in overall mercury emissions.

Delaware's air and water experts are also working closely to mitigate the impact of air emissions on nitrogen loads into the Chesapeake Bay (Bay). Nitrogen deposition has been reported to account for 20% of the total load and power plants are responsible for the majority of the nitrogen oxide air emissions. In response, Delaware adopted and implemented stringent regulations that establish minimum performance standards for every electric generating unit (EGU) in the State. Delaware's emissions previously constituted a small fraction of the nitrogen deposition to the Bay, and it is now significantly less as a result of aggressive actions by DNREC over the past several years.

Delaware's Good Nature depends on you!

While Delaware has worked diligently to control EGG in the state, EGUs in upwind states continue to emit, unabatedly, mercury and acid gases and many of these emissions end up directly impacting the air quality, water quality, and health of the citizens of Delaware ("at the tail pipe of the US"). We have served notice to the EPA that we believe that upwind emissions need to be incorporated into State Implementation Plans and determinations of non-compliance. We need strong action by Congress or the Environmental Protection Agency (EPA) or Congress to require each EGU meet a minimum performance standard similar to the approach we adopted in Delaware. We encouraged EPA to adopt strong national rules to address emissions from many other sectors, such as industrial boilers and heaters. A strong and consistent approach is the only way we can assure the upwind contributions are adequately addressed to protect the health and welfare of Delaware.

2. Runoff from our roads is a significant source of water pollution - contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?

To improve water quality in Delaware, scientists and engineers from DNREC and the Delaware Department of Transportation (DelDOT) are working together to improve Delaware's sediment and stormwater regulations and to collaborate on the most cost-effective, best management practices (BMPs) to treat runoff from transportation systems. Additionally, DelDOT representatives participated with many watershed stakeholder groups (Delaware's Tributary Action Teams) to educate the public and inform groups' recommended actions for improving water quality.

DelDOT owns and manages approximately 90% of Delaware's roadway system and its associated storm sewer system. DNREC delegated the provisions of Delaware's sediment and stormwater regulations to DelDOT for projects that exceed 5,000 square feet. These regulations require implementing best management practices (BMPs) that reduce storm water pollution from our transportation system to our waterways. DelDOT recently strengthened its standard specification on "Erosion, Sediment Control and Water Pollution" that significantly improves compliance with these regulations. DelDOT policy encourages the use of low impact development technologies currently recommended by EPA. In addition, DelDOT implements a variety of structural and non-structural BMPs to comply with National Pollutant Discharge Elimination System (NPDES) stormwater and general permits issued by EPA and DNREC. The agency is currently embarking on infrastructure and watershed planning to meet State water-quality standards and TMDL regulations.

That said, we can and must do much more. We should strive to ensure that any new construction, infrastructure or development, preserves the pre-development hydrology of a site. We are working with key partners, including our State Fire Marshall, DelDOT, and local governments to encourage green infrastructure practices that will replace the dominance of the current practices of building impervious surfaces, wide roads, clear cut medians, etc. DNREC is

working to ensure that development practices simultaneously protect public health and the environment. By reducing impervious cover required for roads and parking lots, as well as increasing the miles of planted or forested buffers along road ways, the state will improve water quality. We are also working to reduce vehicle miles traveled by promoting the design of more walkable communities that will require fewer roads and fewer single passenger vehicles which will also improve both air and water quality. In addition, DNREC is supporting DelDOT in their efforts to expand Delaware's public transit network (Delawareans currently drive more miles per capita than residents of adjacent states). DNREC will continue to reach across agencies to engage our partners in identifying best practices that achieve multiple benefits.

3. The State of Delaware does not directly border the Chesapeake Bay and the vast majority of its nutrient loading comes from non-point sources. How do these circumstances affect your approach to protecting the Bay?

As a "headwater" state, Delaware recognizes the importance of demonstrating that the Bay water quality issue is also an important local water quality issue. The average resident enjoying the beauty of the Nanticoke River, likely does not connect the local challenges to Delaware's waters and their eventual impact on the Chesapeake Bay. Our local waters suffer from the same nutrient over-enrichment as the Bay. Delaware has regulated point source nutrients and most of our current impairments are related to non-point source pollution. Thus, the tools needed to achieve local water quality are the same tools that are needed to improve the Bay. We are working to be more proactive in helping residents understand the importance protecting our local water ways (quality and supply), adopting best management practices, and preserving waterways as a catalyst for sustainable economic growth. Through this aggressive stakeholder outreach and engagement, we believe we will be more successful in improving Bay water quality, than we would be strictly through government action.

As part of its efforts to improve water quality, DNREC established TMDL regulations for all nutrient-impaired waters. During the regulatory development process, DNREC engaged a wide range of stakeholders, brought the best science to bear, and identified/quantified the sources of pollution and the reductions necessary to improve water quality. Indeed, a large portion of the reductions must come from nonpoint sources. The Watershed Assessment Section within DNREC convened Tributary Action Teams (groups of watershed stakeholders) to identify actions that the community would be willing to adopt to reduce significant sources of nonpoint source pollution. Since about half of the land area within the Chesapeake drainage is agricultural, these teams have identified many implementation goals for agricultural best management practices in collaboration with the Department of Agriculture and the Nutrient Management Commission. DNREC is also working hard to reduce nutrient loading from non-agricultural land uses through its innovative Pollution Control Strategy that builds BMPs into land use and development practices.

4. In your testimony, you made a very important connection between sea level rise and the Chesapeake Bay watershed. It's clear that Delaware should be very acutely concerned about the potentially devastating impacts of sea level rise and salt water intrusion. What is our state doing

in terms of mitigation and adaptation, and how can we ensure an effective watershed-wide approach?

Delaware stands to be more affected proportionally by sea-level rise than any state in the union. For this reason, Governor Markell helped lead an historic interstate agreement with the states of New York, New Jersey, Maryland, and Virginia, pledging to cooperate on climate change adaptation, water quality, offshore energy development, and habitat protection. All of these states will be greatly affected by climate change due to the rapid increase in sea-level height and the amount of coastal infrastructure at risk—and none can mitigate or adapt to the problem alone. The sharing of data, information, and strategies for climate change mitigation and adaptation will benefit all of the Mid-Atlantic States and the Chesapeake Bay Watershed.

In this effort, it will be important to use the best available environmental, physical, and socio-economic data to develop a framework for addressing the impacts of climate change and sea-level rise to regional infrastructure and coastal habitat and shoreline management needs. We will need to focus regional and national attention on the importance of protecting vulnerable infrastructure and critical coastal habitats. Interstate collaboration will provide the opportunity for issues of mutual interest to be addressed in a manner that highlights adaptive management and ensures regional collaboration. A coordinated effort should ensure that no economic disadvantages are created in the process.

The first step is to obtain the data necessary to assess the vulnerability of state and regional coastal infrastructure. For example, the scale of existing LiDAR topographic data is not sufficient to perform such an analysis. We, then, can identify infrastructure at risk of increased flood hazards and sea level rise. Simultaneously, we must investigate the technologies available to protect and potentially retrofit existing infrastructure, develop new policies for designing and siting new infrastructure and assemble the potential the policy tools for shoreline management. We must also look to adopt practices with multiple benefits, for example enhancing wetlands or expanding the acreage of forested buffers will simultaneously improve water quality and air quality, sequester greenhouse gas emissions, and provide mitigation value to rising water levels. We must work to incent these practices through various Federal and State programs, as well as identify market-based mechanisms to provide value to the land-owner for good stewardship (there's a value to the water quality, carbon sequestration, etc. that could be captured through various trading/allowance regimes). Given the lack of resources at the state level and the appropriateness of regional and national approaches to the problem, it will be important that Congress and our federal agency partners provide funding and technical assistance.

Senator James M. Inhofe

1. The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful

partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

The Chesapeake Bay Program (CBP) staff provides critical support for the states of the watershed by bringing multiple jurisdictions together, facilitating discussion, and striving to reach consensus on each issue. This coordination is extremely beneficial to participating states, particularly to smaller ones with limited staff and financial resources solely dedicated to this important purpose. Given the magnitude of the nutrient reduction challenges before us, the states and the Federal agencies all must take a hard look at their legal authorities and programmatic capacities. Nobody likes an overly regulatory approach or an approach that does not appear to take into account the progress an individual jurisdiction has made on an issue, but some states have made it clear that a federal action will be necessary—this is especially true for the control of point sources via a TMDL. The challenge continues to be the reduction of non-point sources after the implementation of a TMDL.

The Federal government should continue to support State action through financial assistance to core Clean Water Act programs such 106, 319, and CWSRF grants, provide technical guidance through the EPA, NOAA, USFW, USGS and other agencies, and provide a platform for dialog between partner jurisdictions and the “federal family.” Any new authority contemplated by the Congress should provide flexibility to individual jurisdiction to create and implement tools that can achieve water quality goals.

2. We understand that in order to have a successful Chesapeake Bay program, there must be wide spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

In Delaware, our Tributary Action Teams bring together the multiple interests within a watershed to determine actions agreeable to all participants. The actions are called a Pollution Control Strategy. This Strategy is comprised of regulatory as well as voluntary actions which, once implemented, should lead to water quality that meets State and Federal standards. The key to such a stakeholder process is to ensure that all affected parties participate in the process to prevent affected, but non-participating, parties from attacking the consensus-driven recommendations through the political process.

One of the most successful examples of a consensus-driven environmental effort in the water-quality arena is Delaware’s Nutrient Management Program. It is a balanced combination of law, regulation, technical assistance, and cost-share assistance. As a result, every farm in the State greater than 10 acres in size has a nutrient management plan. The cost of developing those plans was covered by the State or cost-shared with landowners. Every golf course greater than ten acres in size and lawns being fertilized by companies that service greater than ten acres cumulatively are covered by the law and regulations. If farmers utilizing animal manures have an excess, the Nutrient Management Commission and Delaware Department of Agriculture cost-share the relocation of that manure to farms that need it or to alternative uses such as the

production of compost. Additionally, Perdue operates a manure recycling plant that pelletizes poultry litter for use by gardeners and agricultural operations. About 20% of the excess manure processed by Perdue Agricycle comes from the State of Maryland. Delaware uses significant portions of its Chesapeake Bay Program and Section 319 Nonpoint Source Program funding to support the Manure Relocation Program and to cost-share cover crops.

What the federal government can learn from Delaware's experience is that solutions we seek will require broad stakeholder engagement and that the most cost-effective solutions often require a combination of enforcement and incentive mechanisms. Clearly, the threat of enforcement in response to the over-application of fertilizers is necessary. But, what makes this program work is the technical and financial assistance provided by the federal government through grants, the State of Delaware, and Delaware's three conservation districts. Funding to incentivize best practices is critical to ensuring wide-spread adoption, especially during these difficult financial times.

3. Please describe what your state is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

Most implementation efforts seeking to reduce non-point source pollution within the Chesapeake Bay Watershed focus on the agricultural sector. In addition to federal Natural Resources Conservation Service programs, our State conservation district offices offer cost-share for agriculture best management practices with State of Delaware general funds and other sources of funding, including grants. Delaware uses 319 dollars to pay for nutrient management planners at the District level, who are then able to spend State and federal cost-share dollars through their interaction with farmers. Delaware receives a CBP implementation grant each year to fund implementation projects, which include our manure relocation program, the cover crop program, grants to repair or replace failing septic systems, and smaller stormwater education and outreach projects within the local communities. Additionally, more than \$1 Million of 319 funds are used within the Chesapeake on implementation projects and support district conservationists who provide technical and cost-share assistance.

Our non-point successes are mostly within the agriculture sector. As previously mentioned, Delaware passed a Nutrient Management Law, which requires a large majority of farms within the State to have a nutrient management plan. This law has been fully implemented with nearly 100% participation. A manure relocation program was created to move manure from farms with high phosphorus soils or not enough land to farms that need the extra fertilizer or to alternative uses, such as the Perdue Agricycle facility. This is a very successful program that has turned manure from a waste into a resource. In addition, Delaware entered into a memorandum of understanding with the poultry industry to include the use of phytase, an enzyme that reduces the amount of excreted phosphorus, in all feed. Phytase has been used in feed for several years now and has reduced phosphorus levels in poultry litter and in the amount being applied to lands by more than 20%. Finally, we have learned that the planting of cover crops, when adequate cost-

share is available, is a popular practice. We have seen enrollments for these BMPs increase in recent years.

As mentioned in the response to Question 2, Delaware has also developed a Pollution Control Strategy that seeks to reduce non-point source nutrient pollution, particularly from non-agricultural development. I discuss this program in the following response.

4. Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some examples of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?

While Delaware has enjoyed agricultural best management practice successes, we have also put in place programs to address non-point source pollution from non-agricultural development. Last year we promulgated pollution control strategy regulations for nonpoint sources of pollution in our Inland Bays Watershed, which is in the southeast portion of our State. We heard on numerous occasions from the affected parties, which included a wide range of stakeholders, that they wanted predictability and flexibility. Therefore, the regulations take into consideration and accommodate a variety of factors. These factors include: location within the watershed and proximity to water resources; site specific physical characteristics; subdivision, project, and system size; subdivision, project, and system stage of completion; future activities planned by other agencies/entities; and best available technologies. The regulations also contemplate the issues associated with those living on fixed incomes, people with serious illnesses, people facing financial hardships, and owners of small parcels of land.

One specific example is the provision relating to water-quality buffers. We developed a mapping approach to identify water features to buffer in order to satisfy the concerns of affected individuals who voiced a need for predictability. Only water features identified on the regulatory map will need to have a buffer as the land is developed. In order to offer flexibility, the buffer widths may be reduced when combined with one of several advanced stormwater management options and with a development-wide nutrient management plan.

5. Does your state have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?

Spatially, our State TMDLs and Pollution Control Strategies are developed on a watershed basis (not on a state or county scale), which takes into account the specific hydrologic, land use and community characteristics of each area. We anticipate allocations at the sub-watershed scale in the new bay-wide TMDL as well. We already committed to developing 2-year milestones for the Bay Program with an implementation deadline of 2025. Watersheds are dynamic features and adaptive management will be necessary in order to protect and improve water quality.

6. In your testimony, you discussed Delaware's interest in balancing the needs of farmers with their desires to be stewards of land and water and meeting your state's pollution reduction goals. What approaches have you found to work best? Where have you made the most success?

Aggressive stakeholder engagement is absolutely critical to any effort and our success with nonpoint source pollution in the agriculture sector is a testament to this approach. DNREC and the Department of Agriculture, along with the regulated community of farmers, other federal, local, and academic partners, have a close working relationship in our state. Delaware's Nutrient Management Commission is made up of representatives from the Department of Agriculture, DNREC, environmental advocacy groups, and prominent Delaware farmers. It is no surprise that farmers respond well to other farmers. In addition, the Department of Agriculture, conservation districts, and the extension specialists from the University of Delaware are very good at working with the agricultural community; and a mutual level of respect exists. One example of this working relationship is the fact that the University of Delaware Extension Office developed and teaches nutrient management courses for those who generate and apply nutrients, as required by the Nutrient Management Law.

7. You also talked about finding solutions that deal with multiple problems. Please describe the process that your department has gone through to find these solutions? What can we do to ensure that the government is promoting solutions that deal with multiple problems?

As an example of dealing with multiple problems with one action, we can point to Delaware's adoption of its multi-pollutant regulation addressing emissions of sulfur dioxide, nitrogen oxides, and mercury from fossil fuel fired power plant (electric generating units/EGUs). The regulatory record identified the water-quality benefits, as well as air-quality benefits, associated with this action. We encourage the Congress to take a similar approach when dealing with the national fleet of EGUs. Delaware offers its regulation as a model for you to consider.

Delaware also recognizes how the practices that we want to encourage for nutrient reduction also provide benefits in the mitigation of and adaptation to climate change. Forested buffers and preservations of wetlands provide water quality benefits, but also serve to mitigate risk from sea level rise and sediment erosion. Planting of cover crops and forested lands improve water quality through the uptake of nutrients, but also sequester carbon. As we continue to make progress on creating a cap-and-trade program for greenhouse gases, we want to explore how we can get landowners not only credit for nutrient reductions but for these actions with multiple benefits (e.g. carbon credits to farmers).

In a small state like Delaware, it is infinitely easier to bring people and programs together to find solutions that reach toward multiple goals. Many of these initiatives are the result of agency scientists, engineers, and planners who realize the potential of another program in meeting their program goals. Congress and the federal government can reward such creative thinking across media by creating laws, regulations, and grant guidance flexible enough to allow the funding of cooperative efforts.

8. Please discuss your experience with market-based methods in reducing pollutants in the bay. What approaches do you believe work best?

Delaware has been directly or indirectly involved with market-based approaches for many years, starting, perhaps, with the Acid Rain Program. We successfully implemented a NOx trading program in the Ozone Transport Commission region and participated in the NOx budget rule. The latest experience with market-based approaches is our participation in the Regional Greenhouse Gas Initiative, which is a CO2 market-based program. These programs, although not directly targeting the Bay, resulted in less deposition into the Bay.

Our experience with market-based approaches suggests that they work best in conjunction with minimum performance standards. The combination of the two will ensure equity, a minimum level of local public health protection and benefit because every source is controlled, increase the value of emission currency, and drive technology.

Delaware is exploring other ways to institute market-based approaches. One that appears very promising is the protection and/or restoration of forest resources by compensating landowners via existing cost-share programs plus compensation resulting from carbon sequestration benefits. As I mentioned during my testimony, farmers are very reluctant to retain or restore forested riparian buffers. Additionally, project agreements between landowners and government agencies do not require perpetual forest maintenance. However, if appropriately compensated by a combination of government programs and private entities in need of carbon credits, landowners may willingly set aside their lands for environmental improvement purposes. This is hugely important in Delaware because we find the lowest levels of nitrogen and phosphorus in groundwaters beneath forestlands. These groundwaters feed our streams and, eventually, the Chesapeake Bay.

Senator CARDIN. Well, thank you very much for your testimony. Senator Carper is an extremely valued member of this committee and very actively involved on these issues. I remember with great fondness working with Governor Carper on the issues that you referred to. So we very much appreciate your testimony.

Director Hawkins.

**STATEMENT OF HON. GEORGE S. HAWKINS, ESQ., DIRECTOR,
DEPARTMENT OF THE ENVIRONMENT, GOVERNMENT OF
THE DISTRICT OF COLUMBIA**

Mr. HAWKINS. Good afternoon, Senator Cardin.

On behalf of Mayor Fenty and the entire District of Columbia government, I am delighted to be here today. I would like to express our profound commitment to the Chesapeake and those aspects that run through this city: Rock Creek, the Potomac and the Anacostia River.

We agree with a 25-year end date, or a 2025 end date as mentioned by Secretary Griffin, but very much like 2-year milestones. We budget on a year-by-year basis. That is how we determine our operational work. I am working on our 2011 budget now. We need to have milestones connected to the manner in which we organize our work on a regular basis. Having 2-year and an end date is a good combination.

I would like to second mention that we are delighted to be here as the enterprise that is both a State and a local jurisdiction. We are obviously a State for many of the planning mechanisms, but the District is the local government. We approve every development, we review soil and sedimentation plans, we do power, energy and all the building codes. So we have a unique view.

I want to express a few highlights of what we have done to date and then mostly look forward to what we would like to see going into the future. Three highlights.

First, I want to mention the incredible importance of the Blue Plains Regional Wastewater Treatment Plant. It is the largest point source discharge to the Chesapeake Bay, it is the largest publicly owned treatment works in the Chesapeake Bay, and it is a regional plant.

And with regional support, we have reached our milestones to date under Chesapeake agreements, mainly because of improvements that have been made at the Blue Plains Plant. I want to recognize that and thank our surrounding jurisdictions, Virginia and Maryland, for the joint effort we have worked on to achieve that goal.

Second is our MS4, the separate storm water sewer system permit that is issued to us by United States EPA. EPA has told us that it is probably the most stringent urban permit in the United States. In my 20 years in the field, I have never seen anything like it. It is a federally issued permit under the Clean Water Act, but it has aspects that dictate how we run the District, how we are building or buildings, how we are designing our streets, how many trees we are planting, how we are doing illicit discharges, how we are picking up trash, how we are following up with the pet waste. That is a federally issued permit.

This week we begin negotiations on the new MS4 permit for the District, which will be even more stringent. But it is a very good model for how to manage day-to-day operations of a jurisdiction in a municipality and achieve water quality goals.

Third, Mayor Fenty and the District Council are very committed to green.dc.gov. You can see the Mayor's green agenda. It governs really every aspect of city operations from how we work with our schools, how we are working with homes, businesses, commercial enterprises, streets, parks, green roofs, and it is all on the Web. I encourage you to take a look at it. It is a good look at an urban green program.

But looking forward, what we would like to see. I have a few points on section 117. First, we were seeking funding at the \$50 million level. I do not think there is any way we are going to achieve our goals in this effort unless we have more firepower, more green firepower to bear. I like the idea of matches by local government.

Second, we are a strong believer in a national or it could be a basin-wide standard for storm water control. This is just what was done in the Clean Water Act of 1972 for point source discharges. Up to that point, every State or jurisdiction was negotiating their own discharge levels. It was very resource intensive, battles being fought in every jurisdiction until national standards were created.

There is no reason why we cannot have fundamental standards for storm water control, urban, rural and suburban. It will not be one size fits all, just like as is done for point sources, but can make sure that the science and the technology are established so each jurisdiction does not have to fight that issue on its own, but can be consistent across the basin.

I connect that to basin-wide TMDLs. There should be a baseline, again urban, suburban and rural. I know that it is tough for agriculture. I know it is tough for suburban. We have to retrofit the 90 percent of the buildings in the District that are already here. It is tough, expensive work. But again, the basin-wide TMDL should be driven by EPA, review State implementation plans and reasonable assurance.

Next, section 438 of the Energy Independence and Security Act. I know you know about that. There is no implementation mechanism for that provision which requires stringent storm water requirements for Federal facilities. Thirty percent of the lands and buildings in this District are owned and operated by the Federal Government. It is a remarkable opportunity this statute applies. Section 117 could articulate an implementation strategy for those requirements.

Fourth, in section 117 is the Anacostia River. The Restoration Partnership does have an Anacostia Plan. We appreciate that EPA has appointed Chuck Fox as a special assistant on the Chesapeake and the Anacostia. It is a principal example of an urban waterway with Maryland and D.C. as its principal areas that can be implemented and funded through section 117.

Let me mention four other quick points, and then I will conclude.

One, I will not go into great detail, but we will not succeed unless there is a Federal effort, which there has been, but I encourage it an even greater level, for Blue Plains. For nutrient reduction and

the Long Term Control Plan, which is a mixture of sewage and rainwater going directly into our water bodies, \$3 billion plus in capital funding is expected in the next 10 years. That will be extremely difficult for the ratepayers in the District, particularly those who are low income, as well as our suburban customers to pay without some Federal support for a Federal outcome. So Blue Plains support.

Second, storm water requirements in the reauthorization of the Federal Surface Transportation Act. We will be redesigning the roads of the District under an MS4 permit to be storm water protective. My view is that the Federal requirement should be in parallel and should be in place with the Federal transportation funding mechanism, just like it will be for the District.

Third is to support the Circuit Rider notion. We need someone, or more than one person, who can go throughout the Chesapeake and teach municipalities about content and issues that do not have to be relearned in every place.

And finally, a regional or national coal tar ban. We just did that in the District. It turns out there is an easy way to reduce PAH discharges in coal tar by up to 1,000 percent because there are equivalent technologies that are easy to implement.

Those eight strategies, I think, could be a significant part in how to improve the Bay as we go ahead.

Thank you.

[The prepared statement of Mr. Hawkins follows:]

SENATE HEARING

**A RENEWED COMMITMENT TO PROTECTING
THE CHESAPEAKE BAY:
REAUTHORIZING THE CHESAPEAKE BAY PROGRAM**

**U.S. SENATE
ENVIRONMENT & PUBLIC WORKS COMMITTEE
SUBCOMMITTEE ON WATER & WILDLIFE**



**TESTIMONY OF GEORGE S. HAWKINS, ESQ.
DIRECTOR, DISTRICT DEPARTMENT OF THE ENVIRONMENT**

**MONDAY, AUGUST 3 AT 2:00 P.M.
DIRKSEN SENATE OFFICE BUILDING, ROOM 406**

Good afternoon, Senator Cardin, and members of the Subcommittee on Water & Wildlife of the Environment and Public Works Committee. I am George Hawkins, Director of the District Department of the Environment (DDOE). Thank you for the opportunity to present testimony at this Senate Hearing on the restoration of the Chesapeake Bay.

- I want to reaffirm the District's profound commitment to cleaning up the Chesapeake Bay -- primarily by cleaning up the Anacostia and Potomac Rivers, which flow into the Bay.
- It has been said that the Chesapeake Bay might be the most studied body of water in the world. Certainly, there have been decade-long programs, extensive scientific modeling, and multiple types of efforts towards restoring this precious resource. None of us is happy to see the Bay in its current unhealthy state. But the District can and will become a model for redoubling efforts in our own tributaries to deliver fewer pounds of nitrogen, phosphorous and sediment to the Bay. We came to realize that the 10-year timeframes were not working. So we recently adopted quantifiable commitments and activities to be carried out in 2-year increments -- called '2-Year Milestones.' With the use of these critical milestone projects, we plan to accelerate significantly the pace of Bay restoration.
- I want to acknowledge that the District has been an active player in Chesapeake Bay program activities since the early 1980s, when Bay agreements were first signed. One key distinction is that the District is both a Bay signatory *and* a local government, giving us a unique role in Bay and Anacostia restoration. We signed the *Chesapeake 2000 Agreement* as a 'state;' however, we implement the necessary codes and regulations as a local government.
- With this local government perspective, since it will ultimately help the Bay, I am eager to use our urban 2-year milestones to help guide us in restoring our local rivers. As Governor Kaine (Chair of the Bay Executive Council) urged us to do last fall, we are accelerating our actions -- as laid out in our 2-year milestones, and as contained in Mayor Fenty's "DC Green Agenda".

District of Columbia Restoration Efforts To Date

- I would like to point out that the District of Columbia not only met, but also exceeded the 1985 goal of reducing by 40% the levels of nitrogen and phosphorous being discharged into our waters. We accomplished this major achievement ahead of the anticipated schedule, and

we are on track to continue making further pollutant reductions ahead of schedule. By extending efforts to the very limits of technology, in the mid-1980s, Blue Plains was the first facility to reduce drastically phosphorous pollutants and by implementing biological nitrogen removal (BNR) technology, the District was also first to meet the 40% total nitrogen (TN) reduction goal set by the Bay Partnership.

How to Accelerate Progress?

- In addition to our 2-year milestones, we also rely heavily on our MS4 (stormwater) permit, as issued by EPA. EPA referred to our current permit as one of the most aggressive in the nation, and we are due in August to receive an even tougher and more innovative permit for the next 5 year cycle. Many of the commitments made in our permit are also found in our 2-year milestones. The permit is a working tool with binding authority to tackle the tough non-point sources that plague ultra urban areas such as DC.
- In addition to these tools, we are held accountable by our Anacostia CapStat – which contains measurable and quantifiable programs and activities carried out citywide across agencies.
- Being able to meet our commitments to date is largely attributable to work occurring at the world's largest advanced wastewater treatment plant and a major player in the Bay's restoration efforts, Blue Plains. Of the city's 1.4% nitrogen load, Blue Plains Advanced Wastewater Treatment Plant contributes 90 % of the total nitrogen load from the District, so I cannot overstate the imperative of funding and implementing nutrient technology controls there.
- Blue Plains is the largest publicly owned treatment plant in the Bay watershed, and DC, along with our Maryland and Virginia partners, strives to develop the most advanced, progressive, state-of-the-art technologies specifically for nitrogen removal. In fact, part of the reason we were able to meet our commitment to date is because of the District of Columbia Water and Sewer Authority's (WASA) efforts to implement nutrient removal technology, including both enhanced and biological nutrient reduction measures (both ENR and BNR). The city's Long Term Control Plan is also a key element of the Anacostia River and Bay restoration.

- To meet the latest proposed mandates for total nitrogen removal at Blue Plains that are required by the Environmental Protection Agency, WASA has developed a plan to install Enhanced Nitrogen Removal (ENR) technology at Blue Plains at a cost of nearly \$1 billion. Blue Plains will reduce nitrogen to near the limits of technology with this ENR, but at a very substantial cost.
- I am happy to report that the District is on the cutting edge of this ENR process to achieve even more reductions. However, the ENR projects will require major capital construction at Blue Plains, and will cause significant disruptions during construction. ENR will be fully operational in January 2015, but the disruptions caused by ENR-related construction will temporarily interfere with current nitrogen removal program. The result is that the significant enhancement in the Blue Plains nitrogen removal capacity achieved by January 2015 will be preceded by temporary increases in the nitrogen discharged by Blue Plains. Unfortunately, though an invaluable technology, the additional cost of ENR will impose a tremendous burden on the District's residents, underscoring the critical importance of continued federal support for this mandated federal project..
- WASA is contributing to the additional progress made towards meeting the Bay goals by developing a combined sewer overflow (CSO) Long Term Control Plan (LTCP), which will drastically reduce by and estimated 96% - 98% of the combined sewer overflow discharges to the city's waterways. The purpose of the LTCP is to meet local water quality standards, specifically for bacteria and dissolved oxygen (DO). However, the LTCP will also make some contribution to reducing nutrients, and various components of the Plan should be completed by 2025. The estimated cost of the project is over \$2 billion, and is currently the full responsibility of WASA ratepayers. Although the federal government has participated in funding the preliminary phase of the LTCP through special appropriations , , however at this time, the great bulk of this massive project remains the responsibility of WASA ratepayers.
- We were one of the first in the nation to initiate a treatment called "Biological Nitrogen Reduction" (BNR) at Blue Plains, which will go a long way to reducing nutrients. We are also actively working with our partner states of Maryland and Virginia to develop a creative approach to using resources originally planned for combined sewer treatment to expand the capacity to remove nitrogen.
- A key concern about sustaining our commitments to this level of nutrient removal is the expense, and the reality that these efforts require significant fiscal resources. For instance, the

Long Term Control Plan is estimated to cost at the present dollar rate \$2.2 billion into the next decade and beyond. Recognizing this, the District cannot proceed alone. Instead, we look to our partners to work with us in restoration of Anacostia and the Bay when it comes to Blue Plains nutrient removal technology. It is a harsh fact that it takes significant amounts of money to control nitrogen and phosphorous at the scale at which Blue Plains operates.

- We strive to be a national leader in a number of arenas that could be the wave of the future for pollution control in dense urban areas. We have negotiated a progressive stormwater MS4 permit with EPA that includes a wide array of enhancements that are underway, such as committing up to \$1,000,000 to provide incentives for green roof installations on federal, residential, commercial, and District-controlled properties. In fact, many Permit items formed the basis for activities in the newly adopted District 2-year milestones. These include using green infrastructure and low impact development (LID) as first options to control stormwater runoff from our large areas of imperviousness.
- Residential development is the single largest land use in the District, and with their contributing pollutants through combined sewer overflow events and urban stormwater runoff, these lands are one of the primary sources of pollution to its waterways. DDOE has created its own incentive program, the RiverSmart Homes Program, to address the challenges of capturing pollution controls at the residential level. My agency oversees this creative program, which offers fiscal incentives to homeowners interested in reducing stormwater runoff and pollution prevention from their properties.

We realize that without convincing homeowners to adopt runoff control techniques on their properties, the city will have a difficult time achieving its water pollution reduction goals for the Bay. We anticipate that at least 100 sites, or 10% of homes in the watershed, will have been installed in the pilot Pope Branch watershed by the fall of 2009. DDOE already has a list of around 650 interested homeowners throughout the city, and we plan to install approximately 400 RiverSmart homes over the next fiscal year and into the foreseeable future.

- We are like other developed partners, in that our high percentage of paved surfaces leads to polluted runoff and trash getting into our rivers. To this end, Mayor Fenty decided to ‘champion’ urban runoff and green infrastructure. The District makes full use of green roofs and LID wherever possible throughout the city. For instance, we are hard at work to fulfill

the Mayor's vision to put a green roof on 20%, or 1,136 acres of District buildings over 20 years.

- We are developing a regulation that would create incentives for LID, such as green roofs, porous pavements, and similar LID technologies and approaches that won us national recognition in 2008. The revised regulations will require LID as first option for all new development and re-development sites. As rated by the organization called Green Roofs for Healthy Cities, the District is currently the number two city in the nation, second only to Chicago, with the most green roofs installed. As we work with our federal partners to convert their rooftops, then we can ultimately climb to number one status in the next few years.
- Effective May 1, 2009, DDOE revised its stormwater fee so that stormwater fees are now based on the amount of impervious surface area that ratepayers own, rather than by water usage. This should serve as an ongoing incentive for conversion of impervious areas into pervious ones.
- Because the Anacostia River is considered 'impaired' for trash, the District completed a trash survey and trash reduction plan for the Anacostia Watershed and launched three trash-reduction demonstration projects in the watershed. Also, my agency is working with Maryland and EPA to address aggressively trash by developing a Trash Total Maximum Daily Load (TMDL) for the Anacostia watershed, which will be effective by the end of 2010. We are also a signatory to the Potomac River Trash Free Treaty (by 2013).
- In late April, Mayor Fenty announced the new Green DC Agenda, which outlines our efforts in 7 categories, and 2 spotlight areas, including these examples that help accelerate our restoration efforts:
 - Installation of rain gardens and other projects to filter polluted stormwater runoff at five schools per year.
 - Provide free comprehensive RiverSmart Homes audits and up to \$1,200 in financial support to install rain barrels, rain gardens and other systems to treat stormwater runoff at residents' homes.
 - We continue using an aggressive Anacostia Restoration Plan to better frame and manage the local efforts to restore the Anacostia River to swimmable, fishable conditions.
 - We adopted new urban tree canopy goals to increase urban tree canopy coverage by 5% from 35% current level, to 40% coverage in 25 years.

- Our forthcoming Stormwater Regulations will require very stringent stormwater pollution prevention controls on *all* new development and re-development construction – more effectively controlling thousands of acres of nutrients and sediments from reaching the Bay.
- For the Anacostia, the Potomac, and urban areas of the Chesapeake Bay watershed, *the solution to water quality is found on the land* -- and depends upon how we manage the ‘non-point’ sources there. Due to our ultra-urban nature, DC is maximizing the use of LID as a proven way to mitigate the environmental impacts from stormwater runoff. I am proud of the many activities that we have underway to help restore our Rivers and the Bay – through a comprehensive approach to incorporating green infrastructure and green roofs.

Action Items

- **Reauthorize Section 117 CWA for the Bay Program** – with funding at \$50 million. With this section’s reauthorization open for discussion, there is a vital and unique opportunity to fold into it several measures that would significantly strengthen Bay cleanup efforts: by both federal and states partners simultaneously.
 - Develop and incorporate national standards for Stormwater Management – One novel opportunity is to **develop a national [for basin-wide] standard** for stormwater control, requiring the use of using LID practices on both new and re-development. Currently, each state or municipality must develop separate and, in most cases, different stormwater regulations and codes – which are inevitably challenged by private/development entities, leading to protracted legal battles. If there were one single national standard for stormwater practice, then the Bay states would not expend precious resources fighting these battles, which we all find ourselves fighting right now.

More importantly, states would all have available to them a prescribed and well vetted set of uniform best management practices with respect to Low Impact Development guidelines and technical standards for how to achieve pre-development conditions. There would be implementation flexibility to accommodate the local scenarios. But now is the time to change our collective mindset and develop uniform standards for both new development and retrofits. I believe that there is a national consensus that such a standard

is needed, but no one has yet undertaken the process.

- Another opportunity would be to include the following stormwater provisions into the revised Section 117:
 - Maximizing stormwater control at federal facilities by using EISA §438 (Energy Independence & Security Act). The District is unique among all of the U.S. jurisdictions in that it is host to a significant number of federal facilities, which comprise approximately one-third of the District land area. Primarily an energy act, EISA contains a small section (438) that directs federal landholders to comply with stringent stormwater capture and treatment goals. Currently, EPA is working voluntarily as the lead with the District and our federal partners to specify what level of stormwater capture is optimal via guidance.

Converting these vast rooftops and properties to green roofs will make a significant difference in helping to manage and eliminate stormwater runoff and its many urban pollutants. We are eager to work with our federal partners as they begin to adopt innovative stormwater measures at buildings in the District and throughout the Bay watershed. In trying to explore best ways to implement the EIS Act, DC took the lead to convene a spring 2009 working group to look at various approaches to implement the Act's requirements.

- *We would appreciate if the implementation terms, including guidance and lead federal agency of this Act, would be incorporated into the revised CWA 117 section.* Earlier this year DC initiated a cooperative effort with our federal partners, including EPA, General Services Administration, Department of Defense, US Department of Agriculture, National Park Service and others, to use the District as a pilot to showcase innovative stormwater controls by implementing the requirements of this Act.

We hope that innovative techniques will be deployed by each federal partner as a result, and that there will be a *'tech transfer' of lessons learned* across the nation at federal facilities. As the nation's capital, DC should be the showcase of what federal agencies and local jurisdictions can do together to demonstrate limitless opportunities and technologies to improve the water quality and foster environmental stewardship.

- Once pristine, the Anacostia River has been degraded by dense urban development and a legacy of industrial pollution. The Anacostia River watershed covers approximately 176 square miles, and roughly 25 % of it lies in the District.

The river is the focus of large-scale restoration efforts by the District, with many development projects both planned and underway. In the spring of 2007, Mayor Fenty requested that DDOE develop a roadmap for the District's efforts to restore the Anacostia. The Mayor recognized that, although restoration efforts to attain Clean Water Act goals in the Anacostia have been ongoing for more than twenty years, there is still a long way to go before the river can be considered fishable and swimmable. It is the District's goal to restore the Anacostia as a fishable and swimmable river by the year 2032, as outlined in the City's Anacostia Restoration Plan. Including additional support for the District's restorations efforts for the Anacostia in the revised Section 117 will help us meet this goal.

- **Ensure Blue Plains Funding** – As mentioned above, the District is faced with the obligation to maintain an aggressive program to reduce levels of nutrients in the area's waterways. This effort will require significant fiscal resources, and the \$2.2 billion price tag for the Long Term Control Plan is far beyond the amount that can be borne by the District's ratepayers, alone. Instead, when it comes to Blue Plains nutrient removal technology, we must look to our tidal partners to work with us in restoration of Anacostia and the Bay. It is a harsh fact that it takes much money to control nitrogen and phosphorous at the scale at which Blue Plains operates. Reauthorization of 117 should be sure to include linkage to funding for: 1) innovative denitrification technology, 2) full implementation of the Long Term Control Plan, and 3) expansion of both ENR and BNR (so we can meet the 2025 restoration goals).
- **Add Stormwater Requirements into Reauthorization of the Federal Surface Transportation Act** – Recognizing that a high percentage of polluted runoff originates from roads and highways, DC is working to reduce this stormwater impact by undertaking a multi-faceted approach of using a variety of best management practices, such as: porous pavement, water quality catch basins, tree boxes, and curb cuts. We are modifying roadway imperviousness at every opportunity. It would be ideal if new federal roadway construction throughout the Bay watershed could also utilize similar types of alternative and corrective methods. Specifically, reauthorization of the Federal Surface Transportation Act triggers a policy opportunity for inclusion of stronger stormwater provisions. The Act should call for the use of standards and guidance from USDOT and EPA, to ensure that new construction

and significant reconstruction of federal aid roadways mitigate the impacts of stormwater runoff. Policies should require construction that mimics pre-construction hydrologic conditions to the maximum extent feasible.

- **Utilizing the Bay-wide TMDL as a Basin-wide Comprehensive Tool** – The District recognizes that a comprehensive watershed approach is greatly needed. Accordingly, DC welcomes a Bay-wide TMDL as a tool that will more fully address many of the stubborn pollution sources. For example, one state partner recently reported that only 2,000 of its total 30,000 farms possess nutrient management plans. Agriculture is one area where additional federal focus would be helpful, by being included in the TMDL. Historically, Bay state and federal partners have readily highlighted urban shortcomings, but have been reluctant to tackle fully some of the nagging agricultural problems that persist today. We support establishing nitrogen, sediment, and phosphorus pollution caps in the Chesapeake Bay watershed that could, if appropriate, support a market-based trading program.
 - Formally Appoint EPA as Lead - We would recommend that EPA be formally named as federal lead on overseeing state AND federal implementation of the forthcoming TMDL. We look to EPA to take a lead role in overseeing each state's 'reasonable assurance' that they will achieve the needed reductions by taking action on agriculture, wastewater, and urban stormwater pollution sources. Likewise, EPA should also scrutinize the State Implementation Plans, which will detail how the reductions will occur, and in what timeframes. Failure to demonstrate reasonable assurance and needed reductions should be subject to federal consequences, as EPA would prescribe.
 - Federal Partnerships as Constructive – I am pleased that the Administration has appointed Chuck Fox as Senior Advisor for Chesapeake Bay and the Anacostia River. We are glad that his mission recognizes the importance of the Anacostia River along with the Bay. We are also pleased with the Executive Order that the President issued in May, and we have already begun actively participating in the enhanced stakeholder efforts that have resulted. With this new federal leadership role, I look for inter-jurisdictional agreements to become more abundant, more creative, and more effective.
- **Establish a Circuit Rider Program** – the EPA Chesapeake Bay Program could fund, supply and staff a technical 'Circuit Rider' program to help local governments implement the State Implementation Plans that will require them to enact new codes, regulations, or legislation. The circuit rider expertise would be matched to the respective community visited, whether

urban, suburban, or rural, as the assistance needs can vary so widely when meeting the terms of the TMDL and the SIP. We also support the creation of a Local Government Innovation and Implementation Fund, to complement the Small Watershed Grant Program.

- **Establish a National or Regional Coal Tar Ban** – the District’s Coal Tar ban took effect July 1, 2009 (Comprehensive Stormwater Management Enhancement Amendment Act of 2008, L17-0371). Subject to a daily fine of up to \$2,500, the ban prohibits the sale, use, or permitting to be used on one’s property coal-tar pavement products, such as, pavement sealants, pavement dressing conditioner, and the like, in the District. This is the first ban of its kind in the Chesapeake watershed, and, in fact, on the entire east coast. Comparable alternative products are asphalt based and contain about 1,000 times less of the polycyclic aromatic hydrocarbons (PAHs) that make coal tar pavement products toxic.

Given the alarmingly high concentrations of toxic PAHs in coal-tar pavement products used nationwide, the documented impact on aquatic resources, the growing concern about human exposure, and the fact that alternative products are readily available, a national ban on such products is low-hanging fruit. Compared to coal tar pavement products, other sources of PAHs in our environment, such as cars and power plants, are heavily regulated. Research suggests that total PAH loads washed off parking lots could be reduced by as much as 90 % if parking lots were unsealed. Government and communities have struggled to get a handle on the problem of toxics in the Chesapeake Bay, the Anacostia River, and other waterbodies nationwide for many years, and a national ban (or a Bay-wide ban) would have a significant impact in a relatively easy way. It is another way in which federal agencies could provide leadership at their facilities.

Conclusion

As you can see, the District is fully committed to the Anacostia River and Chesapeake Bay restoration. Together with increased federal leadership, funding, and programmatic support, the Bay states will be better positioned to increase the rate of restoration and go beyond business as usual for the Anacostia and the Bay.

I thank you again for the opportunity to testify, and look forward to answering any questions the Committee may have.

Questions from Senator Carper

1. *Could you discuss the link between air pollution and health of the Bay? To what extent are air and water quality experts in your state collaborating – both to understand the role of air emissions and to address the impact of these emissions on water quality?*

In addition to sediment, nutrients in the form of nitrogen and phosphorus are largely responsible for the Chesapeake Bay's current state of health. These excess nutrients (pollutants) come from many sources, including deposition from the air onto the waters and lands of the Chesapeake Bay watershed. Scientists estimate that 25 to 35 percent of the nitrogen deposited on the Bay watershed stems from atmospheric deposition of air pollution in two main forms. Nearly two-thirds of the atmospheric nitrogen results from fossil fuel combustion in automobiles, power plants, industries, trucks, boats, tractors, lawn mowers, locomotives, and construction equipment. One-third results from ammonia emissions from agriculture, primarily animal farm operations. Yet another source of air pollution to the Bay is mercury, which originates from coal-fired power plants. Less than 7 percent of all air emissions in the Washington DC-VA-MD metropolitan area are emitted by sources in the District.

For decades, the District of Columbia's air quality program has worked with surrounding states and regional partners, developing State Implementation Plans and regulations to reduce air emissions. Regulations imposed at the local and national level have reduced emissions from automobiles and trucks. Power plant emissions in the District of Columbia and the states in the Ozone Transport Region have declined over the years because of the local and regional efforts. However, additional efforts at the national level for addressing air emissions are critical for reducing the air pollution and its impacts on the water quality of the Bay.

2. *Runoff from our roads is a significant source of water pollution - contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?*

For general roadway construction Erosion and Sediment Control (ESC), the District uses on-site ESC measures such as silt fences, street curb inlet protections, at-grade inlet protections, sediment tanks and sediment traps, earth dikes, vegetative controls, *etc.*, to minimize erosion and control sediment flowing offsite during construction, as well as to control pollution to local water ways (*i.e.* Rock Creek, Anacostia, Potomac and their tributaries) and to the Chesapeake Bay.

For general roadway construction Stormwater Management (SWM), the District's current SWM practices to control flooding and pollution from stormwater runoff are limited to practices such as Water Quality (WQ) inlets. The WQ inlets mainly separate pollutants such as floatables, oils and greases, and heavy sediments. Currently, these practices are not

efficient in removing pollutants such as Total Suspended Solid (TSS) and nutrients, principally Phosphorous and Nitrogen, which greatly impair our waterways.

The District Department of Transportation (DDOT) is named as a participating District agency on the US Environmental Protection Agency's (EPA) municipal separate storm sewer system (MS4) permit. This both obligates DDOT to move towards treating and reducing stormwater runoff which results from the public rights of way (PROW), and provides access to funding to meet that obligation. DDOT and the District Department of Environment (DDOE) are collaborating on several test streetscapes to demonstrate the incorporation of low impact development (LID) strategies into the ultra-urban road designs. In these demonstration projects, stormwater runoff that normally flows along roadside gutters into underground pipes is re-routed into engineered rain gardens located in the tree box line and in parking spaces, into median strips and small roadside triangle parks. DDOE and DDOT are directing funds, along with other District agencies, toward future demonstration projects aimed at collecting field data to substantiate the effects of these types of practices on mitigating pollution loads from stormwater runoff from the PROW. Practices such as permeable paving systems for sidewalks, parking lanes, roadways and alleys are under discussion and are being explored in some limited test cases.

However, significant barriers to these very promising technologies remain – from competing obligations to protect underground utilities and groundwater resources, to unknowns about long-term durability and maintenance regime requirements, and limited examples of permeable designs in roadways. Working to test and incorporate permeable designs into transportation standards and specifications for any State's roadway engineering will go a long way to overcoming most of these obstacles.

In order to improve the overall health of local water bodies and the Chesapeake Bay, transportation policies should be better aligned with water quality goals by implementation of the following additional best management practices, or areas of focused improvement:

- Non-Structural LID practices: conservation of green spaces, planting trees and vegetation, using minimum pavement widths “road diets,” disconnectivity of the impervious surfaces, *etc.*
- Structural LID practices: permeable pavements (*e.g.* porous concrete/asphalt for roadways and sidewalks), bioretention cell, bioswale, infiltration trench, vegetative filter strip, *etc.*

DDOT has made a major step in this direction by releasing an architectural guide for the District's Anacostia Waterfront Initiatives that includes an entire chapter on low impact development technologies, along with other useful practices. The next step is to take these schematics to the level of engineering standards.

http://ddot.dc.gov/ddot/cwp/vvww.g.1-120.g.6-15886.ddotNav_GillD.1772.ddotNav.%7C34607%7C.asp

Incorporating “green infrastructure” into the basic tenets of transportation planning and road design could allow the public rights of way to play a positive role in reconnecting citizens to their watersheds.

Questions from Senator Inhofe

1. *The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?*

A state's authority is often curtailed by lack of funding and technical information. The federal government can provide technical assistance, and when appropriate, fiscal assistance to facilitate states' local initiatives. Because environmental problems do not recognize political boundaries and cross over state lines and across watersheds, it would be ideal if solutions were watershed-based, rather than limited to one state. This is especially true in the Chesapeake Bay region, where states must work together to achieve restoration. Therefore, to cover the entire watershed, federal agencies can function as coordinators/facilitators in order to forge partnerships between states and the Federal government.

2. *We understand that in order to have a successful Chesapeake Bay program, there must be widespread buy-in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?*

The District, like the rest of the nation, is facing economic challenges. Despite the current economic situation, the District was able to develop a set of regulatory tools (the Green Building Act of 2006, and the Comprehensive Stormwater Management Enhancement Amendment Act of 2008) which require developments in the District to incorporate aggressive environmental management and stormwater control measures. Development of these regulations required careful negotiation and soliciting active participation by various stakeholders before they were finalized. We believe that environmental stewardship is not contradictory to economic interests, and that instead the two can be complementary.

The District is unique among Chesapeake Bay program signatories in that we are the only jurisdiction that is completely urban. Even though we lack agricultural interests, we do have a diverse and vocal community representing businesses, District residents, not-for-profits, and Federal and local government agencies. The District believes, like you, that a collaborative approach with all interests is the best approach to address local and Chesapeake Bay water quality issues.

An example of a successful environmental program using this collaborative approach is the Anacostia River Business Coalition (ARBC). The ARBC was a group including non-profit organizations, small and large business interests, and government agencies working together to reduce pollution to the District's portion of the Anacostia River. This group worked on

diverse projects including litter cleanups, outreach to businesses on developing pollution prevention plans, tree planting, anti-dumping campaigns, and reduction of stormwater pollution to the Anacostia through impervious surface removal and rain garden installation. The group was successful because it focused on common goals such as cleaning-up and beautifying their “neighborhood” and focused on working with the strengths of the membership.

For example, on a typical ARBC litter cleanup event:

- Non-profits donated their time, organizing capacity, and volunteers to organize and staff the events;
- some businesses donated staff and machinery such as bucket loaders and dump trucks to pick up piles of trash;
- other businesses donated money to pay for food and drinks for volunteers; and
- government agencies provided staff time for organizing, small tools and trash bags, and waived tipping fees at the local transfer station.

The secret to the success of the ARBC was that most of the projects not only benefitted the Anacostia River and the Chesapeake Bay, but they also benefitted the participating members. There are the obvious examples of litter cleanups and tree planting that beautified the community where the businesses were located, but there were much more creative ways that the partnership created benefits for all involved. For example, non-profits had access to heavy equipment and trained operators that they would otherwise have to pay to get, and light industry such as concrete companies and metal recyclers found “free” materials through impervious surface removal projects and cleaning up dumping hotspots.

Recently, DDOE worked with a public school to remove asphalt and asked former ARBC members for trucks to haul away the material. DDOE continues to use this collaborative model in its activities with other groups such as the District of Columbia Environmental Education Consortium. Further, DDOE hired a staffer whose primary job is to act as a liaison with the business community. Rather than taking a unilateral approach to addressing environmental issues, it is now the “norm” for the District to seek-out and create programs that embrace, and take advantage of diverse interests,

3. *Please describe what DC is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?*

The District has both a regulatory and non-regulatory program to control its non-point source (NPS) pollution. Both programs reside DDOE’s Watershed Protection Division. The regulatory program consists of Stormwater Management and Soil Erosion and Sediment Control activities that target runoff from construction sites. Any land-disturbing activity greater than 5000 SF for stormwater and 50 SF for erosion and sediment control, must have an approved plan specifying how pollution runoff will be controlled and treated. The District has some of the smallest acreage requirements in the county.

The District's NPS non-regulatory program is funded almost entirely from Clean Water Action Section 319 funds. This program uses a three-prong approach to implement controls. These are: 1) demonstration of new control technologies, especially green technologies, 2) restoration of degraded urban streams and habitat, and 3) pollution prevention education and outreach to both youth and adults. The District uses a watershed approach to identify NPS pollution sources and to prepare implementation plans to control those sources. All plans are tied to local total maximum daily load (TMDL) requirements of associated water bodies. The District has been very successful in its NPS efforts, from demonstrating green technologies to providing removal of concrete and installation of green conservation sites at District public schools. Through seed money from the program, District has established a green roof incentive program providing \$5 SF for green roofs.

Additionally, the District's successful RiverSmart Home program, that provides incentives for homeowners to better control runoff from their property, began as a pilot project in Pope Branch watershed with 319 funds. The creation of 42 acres of wetlands in Kingman Lake and 17 acres along the eastern bank of the Anacostia are excellent examples of its habitat restoration work. We urge you, especially during the spring and summer months, to stop by the river and see the beauty of these wetlands. Presently, the program has three stream restoration projects in Watts Branch, Pope Branch, and Rock Creek that are at various stages of completion. DDOE's NPS Program Annual Report can be found on the web at www.green.dc.gov under publications. The report provides a more complete description of the innovative ways the District is controlling NPS.

We would like to note here that in recent years, as the District's NPDES MS4 permit has become more prescriptive, the USEPA has limited the District's use of Section 319 funds in MS4 areas. The policy of disallowing the use of Section 319 funds (for stormwater) is slowly becoming more restrictive with each permit change, including requiring burdensome reporting requirements to ensure programmatic separation of the use of funds. This became sorely evident with the addition of green technologies to the last permit revision. The District feels this guidance ties its hands when it comes to achieving more stormwater control with its Section 319 funds. A good example is our Rock Creek restoration that is located in a MS4 area. While the District is using 319 funds for this project, the scope of the restoration must be limited as not to affect MS4 permit requirements.

4. *Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some examples of programs that have worked in your state and some that have not? How has DC come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?*

We agree that there is a need to be flexible in developing programs to address the Bay's water quality issues. As pointed out in our response to question two, the District may seem less diverse than other Chesapeake Bay jurisdictions in that we are solely an urban area, but the city does have a diverse population and DDOE has learned that an adaptive management approach to our programs will be the most successful one.

An example of a successful adaptive management approach is the RiverSmart Homes Program. This program developed out of similar programs the District offered in the past that failed because they were not flexible to our constituents' needs or diversity. In the past, the District encouraged residential Best Management Practices (BMPs) through grants to local non-profits and directly through its work. Some problems the District saw in instituting homeowner-targeted programs included:

- A lack of personal transportation -
Lesson learned: event locations must work around public transportation (35% of District households do not own cars (US Census Bureau)).
- Those with personal transportation do not have large enough vehicles to transport give-away items (rain barrels and small trees) -
Lesson learned: deliver items to homeowners.
- Homeowners have difficulty installing or maintaining BMPs (downspouts poorly disconnected, trees die, rain barrels overflow) -
Lessons learned: help them install them and stay in contact with the homeowners after items are installed.
- Homeowners face problems with city regulations (properly placing trees, having downspout disconnect inspected, properly installing rain gardens) -
Lesson learned: change regulations to make them more flexible.

There are many ways that RiverSmart Homes has been flexible as it has developed. First, RiverSmart Homes brings the BMP to the homeowner, installs it for them, and in effect eliminates the difficulties faced in earlier homeowner stormwater pollution reduction campaigns. Second, the program gives homeowners flexibility by letting them choose which landscape enhancements they would like to pursue, with the District covering a cost up to \$1,600 per household. If the homeowner decides to do more than is covered by DDOE, then it is between the homeowner and the contractor to work out payment arrangements. Third, the program does not end once the RiverSmart Homes landscape enhancements are installed on the homeowner's property. DDOE is developing methods for keeping in contact with RiverSmart Homes participants to help them properly care for their landscaping enhancements and to encourage them to install additional BMP practices on their properties.

As the program has changed many times, it has moved from demonstration sites, to a pilot area, and then to a citywide program. Some significant examples of its flexibility include:

- DDOE has changed the incentive structure to guide homeowners to projects that have the greatest stormwater benefit.
- DDOE is developing a "marketplace" where homeowners may go directly to installers, if they are motivated and feel comfortable skipping the stormwater audit provided by DDOE.
- DDOE is developing "RiverSmart Schools", "RiverSmart New Developments" and "RiverSmart Businesses" with incentives and outreach that fit these vastly different audiences.

5. *Does DC have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?*

The District has a combination of methods for accelerating restoration. One approach is our Anacostia CapStat, a matrix of strategic activities overseen by the Mayor to address environmental problems and solutions. CapStat is a performance-based accountability program that uniquely identifies opportunities to make the District government run more efficiently, while providing a higher quality of service to its residents. The program is modeled after Baltimore's CitiStat but is tailored to the needs of the District. Another quantifiable approach that the District adopted is a set of 2-Year Milestones for the 2009-2011 time-period. These milestones are derived from both the Mayor's CapStat and the city's MS4 stormwater permit – the latter being legally binding and enforceable. DDOE is proud of our shorter timeframe efforts to accelerate restoration by focusing more heavily on the Anacostia and Potomac Rivers as draining into the Bay.

6. *I was very interested in your suggestion of implementing a Circuit Rider program to help local governments implement State plans. In my state of Oklahoma, we have found it tremendously helpful to provide technical assistance to smaller communities so they can meet the many drinking water and clean water act requirements. However, it seems that you believe all size communities could benefit from this expertise. In your experience with the District of Columbia, when is technical assistance most helpful? Do local governments frequently have a hard time meeting the codes or regulations set forth by EPA or Congress? How can we ensure that local governments have the tools and the expertise they need to ensure they can meet the targets that are set for the bay?*

The District and the EPA both recognize the critical need to build capacity among local governments in order to achieve its environmental protection goals. As stated in EPA's web site, *"EPA recognizes that watershed groups and local governments need a range of tools to effectively manage their local land and water resources. Watershed groups and local governments need technical tools for scientific support, engineering support, information technology, and assistance with legal issues, project management, outreach, and planning support. They also need legal authority for activities such as permitting, enforcement, contracting, fund raising, and resource management. The most effective organizations are built upon a strong foundation of adequate resources, technical tools, and legal authority."*

Since we are active partners with EPA (and other states) in Bay restoration, we share their perspective on the need that exists for local governments to have access to technical assistance (from a Circuit Rider). Additionally, the District implements its various programs as a local government, so we would also benefit from the services of a Circuit Rider on the Anacostia River restoration.

One of the most promising features of a Circuit Rider program is the ability to unite a whole spectrum of stakeholders in support of nutrient and sediment reduction projects. Experience of one Bay Partner in York County, Pennsylvania has shown that everyone from individual

landowners, watershed groups; federal, state, and local governments, foundations, non-profit organizations, and academic institutions, and local communities are behind most successful watershed projects. Circuit Riders help to identify all the social, economic, cultural, and political barriers faced during the course of restoration projects and then recommend strategies that might work to overcome those obstacles. The involvement of a Circuit Rider allows individual projects to be designed and implemented in a way that provides for the broadest possible demonstration of the environmental and social benefits from watershed stewardship. The goals and objectives of a Circuit Rider are not just to facilitate the implementation of on-the-ground projects, but also to form a relationship with stakeholders, landowners, and citizens of the watershed to change behavioral patterns about watershed stewardship. This requires active engagement of stakeholders rather than a passive “wait for volunteerism” approach.

The protection and enhancement of water resources falls under the responsibility of several levels of governance. The District has many parallel agencies responsible for stormwater runoff, and training them (and their contractors) would bring valuable benefits to the Anacostia River and the Bay. A Circuit Rider with a big picture background, coupled with the ability to understand what makes things work is a valuable component to any effort to expand the participation of local governments in addressing the issues impacting water quality in the Bay Watershed.

7. *I appreciate the city's commitment to building smarter, greener buildings, but I was disappointed to learn that you have chosen LEED silver or higher as your only option for new construction. With so many Green Building Standards or Rating Systems in addition to LEED in operation (Green Globes for New Construction, (a Rating System) Green Globes for Continual Improvement of Existing Buildings (a Rating System), EPA Energy Star Target Finder (a Energy Rating System for New Buildings), EPA Energy Star Portfolio Manager (a Energy Rating System for Existing Buildings), CHPS –Collaborative for High Performance Schools (a Rating System for Schools), ICC-700 National Green Building Standard (an American National Standards Institute (ANSI), consensus process Rating System for New Residential Buildings (developed by the International Codes Council), and with so many Green Building Standards or Rating Systems in addition to LEED about to be completed (such as: GBI/ANSI for New Construction (a new version of the Green Globes rating system developed using the ANSI consensus process - due to be completed by the end of 2009), ASHRAE 189P Standard for the Design of High Performance Green Buildings (an ANSI consensus process Standard - due to be completed by the beginning of 2010), California's Green Building Standard (a statewide Standard which will have two performance levels for energy compliance - due to be completed in 2009), does DC plan on looking at other programs in the future for consideration?*

The District of Columbia incorporates a number of green rating systems in its green building laws and regulations. As passed by the DC Council, the Green Building Act of 2006 (GBA) incorporates LEED and ENERGY STAR requirements into standards for non-residential buildings. New construction projects funded in part or whole by the District, for example, must model future energy use with the EPA Energy Star Target Finder tool and achieve 75 points or better under that system. As amended by the Clean and Affordable Energy Act of

2008, the GBA requires Energy Star benchmarking of District-owned buildings greater than 10,000 square feet and of larger private buildings (phased in over time by building size) beginning in 2010. For residential projects receiving District funding, the Green Building Act requires design to Enterprise Community Partners Green Communities standards. The DC Council also adopted, through the Building Code, the ASHRAE 90.1 2007 energy code, which is the latest fully adopted version of the ASHRAE energy code. Although it was too early to consider ASHRAE 189P in its entirety for the District's 2008 codes cycle, a number of requirements consistent with 189P have already been incorporated, including cool roofs and water efficiency requirements.

In addition to these existing standards, the District plans to consider a range of additional standards and updates in the future. The GBA provides that the District's Green Building Advisory Council may review and recommend to the Mayor adoption of additional or alternative green building standards. Regulations to define the process for evaluating standards in addition to LEED are under development, and other standards will be considered once these regulations are in place. Further, the District's Construction Code Coordinating Board is about to begin another code review cycle and will be examining ASHRAE 189P, which has still not been adopted in final form by ASHRAE, in addition to other green code options.

8. *Additionally, on green buildings, I believe it is important to balance not just sustainability, but energy efficiency and water conservation. LEED is very flexible, but tends to put an eye toward sustainability over performance. How will DC ensure that the storm water reduction measures are working at these LEED buildings? Are you requiring additional scrutiny of the storm water management for these buildings? How are you working to mitigate the costs of the additional storm water requirements?*

All buildings constructed in the District (above a minimum size threshold of a 5,000 square feet land disturbance) must be permitted for stormwater management by DDOE. This includes a commitment to long-term maintenance of the stormwater facilities with DDOE inspection and enforcement. LEED buildings must go through this process like all others. Additional attention and scrutiny are given when innovative stormwater management approaches are included, although DDOE staff has already permitted and is familiar with green roofs, water reuse, bioretention and other techniques that are often incorporated into LEED certified structures.

The District is also working to reduce the costs of implementing stormwater management techniques including low impact development. Subsidies are available for green roof installation and our RiverSmart program provides technical and financial assistance for homeowners to install stormwater management. DDOE staff is available to work with developers to identify cost effective stormwater controls. Pursuant to Comprehensive Stormwater Management Enhancement Amendment Act of 2008, the DC Council required development of incentive and fee reduction programs to allow properties that reduce stormwater runoff to reduce their monthly stormwater fees. These programs must be in place by May 2010.

9. *How is the district working to ensure that their requirements for new development and for low-impact development are technologically feasible and scientifically sound?*

DC partners with EPA headquarters to retrofit a small subwatershed through a small watershed grant program. This project demonstrates the impact of our on-ground LID on stormwater runoff. DDOE is also partnering with research institutions, Columbia University and George Washington University to model the impact of our projects such as RiverSmart Homes and MS4 activities on receiving bodies of water. For best management practice efficiencies, we work with natural resources organizations such as the Center for Watershed Protection and the LID Center to verify the efficacy of our projects.

10. *What kind of fiscal incentives have you found to work for green roofs and other storm water containment in residential and commercial property? Where are you raising the money for the \$1,200 grant for RiverSmart technology installation? What seem to be the largest barriers to implementing your ambitious greening agenda?*

DDOE has developed an approach for commercial properties with an incentive program that allows cost-share for construction of green roofs. Presently the incentive is \$5 SF up to \$20,000. DDOE is now moving forward with a second program that will target specifically commercial retrofits (not new construction). At the residential level, DDOE has the RiverSmart Homes program that provides up to \$1,600 cost share per household to install stormwater retention practices. The RiverSmart Program began using Section 319 funds, however as DDOE no longer can use these funds to meet MS4 commitments, DDOE is keeping the program going for two more years using Green Reserve Stimulus funds. Another approach is the impervious rate system via local legislation that reduces stormwater utility paid by the property owner proportionate to the amount of pervious area they have (rather than by water consumption). The District hopes that property owners will retrofit their properties in order to reduce this stormwater fee. The largest barrier to implementing DDOE's green agenda is technical feasibility. The District is highly developed with little space above and below ground to install green practices for energy efficiency or stormwater management.

Senator CARDIN. Thank you very much for those suggestions. As you pointed out, we have provided some help with Blue Plains, but clearly it is a challenge. We understand that.

We have been joined by Senator Carper. Your Secretary has mentioned your name several times as Governor Carper and the good work that you did as Governor and continue to do in the U.S. Senate on water issues. You may want to thank him. That is all I am suggesting.

[Laughter.]

Senator CARPER. Thank you.

[Laughter.]

Senator CARPER. I say thank you as a recovering Governor. Can I say just a quick word about Secretary O'Mara?

Senator CARDIN. Sure.

Senator CARPER. He was selected by our Governor at the tender age of 29 to become Secretary for the Department of Natural Resources and Environmental Control. We stole him from out around San Jose. For a guy his age, he has quite a wonderful resume.

The people of Delaware elected Joe Biden to be Senator, a U.S. Senator, at the age of 29. They were kind enough to elect me to be State Treasurer at the age of 29. What I first thought was, gosh, 29 seems so young for somebody to be Secretary of Natural Resources and Environmental Control. Then, when I thought about it, I said, you know, that is about the right age.

So we are delighted that he has come to our State and delighted that he is here today. He is one smart cookie and just a very good human being. So we welcome him here today.

And I think there may be another person here from Delaware. Is there more than one panel here?

Senator CARDIN. Yes.

Senator CARPER. He may be on the second panel. I am going to be chairing a committee of my own at 3 p.m. to I am going to have to slip out. But thank you all for coming. These are important issues, as you know.

And as your neighbor to the east, we want to be your partner in getting us to a cleaner, healthier Chesapeake Bay. Thanks.

Senator CARDIN. Thank you very much, Senator Carper.

Commissioner Douglass.

**STATEMENT OF HON. GUS R. DOUGLASS, COMMISSIONER,
WEST VIRGINIA DEPARTMENT OF AGRICULTURE**

Mr. DOUGLASS. Thank you, Mr. Chairman, for this opportunity to represent some of my environmental concerns as well as those of my counterparts across this great Nation.

In June 2002, the West Virginia Department of Agriculture joined the Chesapeake Bay Program. But the Department has been involved in water quality monitoring since 1999, when agriculture became the focus of a TMDL for fecal coli in the Eastern Panhandle's waters.

Agriculture is commonly seen as the primary contributor of nutrients to the Chesapeake Bay because one, agriculture is highly visible to the public, and two, it is commonly believed, but unproven, that agriculture can make the most reductions for the least money.

The truth is that, one, numerous sources affect water quality including residential lawns, urban runoff, highway and airplane deicers, wildlife and, importantly, wastewater treatment plants that rely on decades-old technology.

Two, since 1996, West Virginia's Eastern Panhandle farmers have invested \$8.6 million of their own money into Best Management Practices, plus \$24 million in government cost-share funding.

Three, a safe, affordable and geographically diverse food supply remains one of our Nation's most important policy considerations.

And four, data gathered in the region is extensive, and it shows that voluntary conservation programs have maintained good water quality in West Virginia's streams for over a 10-year period.

An example of this is the Potomac Headwater Land Treatment Program, which was one of the first nutrient management programs of its kind to boast voluntary participation of over 85 percent, folks, of the poultry and beef producers in the Eastern Panhandle. This program initiated 269 long-term contracts specifically for nutrient reduction in the Potomac Valley.

Through this and other programs, West Virginia was able to remove the North Fork of the South Branch River from the 303(d) list of impaired streams back in 2003. This is perhaps the only success story of its type that I am aware of in this country.

Meanwhile, in the far eastern part of the Panhandle, agricultural land is facing an onslaught from commercial and residential development. Folks, we lost 76,000 acres of farmland in recent years. And yet water quality in the Chesapeake Bay continues to decline.

So I ask you, which is the greater burden on the environment: a farm that has spent tens of thousands of dollars of its own money to create as small an environmental footprint as possible, or a new housing development that destroys green space and wildlife habitat, burdens undersized sewage plants, and typically consumes more in services than in taxes?

West Virginia will have new concentrated animal feeding operation regulations on the books in 2010. We should be allowed to give these new CAFO standards a chance to see what reductions they bring before we are forced to undertake new regulatory schemes.

I am now serving my eleventh term as West Virginia's Commissioner of Agriculture. And folks, during those four decades in office, I have seen a few things that work and many that do not. One thing that does not work is excessive regulation of our farm community.

The WVDA and other agencies have committed to using a voluntary approach to water quality because we have shown that it works to protect the environment, our State's economy, and our Nation's food supply.

And folks, the bottom line is if you want additional action on the part of the States, it is going to take staff, educational opportunities and cost-share programs. There will be increased benefits to the Chesapeake Bay, with the local water quality, if we can get the possible funding.

Thank you for your attention and your invitation to be here today. I would be happy to take any questions.

[The prepared testimony of Mr. Douglass follows:]

In June 2002, the West Virginia Department of Agriculture joined the Chesapeake Bay Program, but the Department has been involved in water quality monitoring since 1999, when agriculture became the focus of a TMDL for fecal coli form in the state's Eastern Panhandle.

Agriculture is commonly seen as the primary contributor of nutrients to the Chesapeake Bay because (1) agriculture is highly visible to the public (2) it is commonly believed, but unproven, that agriculture can make the most reductions for the least money.

The truth is that (1) numerous sources affect water quality, including residential lawns, urban runoff, highway and airplane de-icers, wildlife and importantly, wastewater treatment plants that rely on decades-old technology, (2) since 1996, West Virginia's Eastern Panhandle farmers have invested \$8.6 million of their own money into Best Management Practices, plus \$24 million in government cost-share funding (3) a safe, affordable and geographically diverse food supply remains one of our nation's most important policy considerations and (4) data gathered in the

region is extensive, and it shows that voluntary conservation programs have maintained good water quality in West Virginia's streams over a ten-year period.

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West Virginia will have new concentrated animal feeding operation regulations on the books in 2010. We should be allowed to give these new CAFO standards a chance to see what reductions they bring before we are forced to undertake new regulatory schemes.

I am now serving my 11th term as West Virginia's Commissioner of Agriculture, and during more than four decades in office, I have seen a few things that work, and I've seen many that don't. One thing that doesn't work is excessive regulation of our farm community. The WVDA and other agencies have committed to using a voluntary approach to improve water quality,

because we have shown that it works to protect the environment, our state's economy and our nation's food production capability.

Farmers understand the value of water quality cost, both for their downstream neighbors and for their own profitability. With additional funding for staff, educational opportunities and cost-share programs, there will be increased benefits to the Chesapeake Bay, as well as to local water quality.

I would be remiss if I didn't mention our partners, whose work has been fundamental to the successes we have seen. Besides the West Virginia Department of Agriculture, the West Virginia Conservation Agency, West Virginia University Extension Service, USDA-Natural Resource Conservation Service and USDA-Farm Service Agency have worked closely with the farm community on a daily basis. The trust and respect between our experts in the field and the farm community is key to the success of our voluntary programs.

Thank you for your attention and your invitation to appear here today. I'd be happy to take any questions.

INTRODUCTION

West Virginia has a proven track record of success utilizing a voluntary approach for the installation of best management practices and protecting water quality. This remains a vital part of improving and protecting water quality in the state, as well as reducing nutrient loading to the Chesapeake Bay. We respectfully request that you evaluate West Virginia's success with our existing approach and consider additional funding to provide more support to the agriculture community both programmatically and with staffing. This will allow for the continuation of agricultural water quality improvements as the Bay Program moves forward.

The eastern panhandle counties of Berkeley, Jefferson and Morgan contain the lower reaches of the Cacapon River, the Direct Drains (including Opequon, Sleepy and Back creeks), and the Shenandoah River. Approximately 48% of the region is forested, 28% is agriculture, 7% is urban and 17% is mixed open. This area is predominantly characterized by broad, level-to-undulating, fertile valleys that are a mix of agriculture and urban landscapes. Sinkholes, underground streams, and other karst features have developed on the underlying limestone/dolomite, and as a result, the drainage density (or number of surface streams) is low. The karst geology in much of this watershed lends itself to rapid distribution of pollutants from both urban and agricultural sources into groundwater and subsequently into surface streams fed by springs and seeps. Development has sharply increased due to the close proximity to the Washington-Baltimore Metropolitan Area.

The lower eastern panhandle, containing Hardy, Grant, Hampshire, Pendleton and Mineral counties, is the home of three sizeable watersheds: the South Branch of the Potomac, the North Branch of the Potomac and the Cacapon. The lower eastern panhandle is approximately 68% forested, with mixed (coniferous and deciduous) canopy trees. Twenty-four percent of the land is used for agriculture, and the valleys, gentler slopes and rounded ridge tops support many agricultural pursuits, primarily pasture and hay production, but also some orchard and row-crop production. One of West Virginia's most agricultural areas, the lower panhandle region includes cattle and poultry production. Roughly 2% of the watershed is urban in nature, with the remaining 6% in mixed open.

The counties located within the Chesapeake Bay drainage basin have a long and rich tradition of agricultural production. Many families in the area make their living from agriculture or jobs related to agriculture. West Virginia is the number one state in the country in percentage of family farms. Individuals or families run 95.3 percent of these farms.

In the eastern panhandle, poultry is the number one agricultural commodity and accounts for more than half of the cash receipts for sales generated for the state each year. A direct result of the poultry industry, this rural area is an important part of the statewide economy. Three of the top five agricultural counties in the state are located in this region. While the poultry industry is important to the local economy, agriculture has seen many losses over the past five years. The average farm size in West Virginia's portion of the Bay drainage has decreased on average by 33 acres. Operational expenses have also risen dramatically in the same time period. The increase in operational expenses on farms from 2002 to 2007 was an average of \$13,488.85. Farm income saw an average decrease of \$9574.25 in that same period.

Agriculture faces many challenges with new and pending regulations, the loss of agricultural land, increases in production costs and reductions in profitability. Current regulations that are being implemented at this time are affecting the state. Additional regulations at this time will be burdensome to both the agriculture community and the state as they try to implement regulations. To reduce nutrient loading to the Bay, West Virginia has adopted a voluntary incentive-based approach. This approach has proven to be very successful.

PARTNERSHIPS/ PROGRAMS

Working in partnership with other agencies and organizations has been an important way for agencies to stretch their limited Bay budgets. By cooperating, agencies are able to send their message to a wider audience and demonstrate that water quality is important to everyone. To coordinate efforts, the Chesapeake Bay Implementation Committee was created in 2005 to synchronize nutrient and sediment reduction efforts. West Virginia's Chesapeake Bay Implementation Committee developed a prioritization matrix. This matrix ranks priority watersheds based on water quality factors that specifically affect the watershed (reference Appendix II).

State-sponsored funding has been utilized for programs such as the 319 grant, which supports agricultural nutrient and sediment reduction efforts. For instance, this program provides funding for the maintenance and upgrading of failing septic systems and offers a strong emphasis on nutrient and sediment education for landowners. State agencies have also taken the lead in working with grassroots organizations, such as watershed groups and project teams, to reach more landowners. The volunteers dedicate numerous hours to rally the community, educate landowners about nutrients and sediment and promote programs that can improve water quality. These programs not only focus on rural agricultural areas, but urban outreach as well. The urban forestry program has become an important educational tool in the eastern panhandle. The West Virginia Conservation Agency and West Virginia Division of Forestry are working in urban and rural municipalities to encourage additional tree plantings, maintain current tree plantings and reducing nutrient losses in urban areas.

Cost share programs have also been important to landowners and producers. In the last 15 years, over 24 million dollars have been spent in cost share dollars to install practices throughout the eastern panhandle of West Virginia. This funding supports familiar programs including: Environmental Quality Incentives Program, Conservation Reserve Enhancement Program, United State Department of Agriculture's PL-534 program and Grassland Reserve Program. It should also be noted that producers must pay a portion to receive cost share monies. More than 8.6 million dollars have come from landowner contributions for installation of best management practices.

Outreach plays an important role in meeting nutrient reduction goals. By having a strong educational focus on point- and nonpoint-source pollution, community buy-in is maximized, and the implementation process can be accelerated. The most recent example of a successful outreach program was the update of the Poultry Producers Best Management Practices Manual, which was provided to all poultry producers in the eastern panhandle. Focus on urban issues, such as rain barrel workshops, has been very successful in engaging the public in protecting water quality.

Protecting existing farmland to slow development is also important in the state. Since 2000, Farmland Protection programs have protected 5,686 acres in West Virginia's eastern panhandle (reference Appendix II). This effort will assure that this acreage will never be subdivided, which will greatly reduce impervious areas and runoff throughout the state.

The Forest Legacy Program supports state efforts to protect environmentally sensitive forest lands. Designed to encourage the protection of privately owned forest lands, the Forest Legacy Program is an entirely voluntary program. To maximize the public benefits it achieves, the program focuses on the acquisition of partial interests in privately owned forest lands. The Forest Legacy Program helps states develop and carry out their forest conservation plans. It encourages and supports acquisition of conservation easements - legally binding agreements transferring a negotiated set of property rights from one party to another - without removing the property from private ownership. Most the Forest Legacy Program conservation easements restrict development, require sustainable forestry practices, and protect other values. In West Virginia, the Forest Legacy Program has protected 763.54 acres, and plans to protect another 10,500 acres by 2011 (reference Appendix II).

Another successful project is the Opequon Creek Implementation Team. The Opequon Watershed has the greatest water quality issues in streams monitored by the West Virginia Department of Agriculture in the eastern panhandle. The team consists of state, federal and local partnerships who are working to improve water quality for local residents. This group has focused efforts on a variety of projects and has been successful in installing riparian buffers, developing watershed-based plans and implementing natural stream restoration projects in the watershed. Through these activities, they have actively engaged many residents of the watershed and developed strong working relationship with not only their neighbors, but their government partners as well.

The West Virginia Department of Agriculture has played an important role in partnering with the agricultural community and other partners in the utilization of the water quality data that has been collected over the last ten years. This sampling program has been adapted to meet the needs of not only the agricultural community, but also others in the Chesapeake Bay drainage, as well as to assist West Virginia partners in implementation decisions. This data is also used to calibrate the Chesapeake Bay model and provide input in decision-making for the state agencies.

As with all the Bay states, the implementation of best management practices would not be possible without the joint effort of a multitude of governmental, non-governmental and non-profit entities. State and federal agencies, such as the United States Department of Agriculture's Natural Resources Conservation Service and Farm Service Agency, West Virginia Conservation Agency, West Virginia Department of Environmental Protection and the West Virginia Department of Agriculture, continue to work in partnership.

In 2000, a multiagency effort was launched to reduce bacteria and sediment loading throughout the North Fork watershed with hopes to delist the river from the 303(d) list of impaired waters. Numerous best management practices were installed to meet the 35% reductions in fecal

coliform needed for West Virginia water standards (WVDEP 2007). In 2002, the entire length of the North Fork River was delisted (WVDEP 2008).

WATER QUALITY

In 1998, the West Virginia Department of Agriculture began a water quality sampling program headquartered in Moorefield, West Virginia. Various watersheds found within the eight eastern panhandle counties (Figure 1) have been sampled to establish a baseline and to collect additional data that will more accurately establish the condition of the streams. The water quality laboratory has allowed for research into the origin of pollutants and to study unanswered water quality questions about agricultural activity in West Virginia's Potomac basin. As of June 31, 2009, 29,044 samples have been collected and analyzed throughout 29 watersheds.

Currently, the water quality program is running a full sampling schedule, with eleven streams the main focus at this time. Parameters analyzed include: temperature, dissolved oxygen (DO), pH, turbidity, conductivity, total phosphorous, ammonia-nitrogen, nitrate-nitrogen, fecal coliform, ortho-phosphate, turbidity, sulfate, total Kjeldahl nitrogen, total nitrogen, total solids, dissolved solids, total suspended solids, calcium and magnesium. Furthermore, aluminum levels are tested throughout Opequon Creek to comply with total maximum daily load, and atrazine is sampled and analyzed throughout various sites within the eastern panhandle.

Ground and surface waters are dynamic systems, constantly changing. The ability to accurately understand and evaluate the streams is exceedingly challenging. The countless man-hours devoted by the West Virginia Department of Agriculture's water quality staff has aided in our understanding of the quality of the waters found throughout the eastern panhandle. With this knowledge, governmental and non-governmental agencies are better equipped to evaluate the areas of concern, allowing for more meaningful spending of program dollars.

The *West Virginia Potomac Headwaters Water Quality Report* (Sullivan 2009), summarizing the last 10 years of sampling data, is currently in publication, and will be released in August 2009. Ten watersheds are evaluated in the report: Anderson Run, Lost River, Lunice Creek, Mill Creek South Branch, North Fork South Branch Potomac River, Opequon Creek, Patterson Creek,

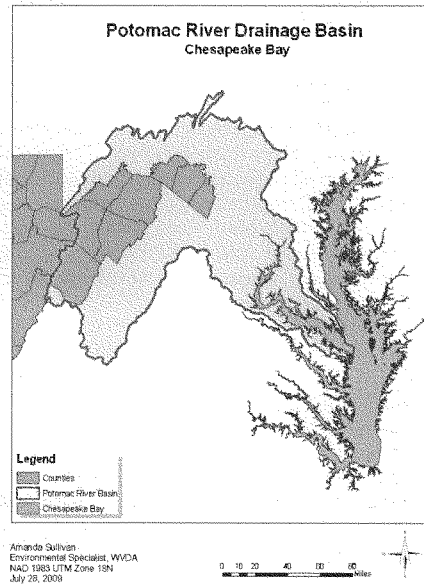
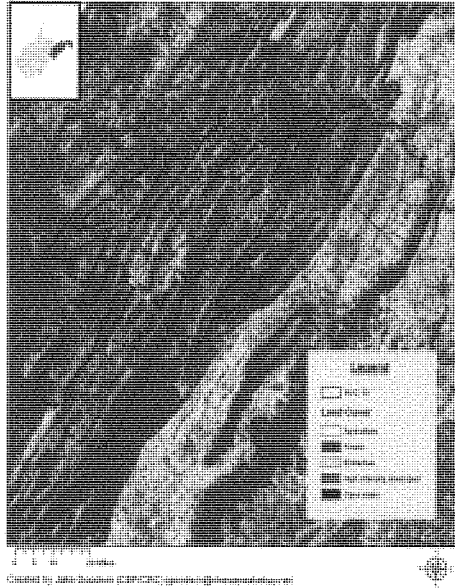


Figure 1: Potomac River Drainage Basin, Chesapeake Bay

West Virginia Eastern Panhandle



Sleepy Creek, South Branch Potomac River and South Fork South Branch Potomac River. A majority of the watersheds are similar, sparsely populated areas settled in highly forested land. However, Opequon Creek watershed is the exception, with highly populated urbanized areas set in very industrialized and agricultural land with low forested areas (Figure 2, Table 1). A total of 26,252 samples were analyzed. Realizing the scale of this data set, it was necessary to demonstrate where parameters fell in relation to other watersheds. Watershed samples per parameter were averaged for mean or median then plotted onto a concentration map.

Figure 2: Land cover throughout West Virginia's eastern panhandle

Table 1: Percent of Land use by watershed area

HUC 10	Watershed	Open Water	Urban	Forested	Agriculture	Other*
0207000101	North Fork South Branch Potomac River	0.09%	1.70%	86.05%	11.64%	0.52%
0207000102	Lanice Creek	0.06%	2.93%	67.92%	28.73%	0.36%
0207000103	Headwaters South Branch Potomac River	0.12%	2.60%	79.62%	17.55%	0.10%
0207000106	Outlet South Branch Potomac River	0.33%	2.54%	78.10%	18.62%	0.42%
	<i>Total South Branch</i>	<i>0.24%</i>	<i>2.57%</i>	<i>78.79%</i>	<i>18.14%</i>	<i>0.27%</i>
0207000104	Mill Creek South Branch South Fork South Branch Potomac River	0.06%	2.95%	77.00%	19.84%	0.14%
0207000105	Patterson Creek	0.13%	2.05%	88.27%	9.31%	0.24%
0207000207	Lost River	0.12%	3.32%	76.90%	19.51%	0.14%
0207000303	Sleepy Creek	0.06%	1.86%	86.04%	11.90%	0.14%
0207000402	Opequon Creek	0.29%	2.30%	85.31%	12.09%	0.01%
0207000409	Opequon Creek	0.12%	16.25%	37.59%	41.35%	4.68%

* Includes Extractive and barren land and nurseries/orchards.

Source: Phase V Chesapeake Bay Watershed model LU/LC dataset. Anderson Run, a sub-watershed of the South Branch, Potomac River, was not analyzed. Note: In report only various percentages are listed.

Total Phosphorous

Of the 23,407 total phosphorous samples analyzed, 3,943 (16.8%) were below the method detection limit of 0.0070mg/L (Figure 3). Of the 114 sampling sites, nine (7.8%) saw median total phosphorous concentrations below the method detection limit. The lowest of these concentrations was 0.0020mg/L located in the North Fork South Branch River at NF03. The highest median recorded was 0.2410mg/L located in the Opequon Creek at OP06. Exceedingly high values were found within the South Branch Potomac River (South Branch) and Opequon Creek. At SB15 (below Moorefield, West Virginia), median total phosphorous values were 0.2410mg/L. Values continued to be high throughout the remaining sites. All throughout Opequon Creek, medians were elevated, with the greatest value occurring at OP06 (bridge at County Route 12). (Note: Phosphorous stored in reservoirs of plants and minerals do not show up in water samples.)

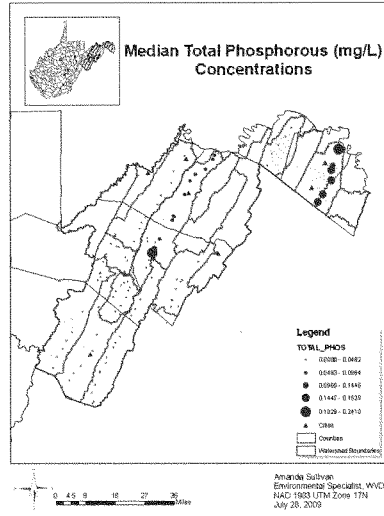


Figure 3: Median total phosphorous concentrations

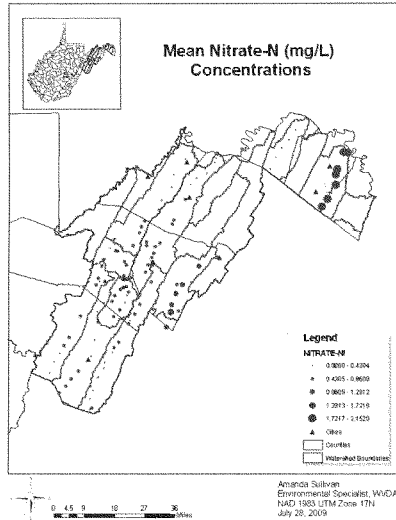


Figure 4: Median nitrate-n concentrations

Nitrate-n

SC05 (Route 9/3, Sleepy Creek) had the lowest median calculation of 0.148mg/L (Figure 4). The highest median (M = 2.152mg/L) occurred at OP02 (Bridge on State Route 51, Opequon Creek). Site median values were chronically high throughout Opequon Creek's entire watershed, ranging from 1.874mg/L at OP05 (Stone Bridge) to 2.152mg/L at OP02. The minimum nitrate-n value recorded was 0.000mg/L at SB02 (Brushy Fork, South Branch) and the maximum values recorded were 6.500mg/L at LC10 (Route 42, Lunice Creek) and 7.300mg/L at LR01 (Cullers Run, Lost River). The highest acute values occurred most readily throughout the Lost River, especially at LR01 (M = 1.495mg/L). None of the 24,670 nitrate-n samples analyzed were above the drinking water standard of 10mg/L.

Fecal coliform

Fecal coliform is most commonly used to determine if a river is suitable for water contact recreation. West Virginia has a water quality standard for fecal coliform that is stated in two parts. If the water quality values do not meet any part of the standard, the stream will be in violation. First, the standard states that a violation occurs if the geometric mean of five or more samples collected within 30 days exceeds 200 colony forming units (cfu) in 100 milliliters of water. Second, a violation occurs if 10% or more of samples collected at a site exceed 400 cfu/100ml.

Of the 22,434 fecal coliform samples analyzed throughout the sampling sites, 17,632 (78.5%) were below 200cfu/100ml and 2,801 (12.4%) were above the critical threshold of 400cfu/100ml (Figure 5). Medians were as low as 4.0cfu/100ml at SF05 (Route 9/3, South Branch) and as high as 460.0cfu/100 at MC01 (South Mill Creek Church, Mill Creek). Numerous samples had counts of 1cfu/100ml. In total, 2,971 (77.1%) were below 200cfu/100ml and 479 (12.4%) were above the critical threshold. Throughout Mill Creek, 3,800 samples were taken. In total, 2,436 (64.1%) were below 200cfu/100ml and 833 (21.9%) were above 400cfu/100ml. Fecal coliform sampling began on Sleepy Creek and Opequon Creek at the beginning of 2009.

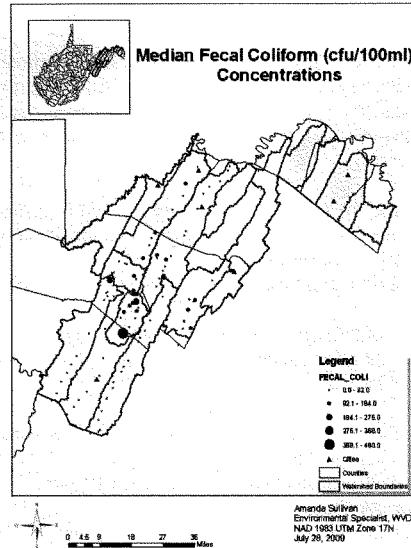


Figure 5: Median Fecal Coliform Concentrations

Overall water quality throughout West Virginia's Chesapeake Bay drainage is good. Currently, organizations are using data to concentrate efforts in decreasing nutrient loading to the Bay based on the information contained within this report. We have identified areas of concern, and are working toward water quality improvements.

CHALLENGES

Funding stability and the threat of regulation are two significant concerns that West Virginia faces while working with the Bay Program. The State has made a commitment to make reductions using a voluntary approach. The State is also in the process of implementing concentrated animal feeding operations regulations. These regulations will not become law until after the next legislative session. The Bay Program and Environmental Protection Agency are putting the State under constant pressure to begin developing additional regulations without giving the current regulations a chance to take effect or make a difference. This threat has the

potential to reduce our ability to work with the farm community and can potentially cause the participation in programs to decline.

The State is also under constant pressure to direct resources toward providing input to the Bay Model, instead of directing efforts and funding toward on-the-ground projects and outreach and education. The time spent refining models has caused a great loss of trust in the eastern panhandle area from residents who question why constant refinements to the Bay model are necessary.

In order to progress, states need to step back and look at reality. Producers have shown their willingness to install practices without the threat of regulation. States need help in assessing and getting credit for implementation of best management practices, especially those that do not fit in the short list of "approved" practices with assigned efficiencies.

For example, if a farmer establishes a buffer that does not meet the minimum threshold for width, it gets zero credit instead of partial credit. Willingness to accept partial credit is important for older practices and voluntary efforts of producers working without cost share dollars.

Another significant hurdle for states is associated with best management practice assigned "efficiencies" or "effectiveness estimates". Best management practices effectiveness is constantly under revision by the Bay Program. This reduces credibility and creates distrust in the farm community regarding BMP programs. This constant revision not only makes reporting difficult, but when looking at practices where a state can get the "most bang for its buck," a constantly moving target hinders implementation and buy-in.

Land use changes are of utmost importance to Bay states, West Virginia included. Rural landscapes are quickly transitioning to urban landscapes with associated impervious surface and increased runoff. **Since 1997, nearly 73,000 acres of farmland has been lost in the eastern panhandle of West Virginia.**

This issue alone could be the determining factor as to whether the Bay will ever recover. The perception of rural residents is that the Bay Program and its supporters are not concerned about urban contributions to water quality. Documentation is showing that acreage of lawns and turf grasses have now exceeded pasture acreage in the Bay watershed. There are many statistics about the impacts of excess poultry litter, but very little published on the 42% increase in impervious surfaces in the Bay Watershed in the past several years. Agriculture has shown significant nutrient and sediment reductions, yet farmers are being tasked with more and more reductions and regulations.

Another challenge for agriculture is the current state of the economy, especially in the poultry and cattle markets. Rising costs have affected agriculture on many fronts; the largest poultry integrator in West Virginia filed for bankruptcy protection last year, which has caused much uncertainty. Statistics just released show that cattle numbers are at an all-time low and 8 percent lower than last year's inventory levels. These reductions are putting fewer dollars in producers' pockets. This further decreases profitability and the ability to afford best management practices. While the economy is in dire straits, producers have maintained a high signup rate for cost share

dollars made available by the Farm Bill for Chesapeake Bay states. Additional funding and higher cost share rates are needed to meet the accelerated rate of implementation contemplated in the milestone goals that are being developed.

As a headwater state, West Virginia does not receive the amount of funding that other states do. In order to continue the level of implementation needed, additional funding will be vital. While increased funding has recently become available for best management practices, this money is not available for much needed technical resources. Without the addition of field personnel, the lack of staffing will prevent the needed increase of implementation.

FEDERAL ASSISTANCE

In order to meet the goals set forth by the Chesapeake Bay Program, the State of West Virginia is in need of additional financial assistance. West Virginia generally receives an Environmental Protection Agency grant of 250,000 dollars a year at the state level for Bay restoration efforts. This is only a small portion of what is needed to meet the stringent goals set forth for restoration, as it funds two full time staff positions and limited outreach and education projects. Staff is now being forced to take time away from implementation to begin revising the State's tributary strategy and implementation plan. Without additional staff resources and funding, the State will be forced to limit its outreach and implementation capabilities.

When West Virginia developed its first tributary strategy, the estimated cost for agricultural implementation from 2005-2010 was 200,907,403 dollars. This number has increased with time and additional funding will be necessary to meet the new implementation goals set forth by the total maximum daily load. Most states are requesting additional funding - the goals cannot be met unless additional funds are allocated.

In order to meet water quality goals, additional money must be made available for staff to support and carry out programs which will reduce nutrient and sediment loading to local streams. With budget reductions at the federal level, staff that in the past went out to farms to promote the benefits of conservation practices is now overwhelmed with administrative tasks and record keeping, which diminishes their ability to reach those most in need of assistance in the field. Streamlining paperwork for federal staff would allow additional time in the field to work one on one with producer and accelerate the installation of practices.

The West Virginia Department of Agriculture requests that the federal government allow the voluntary approach to continue. This approach is working and the assumption that increased regulation will have more dramatic results is not demonstrated. The State has not exhausted its voluntary approach for assisting producers. It is not the time to make the transition to stringent regulations while the State is in the process of implementing regulations that are targeting our largest operations.

CONCLUSION

West Virginia has a proven track record of success using a voluntary approach. This remains a vital part of improving and protecting water quality in the State. While a stringent regulatory approach may be *status quo* in other jurisdictions, West Virginia's voluntary approach is working and is highly respected by our producer and regulatory partners. We respectfully request

that you evaluate West Virginia's success with our existing approach, and that you consider additional funding to provide more staffing and program dollars to support to the agriculture community. This will allow for the continuation of agricultural water quality improvements as the Bay Program moves forward.

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APPENDIX I Senate Bill No. 715

ENROLLED

COMMITTEE SUBSTITUTE

FOR

Senate Bill No. 715

(Senators Snyder, Unger, Helmick, McCabe, Plymale and Kessler, *original sponsors*)

[Passed April 11, 2009; in effect ninety days from passage.]

AN ACT to amend the Code of West Virginia, 1931, as amended, by adding thereto a new section, designated §22-11-30, relating to the protection of the Chesapeake Bay Watershed; and nutrient reductions projects.

Be it enacted by the Legislature of West Virginia:
That the Code of West Virginia, 1931, as amended, be amended by adding thereto a new section, designated §22-11-30, to read as follows:

**ARTICLE 11. WEST VIRGINIA WATER POLLUTION CONTROL ACT.
§22-11-30. Chesapeake Bay Restoration Initiative.**

(a) The Legislature finds and declares that:
(1) The Chesapeake Bay and its tributaries are valuable natural resources providing both recreational and economic opportunities to citizens living in and around the Chesapeake Bay watershed. Eight West Virginia counties, and a collective population of more than two hundred thousand citizens, are within the Chesapeake Bay watershed. The protection and promotion of the environmental health and integrity of the Chesapeake Bay is accordingly in the best interests of the State of West Virginia.
(2) The Chesapeake Bay has been identified by the United States Environmental Protection Agency as an impaired water due to excess nitrogen and phosphorous entering the bay from its various tributaries. These pollutants, commonly referred to as nutrients, result in depleted dissolved oxygen supplies and other factors which impact the overall health of the Chesapeake Bay and its watershed.
(b) West Virginia is among six states from which nutrients flow into the Chesapeake Bay. In order to restore the Chesapeake Bay, these states have agreed to reduce the amount of nutrients contributed to the Chesapeake Bay by sources located within their respective jurisdictions. (c) Among the sources of nutrients discharged into the Chesapeake Bay watershed are wastewater discharged by West Virginia wastewater treatment facilities, stormwater discharged from various sources, wastewater

discharged from agriculture-related activities and other sources of wastewater related to both natural and man-made impacts which are not specifically set forth herein. (d) The need to provide and maintain affordable and high- quality public infrastructure services and to safeguard existing industrial and agricultural sectors of the economy in the Chesapeake Bay watershed are essential to the continued economic growth and quality of life of West Virginia communities within the watershed. Protection of these communities' economic vitality and the Chesapeake Bay are critical interests of the state. The capital costs of nutrient removal processes, if borne by individual rate customers of sewer services or by individual business owners, would result in significant increases in rates for an essential public service, deferral or cancellation of other critical infrastructure extensions and/or improvements and act as a disincentive for business growth, both commercial and agricultural, in these communities, if not the shrinking of industrial and agricultural activity in the watershed. Therefore, a holistic program, while assuring the protection of the Chesapeake Bay, must include: (1) A nutrient trading and off-set program to allow for efficiencies within the watershed to assure that public moneys are placed to best use; and (2) a capital improvement program to assist those required to install capital improvements to obtain the reductions in nutrients previously agreed to by the state.

(e) The secretary, in consultation with affected stakeholders, is hereby directed to establish no later than June 1, 2012, a program of nutrient trading and off-sets. Pending establishment of such a program, the secretary is authorized to consider and implement interim trading and offset programs as necessary and appropriate for individual permittees in order to protect the Chesapeake Bay and its tributaries.

(f) The secretary is hereby directed, no later than June 1, 2010, and in consultation with affected stakeholders, to report to the Joint Legislative Commission on State Water Resources the status of proposed performance standards necessary for wastewater treatment facilities in the Chesapeake Bay watershed for any reduction of nutrients in the watershed required to protect water quality in the Bay.

(g) The secretary and stakeholders shall, no later than June 1, 2012, consider and recommend to the Legislature a program establishing a new and independent source of funding for capital improvements made necessary by the imposition of nutrient removal requirements. (h) The secretary shall, pursuant to the requirements of the West Virginia Water Pollution Control and applicable rules, modify existing West Virginia/National Pollutant Discharge Elimination System permits containing limitations for the discharge of phosphorous and nitrogen into the Chesapeake Bay watershed so as to make said limitations effective and final only upon the completion of the requirements set forth in subsections (e), (f) and (g) of this section and no later than June 1, 2014. Further, upon the approval by the Legislature of the requirements as set forth in subsections (e), (f) and (g) of this section, and no later than June 1, 2014, the secretary shall further modify those permits set forth in this subsection and further grant affected entities a reasonable period of time to attain affordable compliance with any requirement related to the discharge of nitrogen and phosphorous into the Chesapeake Bay watershed.

(i) Should it be determined based upon new information or the issuance of a final total maximum daily load for the Chesapeake Bay that modifications to nutrient loading requirements contained in West Virginia/National Pollutant Discharge Elimination System permits are necessary to be consistent with this new information or the final

total maximum daily load, the secretary shall recalculate such loading requirements and modify such permits consistent with this information.

APPENDIX II Supplemental Material

<u>Report</u>	<u>Page</u>
Conservation Reserve Program (Continuous and General Signups) and Conservation Reserve Enhancement Program.....	17
West Virginia Conservation Activities that Benefit the Chesapeake Bay.....	18
Farmland Protected in West Virginia's Eastern Panhandle.....	19
West Virginia Voluntary Farmland Protection Status.....	20
Decision Matrix for Watershed Prioritization West Virginia Potomac Tributary Strategy.....	21
Forest Legacy Program Conservation Easements.....	22

West Virginia – Bay Area

**CRP – Conservation Reserve Program (Continuous and General Signups)
and
CREP – Conservation Reserve Enhancement Program**

County	Total No. of Contracts	CRP/CREP Acres				Average Rent/Acre	Practice Acres			
		CREP	Continuou s	General	Total		Cropland	Wetlands	MPL	Tree
Berkeley	13	83.8	--	150.1	233.9	\$59.58	195.7	27.4	38.2	38.2
Grant	47	1183.4	--	--	1183.4	77.52	37.2	--	1146.2	1146.2
Hampshire	139	1689.4	--	317.1	2006.5	75.02	623.8	--	1382.7	1558.4
Hardy	21	97.6	--	--	97.6	78.92	1.2	--	96.4	96.4
Jefferson	11	58.4	40.7	50.4	149.5	60.68	91.1	--	58.4	90.8
Mineral	2	5.3	--	--	5.3	83.00	--	--	5.3	5.3
Pendleton	10	70.2	16.6	--	86.8	69.15	--	--	86.8	86.8
Morgan	0	--	--	--	--	--	--	--	--	--
BAY TOTALS	243	3188.1	57.3	517.6	3763	\$71.98	949	27.4	2814	3022.1
STATE TOTALS	383	4111.5	245.7	732.5	5089.7	\$71.12				
Bay % of State Total	(63%)	(76%)	(23%)	(71%)	(74%)					

Rent 3763 (acres) x \$71.98 (average rent) = \$270,860.74 (annual rent) x 12 (average years) = **\$3,250,328.88**

Signing Incentive Payment 3763 acres x \$100 acre = **\$376,300**

CREP Cost Share = **\$2,070,445**

CREP Practice Incentive Payment = **\$1,656,356**

Total Federal CRP/CREP Funds paid/committed to the Bay Area on 3,763 acres = \$7,353,429.88

Grassland Reserve Program

GRP is administered by NRCS, which handles approved easements, and FSA, which deals with approved rental contracts. GRP is designed to maintain land in grassland to put grassland into reserve that is threatened with being converted to other uses such as cropland, developed land, etc. The information listed is very close and is based on direct contacts with the counties in the Bay.

GRP - 3 easements totaling 242.2 acres - (\$376,141 paid) - Hampshire and Grant Counties

GRP - 10 rental contracts on 579.9 acres (\$59,130 paid and committed) - Grant, Hampshire, and Hardy Counties. Source Water Protection Program

The Source Water Protection Program is administered by the Farm Service Agency and is funded and employed through the WV Rural Water Association. The intent of the program is to concentrate/study/record source water pollution and how drinking water can be improved as it relates to and from agriculture impacts.

West Virginia Conservation Activities that Benefit the Chesapeake Bay

1996 Farm Bill - NRCS had a total of 138 contracts for \$883,610 in Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, and Pendleton Counties. These contracts addressed many resource concerns including water quality.

2002 Farm Bill – NRCS had a total of 445 EQIP contracts for \$8,283,723; 111 WHIP contracts for \$791,850.77; and 64 AMA contracts for \$570,255.

In years 2005-2008, some contracts specifically identified “*Water Quality*” as the resource concern:

2005 – 35 EQIP contracts for \$648,546

2006 – 40 EQIP contracts for \$1,196,549

2007 = 36 EQIP contracts for \$1,230,854 and 10 WHIP contracts for \$176,060

2008 = 38 EQIP contracts for \$1,649,002 and 5 WHIP contracts for \$97,237

Potomac Headwaters Watershed Project - The goal of this project is to protect the water quality in the Upper Potomac River Watershed in Hardy, Hampshire, Grant, Mineral, and Pendleton counties. The project covers 1,787,850 acres in 22 hydrologic unit areas. Of concern is nutrient and bacterial contamination of the Potomac River as a result of concentrated agricultural production. Project consists of installation of dead bird composters, animal waste storage structures, livestock confinement areas, nutrient management plans, and riparian buffer zones. 269 long-term contracts were developed with farmers in the participating area. Project sponsors are the Potomac Valley Conservation District and the West Virginia State Conservation Committee. This project protects water quality in 1,779 miles of tributaries to the Potomac River. Recreation, aesthetic values, and 61 domestic water supplies are protected. Total federal investment \$7 million; cost share – 60% federal / 40% local.

Farmland Protected in West Virginia's Eastern Panhandle

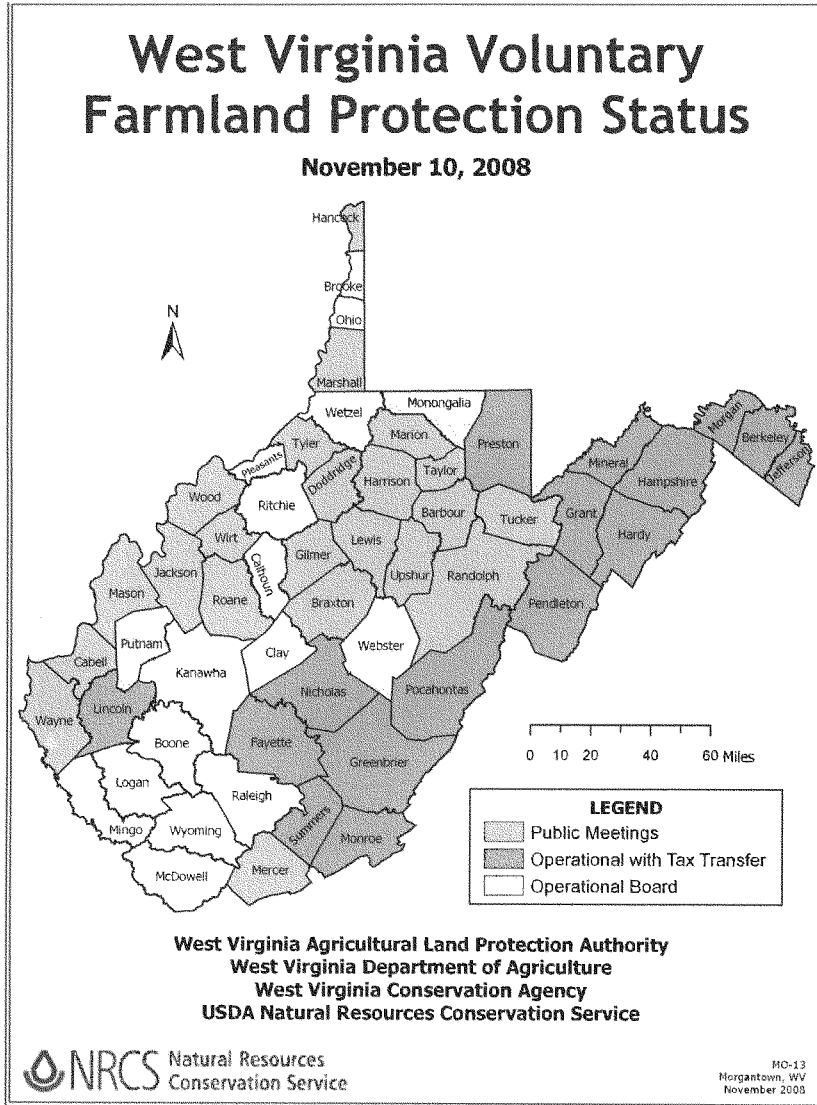
Berkeley	2,198 acres
Jefferson	1,566 acres
Morgan	417 acres
Mineral	None
Hampshire	506 acres
Hardy	570 acres
Grant	429 acres
Pendleton	None

Total 5,686 acres protected

Forest Legacy Program Conservation Easements

Completed:	764 acres
Funded in acquisition in progress:	2900 acres
To be funded later in 2009:	2300 acres (Acquisition to be started when grant is in place)
Applying for funding for 2011:	5300 acres

All acreage is within the Chesapeake Bay Watershed. (Hampshire, Grant, Pendleton, Morgan Counties)



Major Basin		Watershed (HUC-10)										
Decision Matrix for Watershed Prioritization WV Potomac Tributary Strategy												
		Nitrogen Impairment Index	Phosphorus Impairment Index	Impaired High Quality Streams (Inches)	TMDL (in lbs)	App. Cultural BMP Implementation / Landowner Participation	Watershed Group Activity	Population Growth	Nitrogen Delivery Factor	Score Water Protection Use	Total Score (unweighted)	Total Score (weighted)
		0.37	0.33	0.05	0.02	0.19	0.13	0.38	0.14	0.34		
62070004-Potomac Direct Drains	6207000409 - Onego Creek	1.000	1.000	0.000	1.000	0.800	1.000	0.409	0.949	1.000	8.08	6.11
62070004-Potomac Direct Drains	6207000402 - Shenoy Creek	0.348	0.318	0.721	0.572	0.600	1.000	0.862	0.939	1.000	5.17	3.75
62070001-S. Branch Potomac	6207000105 - Outlet South Branch Potomac River	0.857	0.579	0.550	0.487	0.700	0.800	0.191		0.277	4.76	3.95
62070004-Potomac Direct Drains	6207000412 - Run yearth Run-Potomac River	0.346	0.361	0.061	0.064	0.500	0.800	0.424	1.000	0.149	4.72	3.95
62070001-S. Branch Potomac	6207000105 - South Fork Sixes Branch Potomac River	0.621	0.672	1.000	0.750	0.500	0.800	0.224		0.165	4.74	3.31
62070002-Shenandoah	6207000201 - Redfish Run-Shenandoah River	0.395	0.374	0.066	0.489	0.800	0.800	0.383	0.758	0.316	4.19	3.14
62070001-S. Branch Potomac	6207000101 - North Fork South Branch Potomac River	0.516	0.476	0.311	0.489	0.600	1.000	0.266	0.919	0.186	4.41	3.13
62070004-Potomac Direct Drains	6207000410 - Harlan Run, Camp Spring Run-Potomac River	0.444	0.219	0.081	0.141	0.800	1.000	0.241	0.885	0.096	3.75	2.96
62070000-Catawba	6207000003 - Lost River	0.370	0.287	0.377	0.278	0.800	1.000	0.689	0.915	0.003	3.84	2.72
62070004-Potomac Direct Drains	6207000404 - Bass Creek					0.800	0.800	0.616	0.885		3.69	2.69
62070001-Catawba	6207000104 - North River	0.277	0.121			0.500	1.000	0.632	0.885		3.42	2.54
62070001-Catawba	6207000102 - Little Catawba River	0.185	0.145	0.099	0.600	0.600	0.800	0.535	0.885	0.095	3.44	2.53
62070002-Omnadach	6207000202 - Long North Run-Shenandoah River				0.800	0.800	0.800	0.356	0.758	0.103	3.17	2.33
62070001-S. Branch Potomac	6207000101 - Headwaters South Branch Potomac River	0.404	0.347	0.220	1.000	0.500	1.000	0.105		0.156	2.97	2.25
62070001-S. Branch Potomac	6207000107 - Potomac Creek	0.499	0.533	0.345	0.200	0.200	0.800	0.153	0.759	0.187	2.74	2.07
62070001-S. Branch Potomac	6207000104 - South Hill, Green Hill Creek	0.246	0.315	0.021	0.025	0.800	0.800		0.725	0.072	2.84	2.06
62070002-N. Branch Potomac	6207000202 - Stony Stream, Br. Potomac River	0.463	0.497		0.600	0.600	0.600		0.029	0.029	2.77	2.02
62070004-Potomac Direct Drains	6207000403 - Little Creek	0.238	0.241	0.141	0.089	0.600	0.600	0.494	0.001	0.001	2.37	1.95
62070004-Potomac Direct Drains	6207000405 - Warm Spring Run-Cherry Run-Potomac River	0.148	0.138		1.000	0.300	0.300	0.346	0.913	0.106	2.39	1.67
62070002-N. Branch Potomac	6207000204 - New Creek, Br. Potomac River	0.191	0.144		0.800	1.000	0.800	0.332	0.779	0.147	0.885	0.671
62070002-N. Branch Potomac	6207000208 - Green Spring Run, Br. Potomac River				0.800	0.800	0.800	0.729	0.033		0.729	0.033
62070004-N. Branch Potomac	6207000401 - Little Dry Branch, Fork Shenandoah River	0.162	0.167			0.800	0.800	0.220	0.758		0.220	0.758

WV Potomac				Report	
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Information Submitted by the West Virginia Department of Environmental Protection to the Senate Committee on Environment and Public Works

West Virginia's direct involvement with the Chesapeake Bay water quality initiative began in 2002 when headwaters states were invited to participate in the effort to remove the Bay from the impaired waters list. Since that time the West Virginia Department of Environmental Protection (DEP), the West Virginia Department of Agriculture (DOA) and the West Virginia Conservation Agency (WVCA) have worked cooperatively to develop tributary strategies and an implementation plan to reduce the share of the nitrogen, phosphorous and sediment loads assigned to the state.

Commissioner Gus R. Douglass whose testimony was presented on August 3, 2009, has been a supporter of WV's participation in the Bay Program and has devoted significant resources to water quality monitoring activities in the Potomac watershed in support of implementation. The North Fork of the South Branch Potomac River, in fact, was one of WV's and the nation's first Total Maximum Daily Load (TMDL) success stories and relied heavily on the involvement and support of the agricultural community.

All three WV partner agencies, DEP, DOA and the WVCA share the continuing concern that funding to support WV's involvement is not commensurate with the expectations or the actual work that WV staff is contributing to the effort. For five years, WV shared an annual grant of \$250,000 among the three agencies while the Bay Compact states each received over \$2 million every year. DEP receives \$85-90,000; DOA receives \$80,000 and the WVCA receives \$75-80,000. Each agency funds one Full Time Equivalent (FTE) in the Potomac drainage. Implementation progress and success is a function of the resources available for education and technical support. In FY-09 WV received double its previous grant appropriation but because of future uncertainty decided to allocate all of that increase to on-the-ground projects as opposed to increasing staff. Even though WV matches the grant with \$250,000 of state in-kind activities, we cannot be expected to "keep up" with the other state programs or maintain our own state program with this level of support.

Commissioner Douglass provided testimony and support information on the agricultural activities in WV's Eastern Panhandle. In the non-agricultural arena, between 1990 and 2000, population in the Eastern Panhandle counties increased by 11.3% or approximately 10,000 people. While that may seem minimal in comparison to the downstream states, pressures on water and sewer infrastructure as well as housing, roads, and schools increase as expansion of the region continues. Housing starts in the region during the same period increased by 20.2%. While the recession has slowed WV's growth considerably, future expansion of the Washington/Baltimore Metro area into outlying areas will cause increasing burdens on the infrastructure and resultant nutrient loads.

To address the point source loadings DEP has included effluent limits for nitrogen and phosphorus in new and reissued permits since late 2005 (when Maryland promulgated its

standards). For existing municipal facilities, a compliance plan must be submitted by the permittee within one year informing the agency how it intends to pursue to achieve the requirements of the permit. For new and expanding facilities the limits are in effect upon permit issuance along with offsets for the additional loads.

In comparison with the partner states, WV does not have the fiscal ability to designate millions in general revenue annually to Publically Owned Treatment Works (POTW) upgrades, create a "Flush Fund" or provide Growing Greener funds to support point and nonpoint source projects to address Chesapeake Bay nutrient reductions. Obviously with the recent downturn in the economy our partner states are also struggling to maintain their momentum in implementation. In the 2009 Legislative session WV passed legislation called the "Chesapeake Bay Restoration Initiative" intended to initiate a process to develop funding options for municipal POTW upgrades to meet nutrient reductions. In addition the legislation charged the DEP with the responsibility for developing a Chesapeake Bay trading program by 2011.

The WV Tributary Strategies and Implementation Plan were developed on the assumption that, with appropriate funding baywide, each jurisdiction could achieve its share of the nutrient reductions and a TMDL could be avoided. Obviously, the increase in federal funding that was anticipated has not materialized and the 2010 target for delisting the Bay will not be met. Continuing to set and push back deadlines damages the credibility of all participants. Correctly characterizing the problem and pursuing reasonable, realistic implementation efforts will be critical in maintaining over time a level of credibility in all the respective state programs. WV is prepared and willing to continue its participation in the Chesapeake Bay Program as the TMDL process evolves. Load allocations and anticipated reductions are still being developed which, we trust, will be appropriately and equitably representative.

DEP appreciates the opportunity to provide this information for the record.

Respectfully submitted by:

William D. Brannon, Deputy Director
West Virginia Department of Environmental Protection
Division of Water and Waste Management
601 57th Street
Charleston, West Virginia 25304

August 6, 2009

Senator Thomas R. Carper

1. As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating - both to understand the role of air emissions and to address the impact of these emissions on water quality?

Release of nitrous oxides and subsequent atmospheric deposition from industry, power plants, gas powered vehicles, and equipment, as well as from farms from manure and fertilizer volatilization, comes from both inside and outside the Bay watershed and contributes as much as 28% of nitrogen load delivered to the Bay in some modeled projections. WV DEP Air program staff has been kept apprised as air related issues arise in various Chesapeake Bay Program working groups. We anticipate continued collaboration.

2. Runoff from our roads is a significant source of water pollution - contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?

We concur that runoff from roads are a significant source of water pollution contributing to erosion, flooding and contamination. We are aware that the latest Federal Highway Administration construction guidelines for transportation planning and design have improved for new construction, but are not currently knowledgeable of the best practices WV DOT might be using. West Virginia was a signatory to the letter recently sent to Congressmen Oberstar and Mica emphasizing the need to address the installation of storm water controls on existing highways. It is hoped that, at the federal level, this element will be fully evaluated and recommendations made as part of the Obama administration's May 12, 2009 Executive Order on Chesapeake Bay Protection and Restoration.

Senator James M. Inhofe

1. The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

It would be helpful to West Virginia if the US EPA were to develop federal technology based treatment standards for nitrogen and phosphorus for wastewater treatment plants with a mechanism for priority funding where nutrient impairments have been clearly identified. Because all wastewater treatment plants have nitrogen and phosphorus, nutrients are a problem throughout the country. Nutrient problems are difficult for states to handle individually because they are not always local, often occurring downstream. Funding, as grants, for implementation is also needed with projects prioritized based upon a documented need, i.e. a TMDL with waste load allocations or documented water quality impairment. West Virginia would also benefit from funding for state and local governments to manage our nonpoint source impacts and implement our nonpoint source programs.

The addition of funding is the greatest need to States. Cost share programs, such as those through NRCS, in the state have signups in excess of funding allocations. Through incentive based programs, there is an increased interest in installing practices or educating oneself about water quality. Additional staff in states from Federal Agencies will also benefit local water quality. At this time, the trend has been to reduce personnel while maintaining services. The demand is there, if personnel are on the ground and able to be in the field providing assistance.

The State of WV believes that the Federal Government can also provide additional assistance with water quality monitoring and data analysis. WVDA and WVDEP partner with USGS, but see a need for a greater presence and ability to assist in the State. This assistance will allow the State and the Bay program to have a better understanding of water quality throughout the region and better characterize the reductions being made throughout the state.

2. We understand that in order to have a successful Chesapeake Bay program, there must be wide spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful

environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

- **Drug Take Back Program –**
 - The Consumer Drug Return Program works with several West Virginia pharmacies to provide a safe and simple alternative way to dispose of unwanted medications. Once medications are returned to pharmacies, they are collected by commercial companies and properly incinerated. By using a certified hazardous waste hauler, harmful chemicals in many medications do not end up back in waters where they can pose serious health issues. Groups involved in this effort include Potomac Water Watch, West Virginia Rivers Coalition, Appalachian Center for the Economy and the Environment, Cacapon Institute, Friends of the Cacapon River, West Virginia Department of Agriculture, West Virginia Conservation Agency, West Virginia Department of Environmental Protection, West Virginia Division of Forestry and the West Virginia Division of Natural Resources. Potomac Water Watch is a supported partner of the Potomac Headwaters RC&D.

- **The West Virginia Watershed Network –**
 - The West Virginia Watershed Network is a group of state and federal agencies, as well as nonprofit groups, committed to providing resources for watershed management in West Virginia. The West Virginia Watershed Network is an informal association of interests with a mission to collaboratively support efforts necessary to empower local residents to make decisions for sustainable management of their resources. The WV Watershed Framework also provides seed grants to assist new local watershed groups in start up and project implementation.

- **West Virginia Implementation Committee**
 - The West Virginia Tributary Strategy Implementation Committee began its work in April 2003. This group is challenged with implementing a **tributary strategy** with nutrient and sediment reduction goals that will meet the cap load allocations set forth by the Chesapeake Bay Program. Load reductions of 33% for nitrogen, 35% for phosphorus, and 6% for sediment were established for West Virginia to achieve between 2002 and 2010. The Implementation Committee holds regular meetings and conference calls to discuss load reductions to the Bay and to collaborate on restoration and outreach projects within the West Virginia Bay Drainage.

- **WV Save our Streams**
 - WV Save Our Streams is a volunteer monitoring program that trains citizen scientists, how to monitor and become watchdogs over their local wadeable streams and rivers. The program uses a bioassessment approach, which involves the collection and assessment of the benthic macro invertebrates as well as an evaluation of the physical and chemical conditions. The biological integrity is assessed by calculating a variety of metrics, which are used to assign a score and rating to a monitoring station. The biological, physical, chemical data collected provides the volunteer with enough information to make a general assessment of their station. By monitoring additional stations, volunteers' can make an overall assessment of the health of their watershed.

- **Potomac Headwaters Land Treatment Program (PL-534)**
 - PL-534 is a unique program which uses both Federal and State funds to provide technical assistance to livestock and poultry producers in the development and implementation of nutrient management plans and to provide needed cost-sharing assistance for the installation of water quality improvement practices for livestock and poultry operations.

Producers were able to solve resource conservation and management problems, made possible with technical and financial assistance. A low-interest agricultural water quality loan program sponsored by the Potomac Valley Conservation District allowed producers to borrow money for their 40% of the cost of the project at a reasonable rate.

- **Septic Pumping Program**
 - In winter 2008-2009 in the Sleepy Creek, Mill Creek (tributary of the South Branch Potomac River), and Mill Creek watersheds of (tributary of Opequon Creek), WV there was a one-time reimbursement program to encourage homeowners to have their septic tanks pumped. Many people signed up because they knew their tanks were full, but others signed up after calling to learn more. Therefore, this project resulted in increased public knowledge about proper septic system maintenance, and set the stage for septic system replacement projects in all three watersheds using Clean Water Act Section 319 funding. Along with septic pumping, this project also provided targeted information packets on septic maintenance and care to residents.

- **Project CommuniTree**
 - The WV Project CommuniTree promotes urban tree planting and public education through volunteerism on a regional scale. The

program also focuses on enhancing and promoting awareness of watershed and riparian area needs such as storm water management, water quality issues, buffer zone planting and soil erosion. The project is entirely volunteer based and engages stakeholders in the process of making priority decisions within their respective communities and offers a strong educational message along with a physical planting component. The WV Project CommuniTree slogan is "Building Communities from the Roots Up".

- **Trout Unlimited – Potomac Headwater Home Rive Program:**

- In 1994 Trout Unlimited (TU) started the Home River Program, which focused on an array of large-scale watershed projects. In response to issues experienced throughout the Potomac River's upper basin, TU concentrated efforts throughout the North Branch of the Potomac River, South Branch of the Potomac River and their tributaries. Several agencies, including but not limited to, the Farm Service Agency, National Fish Habitat Initiative and the Dominion Foundation, put forth efforts on numerous nutrient management projects.

West Virginia has learned that a cooperative effort allows agencies and non-profits to reach more of their target audience and provide more collaborative resources while maintaining and fostering sustainable long term programs. These partners have shown that regulatory, non-regulatory and private interests can work together to achieve common goals. Though the long term relationships that have been developed, there is also a strong level of trust when introducing new ideas and concepts.

3. Please describe what your state is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

The West Virginia Conservation agency has spent almost 2 million dollars in 319 monies in the West Virginia Portion of the Bay Draining. One major focus has been on projects in the North Fork of the South Branch of the Potomac River which was used to compliment the PL-534 program. Funding has also been used for septic pumping, natural stream restoration and agricultural BMP installation in the Lost River, Sleepy Creek and Mill Creek watersheds. These programs have all had strong participation from local individuals and producers and have worked to increase awareness in non-point pollution and what can be accomplished to reduce runoff to waterways.

WVDA and WVCA have also been focusing a portion of their bay funding on installation of Agricultural BMP's in focused watersheds. This allows some

producers to look at nontraditional funding opportunities for practices that reduce nutrient inputs.

4. Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some examples of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?

The state has relied heavily on federal dollars to implement programs through agencies such as NRCS and EPA. Notable programs include EQIP, 319, CREP, GRP, WHIP and the PL534 program. Through these programs, many cost share dollars have been spent locally. In the last ten years, the West Virginia portion of the bay drainage has had over 24 million dollars spent on cost share dollars to install BMPs. Producers have also spent 8.6 million dollars in out of pocket contributions for the installation of BMPs.

The State and Federal Partners have put forth an effort to use outreach and education to help limited dollars go further. Allowing states to modify programs and practices will reduce the one size fits all approach and will only increase participation and improve water quality. Programs that have not been successful are those that put too many restrictions on participant's ability to make changes.

5. Does your state have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?

West Virginia has a decision matrix that we use to establish where our limited resources will be focused. We are not certain the current 2025 target is reasonable or achievable. The proposed 2 year milestones are resource intensive to develop and report, but they may help us to move forward more quickly. Using a 5 year milestone would allow the development of goals in a watershed or area and would allow a practical timeline. It is not reasonable to expect measurable outcomes in such a short time span. Decision making while working with diverse groups takes time and the turn around is faster than some organizations have the ability to work. The decision to have two year milestones is difficult for West Virginia; with limited staff, employees will only be able to rework timelines and develop milestones without time to develop on the ground practices.

6. Please discuss some of the important strides your state has made with educational, voluntary efforts in reducing pollution. Why are voluntary programs working so well for West Virginia? What can other states learn from your education efforts?

West Virginia is a firm believer in education and outreach utilizing a voluntary effort. This has worked well statewide and successes are evident. In 2003, through a multi-agency voluntary effort, the North Fork of the South Branch of the Potomac River was removed from the 303(d) list of impaired waters due to fecal coliform.

Important educational strides we have made while working with community in voluntary programs are buy-in, strong relationships, and trust. With this voluntary approach, we have fostered relationships with the local community as a whole, including farmers, citizens, business/industry, and other government agencies. This voluntary approach has been very successful; West Virginia firmly believes that a regulatory approach would not have been as effective, fostering distrust and backlash from our partners.

Throughout the partnerships that have been fostered, we have developed outreach programs at local fairs and festivals, workshops, school programs and community outreach activities. Some programs include CommuniTree, Conservation Field Days, Chesapeake Bay Educational Retreat and regular presentations to local community groups such as Ruritans.

7. I appreciate your emphasis on the fact that we need to be not only protecting our waters, but our safe, affordable diverse food supply. Do you believe that protecting water and growing food are mutually exclusive?

Protecting water quality and a safe food supply are not mutually exclusive. Clean water is imperative to local livestock and crop producers. Without the ability to produce a diverse food supply locally, we only hurt farm community, but we take away the local option to buy local products. The continual loss of farm land only hinders the ability to improve water quality, and increases urban runoff to the bay when land is developed. The continued emphasis on further regulation of agriculture without giving programs a chance to work or preventing producers from doing the right thing, will only drive agriculture production out of the state and region to overseas production. A local food supply is vital not only to the local economy, but our national security. In order to maintain the strength of the nation, we cannot be reliant on foreign food products. In the eastern panhandle of West Virginia, agriculture is also the number one employer in Hardy, Grant and Pendleton Counties. The poultry industry supplies over 3,000 jobs to the region and helps maintain water quality in the headwater region of the Bay.

8. What are some of the pitfalls of excessive regulation of the farming community? What can we do to ensure we don't set up a Chesapeake Bay program that leads to excessive regulation?

Additional regulations for agricultural producers in the State will not improve the Bay and will only result in excessive regulation. The Bay drainage in West Virginia only represents 14% of the land area in the State and would force the implementation of unnecessary regulations on the entire state. The State is not prepared to deal with this and the loss of agricultural land in the Eastern Panhandle would most likely continue to increase at a higher rate. This valuable agricultural land would then be converted to additional urban development and make reduction goals even more difficult to meet and continually increasing urban loading.

The state cannot support excessive regulation because of the backlash, uncertainty and distrust that it creates. This will create regression in programs, because producers will be more unwilling to do the right thing. Other States have stated that extreme regulations have burdened not only their citizens but their regulatory agencies. Consequently, this creates backlogs and prevents real issues from being addressed.

9. In your testimony, you mentioned West Virginia's new CAFO standards. When states develop their own standards, how long does it take to see results? At what point does your state re-evaluate the standards? What steps will you take to assess the effectiveness of your program?

West Virginia is proposing to adopt the federal CAFO rule with little deviation. We anticipate that results will begin to be seen immediately as this rule has been on the horizon for quite some time, however, it will take several years for all farms to be fully informed and in compliance with the state regulations once passed. West Virginia regulations will get reevaluated as they become modified at the federal level. Initial effectiveness will be monitored based upon the number of permits requested in comparison to the number of permits expected, number of nutrient management plans developed and implemented, number of best management practices planned and implemented and over time based upon water quality monitoring results.

Senator CARDIN. Thank you very much, Commissioner Douglass. I can assure you that we share your concern about preserving farmland and open space. We think it is critically important to the Chesapeake Bay, and we share that goal. We will have a chance to talk about the best way to do that.

Senator Brubaker, it is a pleasure to have you here. Pennsylvania has been a leading player in the Chesapeake Program from its inception. We could not have made progress without the leadership in the State of Pennsylvania.

STATEMENT OF HON. MICHAEL W. BRUBAKER, VICE-CHAIRMAN, CHESAPEAKE BAY COMMISSION, SENATE OF PENNSYLVANIA

Mr. BRUBAKER. Thank you, Senator, for those comments.

Chairman Cardin, Senator Carper, it is my privilege and honor to be here today. Thank you for the invitation.

My name is Mike Brubaker. I am a Pennsylvania State Senator, representing the 36th Senatorial District, which includes a part of Lancaster County, most of Lancaster County, and part of Chester County. I am honored to represent Pennsylvania today at this hearing and offer my support for your efforts to reauthorize section 117 of the Federal Clean Water Act.

The current language of section 117 has played a vital role in the establishment of the Chesapeake Bay Restoration Program and has served as a central catalyst for the multi-jurisdictional campaign. However, the time has come to revamp this law, to give it new fuel by adding Federal authorities, mechanisms of accountability, and enhanced financial support that will collectively leverage even greater actions at the local and State level.

By way of background, approximately half of Pennsylvania lies within the Chesapeake Bay watershed, and Pennsylvania's Susquehanna River supplies 50 percent of the fresh water to the Chesapeake Bay. Pennsylvania is responsible for the largest share of pollution reductions to achieve our Chesapeake Bay water goals.

Almost my entire senatorial district lies within the Chesapeake Bay watershed, and I am proud to serve as Chairman of the Pennsylvania Delegation to the Chesapeake Bay Commission and Majority Chairman of the Pennsylvania Senate Agriculture and Rural Affairs Committee.

I am also an agronomist, a plant and soil scientist with over 30 years of working with farmers in the northeast part of the United States. I have also worked with the Chesapeake Bay related organizations since the year 1980. I have also written hundreds of nutrient management plans myself.

While Lancaster County may be known for its most productive farmland, some of the most productive farmland in the world, we have a large population of plain sect Amish and Mennonites. Lancaster County is a very diverse and growing county. It is no stranger, also, to suburban development and the continual challenges of economic development and environmental protection. Lancaster County has 500,000 residents, and believe it or not, 12 million visitors each year.

I am going to skip some of my testimony so I can keep on time.

Importantly, while sources of impairment to the Bay are simple, excess nitrogen, phosphorous and sediment are the clearly the focus, and also as clearly, there is not a one-size-fits-all solution to this very complex problem.

Second, the Bay program's work must be science based. As a legislator, I frequently work with Bay Program data, and I work with that inside of my policy decisionmaking processes. While not always perfect, this information is very good and open to the public for review.

Now for the shortcomings of the program. The Bay Program has not historically focused on implementation, or more precisely, accountability for implementation. It has instead focused on research and policy. As a result, we have not sufficiently driven reductions of nitrogen, phosphorous and sediment from existing sources, primarily agriculture and wastewater treatment plants.

In Pennsylvania, we are reducing nitrogen loads at the rate of 1.2 million to 1.5 million pounds of nitrogen reduction per year. Most of those reductions have come from the implementation of agricultural best management practices spurred by State nutrient management regulations, Federal regulation of concentrated feeding operations, and State and Federal cost share programs like those in the Federal farm bill.

Unfortunately, Pennsylvania still has more than 30 million pounds of nitrogen reductions to meet our goal. Thus, our progress toward a clean Chesapeake Bay has been slowed, and we have to play catch-up.

I see my time is nearing conclusion. So let me skip. I heard you say that my entire testimony is submitted, correct?

Senator CARDIN. Your entire testimony will be included in the record, and we will be looking at that. But if you need an extra minute or two, take it, please.

Mr. BRUBAKER. Well, thank you.

In the year 2008, I, as a Republican, joined with my fellow Commission member and Lancaster County State Representative Mike Sturla, a Democrat, to convene a bi-partisan Lancaster County Chesapeake Bay Tributary Task Force. The Task Force consists of more than 50 businesses, agriculture, local government, and scientific leaders in Lancaster County to address our Chesapeake Bay responsibilities in a way that makes fiscal sense and environmental sense for our community.

I would be very happy to submit a copy of this book. I am very proud of this organization, this bi-partisan mostly private sector organization. Every member that chose to come from the community chose to come and put our differences aside, work cooperatively on solutions without the Federal Government, without the State government, without anybody telling us what to do.

And it is just absolutely amazing when you allow people to come to the table voluntarily, with one goal in mind, to figure out how can we do business, how can we allow our businesses to grow, and still at the same time reduce our environmental footprint and enhance our contribution to the Bay. It is a real success story.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Brubaker follows:]

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AGING & YOUTH

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APPROPRIATIONS

CHESAPEAKE BAY COMMISSION
(PENNSYLVANIA CHAIR)

LABOR & INDUSTRY

LOCAL GOVERNMENT

STATE GOVERNMENT

**TESTIMONY BEFORE SUBCOMMITTEE ON WATER AND WILDLIFE
U.S. SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS
AUGUST 3, 2009**

Chairman Cardin, Ranking Member Crapo, and members of the Subcommittee:

Good afternoon and thank you for the opportunity to present testimony to you today.

My name is Mike Brubaker. I am a Pennsylvania State Senator, representing the 36th Senatorial District, which includes a large part of Lancaster County and a small part of Chester County. I am honored to represent Pennsylvania at today's hearing and to offer my support for your efforts to reauthorize section 117 of the Federal Clean Water Act. The current language of Section 117 has played a vital role in the establishment of the Chesapeake Bay Restoration Program and has served as a central catalyst of the multi-jurisdictional campaign. However, the time has come to revamp the law – to give it new fuel by adding new Federal authorities, mechanisms of accountability, and enhanced financial support that will collectively leverage even greater actions at the state and local level.

By way of background, approximately half of Pennsylvania lies within the Chesapeake watershed, and Pennsylvania's Susquehanna River supplies 50% of the fresh water to Chesapeake Bay. Consequently, Pennsylvania is responsible for the largest share of pollution reductions to achieve our Chesapeake Bay water quality goals. Almost my entire District lies within the Chesapeake Bay watershed, and I am proud to serve as Chairman of the Pennsylvania Delegation of the Chesapeake Bay Commission and Chairman of the Pennsylvania Senate Agriculture and Rural Affairs Committee.

While Lancaster County may be most known for its productive farmland – it is the most productive non-irrigated farmland in the nation – and its large population of plain sect Amish and Mennonites, Lancaster County is in fact a very diverse and growing county, no stranger to suburban development and the continual challenges of economic development and environmental protection. If you look at Chesapeake watershed maps

of agricultural nitrogen loads, wastewater treatment plant nitrogen loads, and projected population growth, Lancaster County jumps out in dark red in all three.

In that sense, Lancaster County is a microcosm of the entire watershed. With that perspective I will offer my testimony to you on your stated purpose of this hearing, which is to evaluate the successes and shortcomings of the Chesapeake Bay Program. I will start with the successes.

In its almost 30-year history, the Chesapeake Bay Program has set the standard for federal-state partnerships. It recognized from the beginning that watersheds know no political boundaries, and that jurisdictions must work together, in partnership, for improvements to occur. While the Bay Program structure is, admittedly, large and complex, it recognizes the diversity and scope of this 64,000 square mile watershed. Importantly, while the sources of impairment to the Bay are simple – excess nitrogen, phosphorus, and sediment – there is no one-size-fits-all solution to the problem.

Secondly, the Bay Program's work is science-based. As a legislator, I frequently factor Bay Program data into my policy decisions. While not always perfect, this information is very good and is open to public review. Additionally, Bay Program scientists are regularly updating their understanding of the Bay and its watershed, so that the information is continually improving. Current and comprehensive information is critical to effective policy making.

Now, for the shortcomings: The Bay Program has not historically focused on implementation, or more precisely accountability for implementation; it has instead focused on research and policy. As a result, we have not sufficiently driven reductions of nitrogen, phosphorus and sediment from existing sources, primarily agriculture and wastewater treatment plants. In Pennsylvania, we are reducing nitrogen loads at a rate of 1.2 to 1.5 million pounds per year. Most of those reductions have come from implementation of agricultural best management practices spurred by state nutrient management regulation, federal regulation of concentrated animal feeding operations, and state and federal cost-share programs like those in the Federal Farm Bill. Unfortunately, Pennsylvania still has more than 30 million pounds left to go to meet our Chesapeake Bay goal.

At the same time, we have allowed new sources – residential and commercial development, roads, and parking lots – to continue to proliferate. As a result, urban and suburban lands are the only sources of runoff that are increasing in the watershed.

Thus, our progress toward a clean Bay has been slowed, and now we have to play catch up. For us to accelerate reductions, we must hold all sources of nitrogen, phosphorus, and sediment accountable for implementing the practices that we know will improve water quality. We must also hold ourselves accountable as public officials.

This will mean new incentives, new regulations, and even new consequences. In a multi-state multi-sector effort such as this, the Federal government needs to play a leadership role.

We must do this while also ensuring that growth continues. Growth is both inevitable and necessary to a healthy economy. However, good decisions on how and where growth occurs can prevent the need for costly retrofits down the road. This is where local governments become key partners in our effort.

Local governments have control over land use decisions. Without acknowledging the important role that local governments play in addressing pollution controls, pollution reductions and accountability as they relate to growth, we will never achieve the significant new progress that is required. This does not mean the federal government and the state government should not play a role. Indeed, they remain critical partners, whether it be through aggressive stormwater standards for building the roads that support growth or conditioning public funding for projects on green design and construction.

Pennsylvania has begun to address the growth issue by limiting new or expanding wastewater treatment plants in the Chesapeake watershed to a zero net discharge of nitrogen and phosphorus. While this approach is not without its controversy nor challenge to the building community, it was accompanied by the creation of a nutrient trading program in the Commonwealth, thus allowing for the purchase of offsets to achieve the zero net discharge requirement. Although the trading program is moving through some growing pains of its own, the Commonwealth's actions have had some surprisingly positive results – most notably, bringing a diverse group of stakeholders to the table.

In 2008, I, a Republican, joined with my fellow Commission member and Lancaster County State Representative Mike Sturla, a Democrat, to convene the Lancaster County Chesapeake Bay Tributary Task Force. The Task Force consists of more than 50 business, agriculture, local government, and scientific leaders in Lancaster County to address our Chesapeake Bay responsibilities in a way that makes fiscal and environmental sense for our community.

It has only been a clear discharge cap, plus the flexibility presented by trading, that has enabled us to seriously begin to address water quality improvements at a community-wide scale. This cap must apply to not just new growth, but to all sources. Farms must do more. Sewage treatment plants must do more. So must homeowners. And golf courses. And the list goes on.

Through a cap and trade system, much like what was achieved through the Clean Air Act, we can provide the certainty of clear expectations with the flexibility to achieve

goals in a cost-effective manner. Additionally, everyone in the community is brought into the process, as we look for new and innovative pollution reductions. In fact, I and my staff are ever more frequently contacted by private sector individuals to inform us about new technology that is being developed – technology that may not have been economically feasible absent a trading program, but that has the potential to ultimately lower the total cost of water quality improvement.

I mentioned that clarity and flexibility are both keys to any future success in Pennsylvania. I believe that is also the case watershed-wide. Clear delineation of federal, state, and local responsibility is important for public accountability and planning on behalf of the regulated community. At the state level, we have begun this process by agreeing to an implementation deadline of 2025, and by agreeing to set two-year milestone goals along the way. At the federal level, EPA is developing a Bay-wide TMDL (total maximum daily load) and President Obama signed his Executive Order regarding Chesapeake Bay. We anxiously await the reports that are being developed at the agency level pursuant to that Executive Order. Finally, local communities and decision-makers must have a clear understanding of what is expected of them and how they can achieve it, along with the legal and financial tools to make it work.

However, states and communities must also have the ability to design a strategy that is the most cost-effective and equitable for them. As I stated earlier, one size does not fit all.

Thank you again for the opportunity to testify. I am happy to entertain any questions you may have.

**Answers of Senator Mike Brubaker
Follow-Up Questions for Written Submission
Environment and Public Works Committee
Water and Wildlife Subcommittee Hearing
August 3, 2009**

Submitted September 1, 2009

Questions from:

Senator Thomas R. Carper

I. As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating - both to understand the role of air emissions and to address the impact of these emissions on water quality?

- A. Approximately 1/3 of the nitrogen load to Chesapeake Bay comes from air emissions, mostly in the form of nitrogen oxides (NOx) and ammonia. The sources of these emissions include automobiles, power plants, industries, and agriculture. About half of the atmospheric nitrogen load comes from sources outside of the watershed.

While only nine percent of the Bay's atmospheric nitrogen goal has been met as of 2008, it is estimated that current federal regulation of air emissions, when fully implemented, will be sufficient to meet the goal.

At the state level, there are several initiatives that will help to reduce atmospheric nitrogen from Pennsylvania. Alternative Energy Portfolio Standards (AEPS) require an increasing percentage of energy to come from renewable sources such as wind, solar, and biomass, thus reducing emissions from traditional electricity generation and promoting the use of manure for energy, relieving some of the burden of land application. New odor control regulations for new and expanding animal feeding operations will minimize the release of odorous compounds, such as ammonia, that also contain nitrogen. Additionally, voluntary programs such as those to reduce idling of diesel engines and to promote the use of alternative fuels will also reduce atmospheric nitrogen emissions.

While reductions of nitrogen to Chesapeake Bay will result from the above programs, the purpose of those programs is air quality, not water quality. However, reductions from those programs were calculated during development of the 2004 Chesapeake Tributary Strategy, and similar calculations will be made during development of Pennsylvania's implementation plan for the Chesapeake Bay TMDL. The AEPS alone is expected to reduce over 21,000 tons of NOx annually.

One notable exception to air programs and water programs being developed separately is the current Chesapeake Biofuels Project. Co-championed by the Chesapeake Bay Commission and the Commonwealth of Pennsylvania, the Project has evaluated the potential water quality impacts of an emerging biofuels industry in the region, has made several specific policy recommendations to mitigate negative impacts and promote potential water quality benefits, and is currently in the process of developing a “next-generation” biofuels goal for the region using feedstocks and best management practices that will position the region as a leader in the biofuels industry while also improving water quality.

2. Runoff from our roads is a significant source of water pollution - contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?

- A. Pennsylvania has recently adopted an updated and detailed manual for stormwater management. This guidance document promotes a new way of looking at stormwater. Instead of removing stormwater from a site and discharging it directly into a surface stream as quickly as possible, best management practices that slow or hold water to promote infiltration, maintain pre-construction hydrology, and remove pollutants is encouraged. The American Association of State Highway Transportation Officials (AASHTO) also has guidance materials available.

Federal NPDES permits require that highways implement practices to the “maximum extent practicable” to minimize water quality impacts. However, federal highway funding for stormwater mitigation currently competes with other environmental and transportation goals, minimizing the resources that are available to make meaningful mitigation “practicable” while pollution from highway discharges continues to result in real impacts to local streams and Chesapeake Bay. By having public funds and meaningful standards for mitigation available up front, taxpayers will avoid more costly retrofits down the road. With over 2/3 of the nation’s impaired waters impaired due to highway runoff, water quality will only be achieved when highway sources are addressed.

Furthermore, transportation planning at both the state and federal level should consider the indirect effects of highway construction, such as associated development. The growth of impervious surface in the watershed is growing five times faster than the population, and urban and suburban sources of nitrogen, phosphorus, and sediment to Chesapeake Bay are the only loads that are increasing. The federal NEPA review process is one opportunity for improved consideration of these impacts.

Senator James M. Inhofe

1. The Clean Water Act says that “It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and

eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

- A. With a 64,000 square mile watershed, the impact of six states and the District of Columbia's land, water and air management decisions is felt within the waters of the Chesapeake Bay. The diverse sources of pollution and the multistate involvement in this complex effort to restore Chesapeake Bay require a strong partnership that can hold individual jurisdictions accountable for impacts beyond their borders while also fostering cooperation.

Section 117 of the Clean Water Act establishes the Chesapeake Bay Program as a Federal and multistate partnership to restore and protect the Chesapeake Bay. This unique Federal and state partnership, established in 1983, continues to bring together diverse regional interests to further the restoration of the Bay.

Under EPA's leadership the Bay states have developed common goals to restore the Chesapeake Bay and have also been given the flexibility to achieve those goals by their own means. It is imperative that EPA maintain the pivotal supporting functions for these efforts by implementing and coordinating science, research, modeling, support services, monitoring, data collection, technical assistance, and education. The Chesapeake Bay Program Office also coordinates EPA actions with those of other Federal agencies and the states in developing strategies to improve water quality and living resources in Chesapeake Bay and conducts outreach programs for public information, education and participation to foster stewardship of the resources of the Bay. Other Federal agencies that play critical roles in the Bay partnership include the National Oceanic and Atmospheric Administration, U.S. Department of Agriculture, Corps of Engineers, National Park Service, U.S. Geological Survey, the Forest Service and Fish and Wildlife Service.

As part of the Clean Water Act, in 1987 Congress established the section 319 Nonpoint Source Management Program because it recognized the need for greater Federal leadership to help focus State and local nonpoint source efforts. Under section 319, states receive Federal grants to support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects. This is another prime example of how the Federal government can continue to assist and support in the cleanup of the Bay without violating States' rights.

2. We understand that in order to have a successful Chesapeake Bay program, there must

be wide spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

- A. The cap and trade program established to reduce sulfur dioxide emissions under the 1990 Federal Clean Air Act is an example of a successful, bipartisan, market-based approach to environmental improvement. Similarly, Pennsylvania's nutrient trading program has brought very diverse interests to the table. Agriculture, waste water treatment plants, builders, and government are all engaged toward a common goal – achieving the most cost-effective nutrient reductions. By creating a market value for nutrient reductions, entrepreneurs are encouraged to develop new technology. Much of this technology is centered around bioenergy, creating additional benefits to small farms and non-ag firms, communities, and the region. On a local note, Lancaster County has undertaken a planning initiative centered around the benefits to public health and quality of life that stem from local natural resources and environmental health. These benefits are being promoted to attract and grow business development in the county.

3. Please describe what your state is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

- A. The primary focus of Pennsylvania's non-point source pollution control has been agriculture, due to the amount of agricultural land use in Pennsylvania's part of the watershed and its relative cost-effectiveness in achieving nutrient and sediment reductions. Pennsylvania also has significant water quality impairments due to abandoned mine drainage (AMD). While AMD mitigation has benefits to downstream waters, the relative expense of AMD remediation means that the primary purpose of AMD mitigation practices in the Commonwealth is for local water quality improvement and not specifically for Chesapeake Bay.

Section 319 funds are an important part of Pennsylvania's strategy, and are leveraged through state "Growing Greener" grant funds, the Commonwealth's "Resource Enhancement and Protection" (REAP) transferable tax credit program, and federal Farm Bill conservation programs. These dollars are further leveraged by county support for conservation districts and cooperative extension personnel, who are key partners in our non-point source reduction efforts, and by farmers themselves. Recently, the Commonwealth and its partners have agreed to promote a set of "core conservation practices" on farms. The four categories of practices are nutrient management, no-till farming, cover crops and streamside buffers. These are well-

understood practices that are proven to result in cost-effective water quality improvement and can be applied throughout the watershed.

These voluntary programs supplement several regulatory programs in the Commonwealth, such as those for erosion and sediment control, stormwater management, manure and nutrient management and concentrated animal feeding operations. Under the Commonwealth's stormwater management program, counties are required to develop stormwater management plans, including a water quality component. These plans are designed to meet the requirements of the federal Phase II NPDES program.

Over 5,000 Pennsylvania farms are subject to phosphorus-based nutrient management plan requirements, including farms who import manure from a concentrated animal operation or concentrated animal feeding operation. Commercial manure haulers and brokers are subject to regulation and certification in Pennsylvania. Any entity who discharges pollution to surface water is subject to the Commonwealth's Clean Streams Law.

Pennsylvania is currently reducing between 1.2 and 1.5 million pounds of nitrogen annually to Chesapeake Bay. Almost all of those reductions come from non-point source efforts, as nitrogen limits for point sources have only been added to the most recent round of permits.

4. Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some examples of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?
- A. One example of a plan that did not work was the initial Chesapeake Bay Tributary Strategy for point sources, which required treatment to a level of 8 mg/l of nitrogen and 1 mg/l of phosphorus. It also required a common date of compliance for all "significant" sources. After much consultation with the wastewater treatment community, it was agreed that permit limits would actually be further strengthened to 6 mg/l nitrogen and 0.8 mg/l phosphorus, and a three-phase permit process would be created. Phase one would include the largest plants and those closest to design capacity, with phases two and three bringing in the smaller and farthest from capacity plants later. By changing the approach and recognizing differences among plants, resources have been freed to focus on the largest plants first, allowing the Commonwealth to achieve its point source goals even sooner than the original plan.
- A second program that allows flexibility is the nutrient trading program. By having an option available for wastewater treatment plants other than physical upgrades, it allows communities to make choices that work for them, based on the unique situation of each. They can choose to go ahead with the upgrades, opt for the purchase of credits instead, or design a plan that uses a combination of upgrades and credit purchases. Some communities are choosing to implement

upgrades at a level beyond their permit requirements, so that they are in a position to sell credits. Beyond the wastewater treatment plant itself, communities can also look to local farms or other non-point sources of pollution for credits, thereby investing in other sectors of the local economy. A few counties, such as Lancaster and Lycoming, are using the opportunities presented by nutrient trading as a way to plan at the county scale.

Of course, any successful trading program must have an enforceable cap. Currently, wastewater treatment plants are subject to a defined cap for nitrogen and phosphorus discharges through the NPDES permit system. Before a point source can generate credits, they must achieve a level of treatment beyond the permit requirement. Before a non-point source can generate credits they must achieve reductions beyond a baseline standard of best management practice implementation.

5. Does your state have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?

- A. Pennsylvania has joined with the other Bay states and the Chesapeake Bay Commission in agreeing to two-year milestones toward an end goal for implementation of 2025.

6. In your testimony you mentioned the Lancaster County Chesapeake Bay Tributary Task Force and how you are seeking to address environmental responsibilities in a way that makes fiscal and environmental success. Please share some of the lessons you have learned from this with the committee. Do you think these lessons can be applied to the greater Chesapeake Bay?

- A. We have learned that as a community, across sectors of government, industry, and agriculture, we want to do the right thing. However, there must be some predictability and ability to plan for the cost of what is required, and economic growth must be accounted for. As leaders, we must communicate the knowledge and understanding that we have of the benefits of clean water and a healthy environment to the individual members of the community. In the case of Lancaster County and other communities in Pennsylvania and other "headwater" states, benefits must be defined in terms of local water quality. Finally, we must structure a plan that includes everyone in both the burdens and benefits, in a cost-effective manner. We can no longer point fingers at one sector or another as "the problem" when each one of us in some way contributes to water quality impairment.

7. You discuss clarity and flexibility as keys to any watershed approach. Where can the Federal Government play a role in ensuring that States have programs that are both clear and flexible?

- A. States must be given clear expectations of performance – clear expectations for loads of nitrogen, phosphorus, and sediment to Chesapeake Bay. This effort is already underway through development of the Chesapeake Bay TMDL by EPA. These standards should be fair and science-based. However, the history of the Chesapeake Bay Program has recognized that throughout the 64,000 square mile watershed there is a great disparity in climate, economy, land use, and population. Therefore, the states should be given the flexibility to choose how those performance standards are met, with the federal government holding the states accountable for achievement.

Senator CARDIN. Well, thank you for your testimony but, more importantly, thank you for your action. It is not apparent on the surface Pennsylvania's role in the Bay. As you pointed out, the Susquehanna is the largest supplier of fresh water. We could not have made a progress on Bay without aggressive action by Pennsylvania.

Your leadership has been incredible over the years, and we really do thank Pennsylvania for that.

Commissioner Tierney.

STATEMENT OF HON. JAMES M. TIERNEY, ASSISTANT COMMISSIONER FOR WATER RESOURCES, NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Mr. TIERNEY. Thank you, Mr. Chairman. And thank you, Senator Carper. I just came in from Delaware where I am vacationing, and it is looking good, the water is looking good in there. It is all right.

I submitted testimony. So I am going to try and skip right to some key bullet points for your consideration.

One of the first things I would like to recognize is the fact that Chuck Fox has arrived on the scene with a special focus from EPA, which is showing up in things like Presidential Executive Orders and Federal agency coordination and the like, which is highly beneficial, and I think that is a terrific thing that the Administration has done.

And Jeff Lape, who has coordinated the Chesapeake Bay Program for years, comes to New York, knows us, works with us, and we really do appreciate the attention that he gives us and that open line of communication.

What you will hear a lot in Chesapeake Bay talk is EE3: everything by everybody everywhere. And that we are going to have to get fairly close to that in order to solve the problem. What is truly involved in EE3 is quite something. Every septic system or 90 percent of them. Things like that. Every road ditch, every retrofit fit, you know, basically retrofitting the built environment, the excavated environment, and the farmed environment.

There is a lot that will be discussed there, and I think EPA is taking a leadership role in framing a lot of what is involved in that. But it does not solve the overall Chesapeake Bay problem.

New York's portion of the Chesapeake Bay is highly rural, contrary to the popular understanding of the New York environment. It is 70 percent forested. It is a lot of dairy agriculture in that area. It really is very rural. And protecting that rural landscape, those wetlands, those streams, the mountains, and the forests effectively, protecting what you have already got is a big thing.

So what we may want to think of in terms of the reauthorization or policy or oversight work going forward is an EE3 for natural resource protection. Governor Paterson is a strong supporter to the Clean Water Restoration Act, for example. That we want to restore the jurisdiction over waters that we have lost in the Rapanos decision and some of those other Supreme Court decisions that have harmed the level of jurisdiction over the natural resources that naturally clean and protect the water.

As a Senator from Maryland, I think you would be very interested, and very supportive, of course, in an EE3 free airshed, par-

ticularly for NO_x, SO_x. Maryland just gets hammered by out-of-State emissions of air pollution that waft into your State. Put aside water quality, think about kids with asthma, and the impacts on health of the elderly, heart attacks and the like, but also that NO_x, that nitrogen, entering the Bay.

The estimates range from between 20 to even as high as 30 percent of the nitrogen in Chesapeake Bay comes from air deposition. Nitrogen, as you probably know, is very difficult to remove once it is on the landscape. It does not absorb to soil, so it tends to get there somehow. So you have to stop it at the source, at that smokestack, hopefully even at the low nitrogen fertilizer and the like.

A third thing that we have to think about beyond the built environment is technology standards. This is very important. EPA needs to get the technology standards, and that is different than water-based quality standards, for wastewater treatment plants out of the cellar. We do not really have a national floor right now, we have a national cellar. We need them to get that up on the first floor and maybe start to reach toward the ceiling a bit more.

That program helps push standards nationally. For instance, the secondary treatment level of technology for wastewater treatment plants nationally is now some 30 years old. The technology is way beyond that. We need to move on. And it also gets us out of this daily grind of TMDLs. You know, basin by basin, point source by point source, planning and programming. It helps jump us ahead quickly.

The fifth thing I would like to talk about is that we need to think in terms of a basin approach, not simply a Bay approach. If you want my farmers and my rural country people and my foresters up in New York to be interested in the Bay, we have to do something for them as part of this program. They are interested in flood hazards. There are a lot of flash floods and the like there. A flood plain mapping, source water, drinking water source water protection, wetlands and wetlands construction, and good forestry maintenance and even buying the land, where appropriate.

We think all those things together kind of bring the hope that the Bay will ultimately run clean. And it is New York's hope to be a part of that partnership and a successful partnership down the road.

I will stop my comments there, Mr. Chairman.

[The prepared statement of Mr. Tierney follows:]

**Testimony of James M. Tierney, Assistant Commissioner for Water Resources
New York State Department of Environmental Conservation
Before the
United States Senate Environment and Public Works Committee
Water and Wildlife Subcommittee
“A Renewed Commitment to Protecting the Chesapeake Bay: Reauthorizing the
Chesapeake Bay Program”
August 3, 2009**

Chairman Cardin and members of the Water and Wildlife Subcommittee, thank you for this opportunity to be here today. My name is Jim Tierney and I am the Assistant Commissioner for Water Resources with the New York State Department of Environmental Conservation in the administration of Governor David A. Paterson. It is my pleasure to share with you New York State's perspective of the effectiveness of the Chesapeake Bay Program to date, and on additional measures the federal government should take to protect and restore water quality and living resources of the Chesapeake Bay and Basin.

New York: An Up-Basin State

New York is an “up-basin” state with areas in the Susquehanna and Chemung River watersheds that ultimately feed into the Chesapeake Bay. This region of New York includes 13% of the state, and extends up to 440 miles from the Bay. The area is about 70% forested, with intermixed agricultural areas consisting of mainly small, financially troubled, dairy farms. In short, the area is predominantly rural and lower income. Wastewater treatment plants located in the Susquehanna/Chemung region contribute an estimated 1% to Chesapeake Bay's pollutant load. Recent estimates are that New York provides about 10% of the Bay's water but somewhere less than 5% of the pollutants.

New York State's efforts to protect water quality in this region have contributed to decreased impairments of Chesapeake Bay. We estimate that if water quality in the Bay had the nitrogen, phosphorus and sediment concentrations of the water leaving New York, the Chesapeake would probably not violate federal water quality standards. There are very few, and very localized, violations of water quality standards within New York's portion of the Chesapeake Basin.

Funding and Supporting a Watershed Basins Approach

A comprehensive environmental agenda for New York State is a critical component of Governor Paterson's vision for the state's future. Our efforts include flood hazard planning and mitigation; stream restoration; flood plain mapping and management; drinking water source protection; primary aquifer mapping and protection; climate change adaptation, and wetland protection and creation. A key aspect of the

Governor's program is a robust New York State action plan for the Chesapeake Basin, known as the "Tributary Strategy."

For New York to succeed in these and other efforts, strong federal leadership and financial support is vital. Given the low-income, poor and distant communities of the Susquehanna/Chemung region of New York State, federal assistance is needed to ensure that we continue to protect the water quality of this area and, going beyond New York's borders, assist in the efforts being made by the federal government and other states to attain the national goal of restoring Chesapeake Bay.

We support a "watershed basin" approach to reducing pollution loadings at the source and protecting the natural resources that, in turn, protect water quality. Under a true watershed basin program, stabilized streambanks or wetlands constructed to mitigate flooding up in Sidney, New York, would be equally important as stabilized shorelines or marshes constructed to reduce nutrient and sediment discharged in Baltimore, Maryland. This approach will meet local needs while building the full partnerships that will better ensure the restoration of Chesapeake Bay. Congress needs to direct the U.S. Environmental Protection Agency (EPA) and the states to undertake a comprehensive Chesapeake *Basin*, not simply Chesapeake Bay, program. This should be reflected in any reauthorization Congressional oversight. One basic measure to consider in reauthorizing the Chesapeake Bay Program, therefore, is to have less of a distinction between "signatories" and headwater states. This would better ensure funding equity.

Refocusing Existing Chesapeake Bay Efforts: Stronger National Standards

Some express support for the geographical targeting of all federal resources to places where the most pollutant reduction from the existing built environment will be gained for the Bay. While it may look like more "bang for the buck," this strategy rewards areas that experienced massive over development in the face of known water quality impairment, fails to address water quality issues of local import in up-basin areas, and does not operate to protect the high quality water resources that already exist in the basin. Clearly, areas of poor water quality should improve and receive equitable funding. They also may be the appropriate focus of the enforcement authority granted to EPA by the Clean Water Act – so as to not simply reward past sprawl with public money.

One clear path forward to protect water quality is to facilitate the reversion of land uses near waterways to better mimic natural conditions. Many tools already exist to further this goal, the simplest of which are wetland construction, stream bank and floodplain restoration and public ownership of riparian corridors. New York encourages Congress to direct the Chesapeake Bay Program to provide significant funding to accomplish this broad goal.

The EPA and the other Chesapeake Basin states also have tended to focus attention on particular problems in individual rivers, estuaries and watersheds. Such an approach fails to recognize, however, that many of the Basin's water bodies suffer from the same abuses from our ever expanding development footprint, including nutrient enrichment and bioaccumulation.

It is highly work intensive to address each individual waterway within the present Total Maximum Daily Load protocol. Since the Clean Water Act was enacted in 1972, great strides have been made to achieve the state-of-the-art treatment at the time, the "secondary treatment" standard. Thirty-seven years later, basic treatment technologies and understandings of runoff impact have increased dramatically, so that additional research is not needed. Now is the time to raise the national floor of technical standards and effluent limitations. We need to ensure that national standards are consistent with existing technology, especially for nutrients. An EPA focus on standard setting will allow the states to focus on their strengths: implementing programs; assessing localized problems, and developing local solutions.

Given the magnitude of nutrient and sediment reduction needed to restore Chesapeake Bay and the cost to implement innumerable nonpoint source management practices and wastewater treatment improvements, it is imperative that pollutants first be controlled at their sources, before being managed on the landscape or removed by end-of-pipe treatments or edge-of-field controls. End-of-pipe treatments in particular, while relatively effective, are typically energy intensive and do not help us to meet policies necessary to address climate change. Opportunities exist to reduce pollutants at the source, including air emissions of NO_x, phosphorus waste from dishwashing detergent, lawn fertilizers, domestic animal access to streams and manure spreading on frozen ground. While states can enact policies, rules and regulations, federal leadership is needed for consistency and sufficient regional scope.

New York State's Commitment to the Chesapeake Basin

As a relatively new player in the formal Chesapeake Bay Program, New York remains steadfast in its commitment to aggressively pursue implementation of its Tributary Strategy, which can be found on our web site at <http://www.dec.ny.gov/lands/33279.html>. This strategy was formally adopted in 2007 and, from a non-point source control perspective in particular, is a detailed grass roots plan with realistic levels of individual implementation of control practices, provided that enough time, money and staff are available.

Since 2007, New York has fenced animals out of several thousand streamside acres, constructed several hundred acres of wetlands and riparian buffers and upgraded the largest wastewater treatment plant within the New York portion of the Basin, which makes up about 25 percent of the total wastewater volume from New York. Heightened permit conditions have been placed on 27 smaller waste water plants. And, New York's stormwater general permits are far more stringent than the national

minimum.

New York's Concentrated Animal Feeding Operation (CAFO) program covers farms as small as 200 mature dairy animals (or animal equivalents). It is a binding clean water permit program administered by New York State DEC. In place since 1999, New York's CAFO program requires implementation of comprehensive nutrient management plans developed and modified by certified planners, as well as the implementation of structural and non-structural pollutant controls. Active monitoring and enforcement programs are maintained. New York's CAFO program covers approximately 40% of the entire dairy herd in the basin. There are 88 covered and permitted CAFOs. It is estimated that only two of these CAFOs would be permitted under EPA's recently enacted program – thus, New York's CAFO program goes well beyond the level of environmental protection that would be required by the federal government.

For this and other programs, New York has been and will continue to be accountable for its commitments and actions taken. As you may recall, New York has not been a party to the recent series of congressional inquiries and criticisms of Chesapeake Bay Program progress and accountability.

New York's record of environmental stewardship is demonstrated by the paucity of water quality problems in the Susquehanna basin and the strength of its water and air regulatory programs (including year round NOx controls on major air emissions and mandatory post-construction stormwater controls). That essential factor, coupled with the lack of growth and related economic stimulus in the State's Susquehanna Region, clearly warrants additional federal investment. Investments in New York activities are good investments in water quality protection.

New York State Models for Action

On a smaller scale, the New York City Drinking Water Watershed Program is an example of a successful basin program where plans and commitments, coupled with sufficient funding necessary for implementation, have led to significant protection of water quality. The cost of constructing water filtration for over nine million users is projected to be at upwards of \$10 billion. New York State and New York City together have made significant yet far smaller water quality investments which are successfully protecting this Watershed. Land acquisition and wastewater treatment improvement are among the key cornerstones of this protection program.

Similarly, the Long Island Sound region which New York shares with our neighbors in Connecticut faced tremendous environmental impairments. Through a Long Island Sound program which the two states are implementing, this interstate water is receiving the attention that it deserves, and is slowly recovering from manmade environmental impairments. The TMDL for nitrogen in Long Island Sound, developed in 2000, required a 58.5% total nitrogen load reduction. The first phase of implementing this TMDL focused on incorporating nitrogen control technology in 102 sewage treatment

plants in New York and Connecticut, using a combination of state, federal and local funds. DEC's implementation of this program has been rigorous, and does not allow for slippage.

Programs such as the New York City Watershed and the Long Island Sound Study serve as models for how the Chesapeake Basin Program can more cost effectively serve the needs of all the people and natural resources within its borders.

The Need for Congressional Action

Through existing federal programs, such as the National Pollutant Discharge Elimination System; nonpoint source controls; State Implementation Plans to address air pollution, and many other tools, EPA already has the ability to achieve many of the pollutant reductions needed in the Chesapeake Basin. Through the efforts of the 111th Congress, DEC hopes that additional tools will become available to benefit this region and the nation as a whole.

For example, swift Congressional passage of the Clean Water Restoration Act (S. 787) will ensure that EPA and the Army Corps of Engineers have the clear authority needed to protect America's rivers, lakes, streams and wetlands. The Water Infrastructure Financing Act (S. 1005), introduced by Senator Cardin and rightly called "landmark legislation" by Senator Boxer, authorizes the funds that states need for stormwater management, water conservation, or efficiency projects, reuse and recycling projects. On behalf of Commissioner Grannis and Governor Paterson, I want to thank Chairman Cardin and the other members of the Subcommittee for their work on these highly important measures.

In any Congressional action specifically designed to revamp the Chesapeake Bay Program, in addition to the above legislation, it is imperative for New York to retain state priorities and flexibility in its approach to pollution reduction. A brief example of the potential disconnects that we face: there is one relatively large, 1,200 acre reservoir in New York that is listed as impaired from nutrients primarily from agriculture, yet in the 2007 Farm Bill this reservoir is not a priority watershed for implementation because it acts as a nutrient "sink" with less nutrient export to the Bay than from other larger river segments. This is an example of how State priorities need to be considered for federal attention and funding.

Conclusion

New York is optimistic about the future of Chesapeake Bay and the entire watershed that supports it. New York intends to heighten its attention to specific actions over the short term that can be undertaken to reduce phosphorus, nitrogen and sediment dischargers in the Susquehanna River Basin and encourages the federal government to pursue similar goals. If we look too far ahead we may lose sight of what we should be doing. DEC respectfully urges Congress to look beyond the Bay to enact and update

federal programs and standards that will assist water resource protection efforts across the country. Think big! On behalf of Commissioner Grannis, I want to thank you for this opportunity to testify

Questions from Senator Carper

As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating – both to understand the role of air emissions and to address the impact of these emissions on water quality?

The link between air pollution and water quality is strong, and is both a national and a Chesapeake Bay issue. Air deposition of nitrogen is estimated to comprise at least 30% of the loading into Chesapeake Bay. We experience a similar level of air emission pollutant loadings to Long Island Sound. Nitrogen is a very difficult pollutant to remove once it is distributed on the landscape; this is because nitrogen is not effectively filtered by soils, causing it to reach water bodies either by surface water or ground water flows. A strong focus, therefore, needs to be upon limiting nitrogen air emissions at their sources throughout the Chesapeake "air-shed," which is substantially different than its watershed.

By way of example, New York has worked for decades to reduce acid rain, the sole source of numerous impaired (even "dead"), lakes in the Adirondack Mountains. In so doing, New York has been on the forefront of implementing year round smoke stack emission controls of nitrogen or NOx. New York has also been very aggressive in implementing NOx controls to address the severe health hazard posed by smog and ground level ozone, with significant benefits to water quality. The same benefits have resulted from New York's consistent adoption of the more stringent "California" car emission standards. Similarly, to address the large number of waters with mercury fish consumption advisories due to atmospheric deposition, New York and the six New England states, jointly developed the Northeast Regional Mercury Total Maximum Daily Load ("TMDL"). This TMDL, which demonstrated that the vast majority of mercury floats in from out-of-state sources, was approved by EPA in 2007. **We hope that EPA will take effective national action to address both nitrogen and mercury air emissions in a manner that is at least consistent with the strong regulatory protocols that New York has already put in place.** New York or the Chesapeake Basin States cannot do it alone, as the interstate transport of pollutants from upwind sources often constitute very significant water pollutant sources.

We agree with EPA's Chesapeake Bay Program estimate that about one third of the nitrogen load that the bay receives originates from atmospheric deposition. Some experts suggest it could even be higher. Cornell University professor Robert W. Howarth suggests it may be 25% to 50%. We should take full advantage of his expertise on the global alteration of nutrient cycles, climatic influences on nutrient fluxes from large river basins, the sources of nutrients that reach estuaries and coastal oceans, and the consequences of coastal nutrient pollution. A copy of his testimony before the House Water Resources and Environment Subcommittee in April 2007 is enclosed for your information.

In May 2007, EPA's Chesapeake Bay Program's Scientific and Technical Advisory Committee and the Center for Integrated Watershed Studies at Binghamton University co-sponsored a technical symposium entitled: *Atmospheric Deposition of Nitrogen: Estimating local emission*

sources, near-field deposition and fate on the landscape. A focus of this symposium was the deposition of nitrogen in close proximity to the site of emissions. Such emissions have been identified as a source whose impact is likely to be underestimated. One example of a significant nitrogen source that may not be well understood is that from evaporated chicken urine ventilated from massive chicken rearing coops along the eastern Chesapeake Bay.

Runoff from our roads is a significant source of water pollution – contributing to flooding, erosion and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goal?

In May 2009, Governor Paterson co-signed a letter with the other Chesapeake Basin Governors supporting Congressional legislation to ensure that all new roadway construction and significant reconstruction of Federal-aid roadways effectively mitigate the impact of storm runoff. Given that significant pollutant loading to the Bay originates from roads, better roadside water management of runoff presents a ripe opportunity to capture and remove pollutants.

Research presented by scientists with the Cornell Water Resources Institute has demonstrated that road side ditches are a very effective and rapid conduit for pollutants from sources on the landscape to our waters. “Greening” our roadsides to slow, hold and infiltrate the flow of water running off highways would go a long toward reducing pollutant loads. There are numerous simple techniques – such as bio-retention swales – that operate to significantly limit such pollutants, and help to limit peak storm flows as well. Providing federal funds to assist in the implementation of bio-retention swales on all roads in the basin would be highly beneficial to water quality.

The New York State Department of Transportation (NYSDOT) takes an active role in limiting runoff problems associated with roads. In September, 2008, the NYSDOT Commissioner announced a first-in-the-nation initiative (Green Leadership in Transportation and Environmental Sustainability – Green LITES) that encourages designers of NYSDOT projects to minimize impacts to the environment and promote sustainability in transportation designs. Green LITES requires NYSDOT to certify transportation project designs based on the extent to which they incorporate sustainable environmental choices.

In support of this initiative, and as a regulated municipal separate storm sewer system operator, NYDOT is conducting a number of implementation practice oriented programs, including contractor training on stormwater pollution prevention, outfall mapping, snow and ice control improvements, studying the effectiveness of various proprietary stormwater controls, and its Green (vegetation) and Blue (water) Highways initiative.

Questions from Senator Inhofe.

The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting the Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

New York supports EPA implementation of a strong and consistent national "floor" of standards (the "technology-based standards") that represent the technology that is reasonably available today. EPA's long-standing failure to update its various technology standards has opened the door to very inconsistent requirements for similar dischargers around the nation. National standards that represent current, rather than dated, technology would be of great benefit to the states – who are presently required to address water quality impairments through very burdensome "water quality based" effluent limitations; such limitations are developed on an intensive water-body by water-body and permit-by-permit basis. A strong national floor of standards also helps to prevent the "race to the bottom" problem, whereby states might seek to impose the least restrictive pollutant control standards to obtain a perceived economic advantage.

Funding is also key. The federal government should enhance base Clean Water Act program funding (i.e., § 106) to states and enhance implementation funding. The current focus of the Chesapeake Bay program seems to be upon retrofitting existing pollutant sources. States need funding for such retrofits, but also for mapping and protection of natural resources that benefit water quality. In many respects, federal action now to bolster states' efforts to protect high value resources is a cost effective approach over the long haul, as opposed to solely targeting federal efforts to restore the most degraded streams. Moreover, hard pressed states are having trouble staffing and administering their base water programs. We tend to lose sight of the significant gains accomplishable by merely doing well at what we are already supposed to do. Therefore, efforts to bolster Clean Water Act § 106 funding would be most welcome. Finally, federal resources to establish local watershed programs (for example to protect drinking water sources, mitigate flooding, construct wetlands) would provide local benefits and promote local buy-in, to the benefit of the bay. It is not simply a question of implementation money but the human capacity to review, approve and oversee projects to a successful conclusion.

We understand that in order to have a successful Chesapeake Bay program, there must be widespread buy-in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

New York State would like to draw your attention to the New York City water supply watershed protection program. Here, while the endpoint is specifically related to phosphorus, sediment and

pathogen reduction, the support of diverse stakeholders was ultimately garnered by developing and instituting a more comprehensive basin approach, including better flood mitigation through effective stream corridor management plans, economic development assistance for small businesses (including agriculture and homeowner septic systems), land acquisition and recreational opportunities. Sufficient funding (yes, it was not inexpensive), largely from the downstream "benefiter" went a long way toward garnering upstate buy-in.

The essential lesson learned is that more is gained by targeting a comprehensive suite of pollutants/water resource issues that not only address the downstream concern, but address local concerns as well. We all need to meet baseline standards, yet is clear the direct "benefiters" of enhanced protections need to provide or support substantial resources.

Please describe what your state is doing to implement nonpoint source pollution controls. What successes have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

New York, of course, has a series of general permits and guidance documents to address polluted runoff from construction sites, city streets (known as the "MS4" program), multi-sector industrial sites, and concentrated animal feeding operations. We would be glad to provide information on all of these programs.

New York's Nonpoint Source Management Program was established in 1990 and revised in 2000. The program's mission comprises three major components: (1) to control, reduce or treat polluted runoff through structural, operational or vegetative management practices; (2) to conduct local implementation, coordination and evaluation on a watershed basis; and (3) to coordinate all agencies and partners involved in managing nonpoint sources of pollution through the New York Nonpoint Source Coordinating Committee (NPSCC).

Toward this mission, New York defined long-term goals which placed special emphasis on three principal activities: (1) establishing and fostering partnerships to coordinate and implement county and local nonpoint source management; (2) assisting counties, local governments, landowners, and other organizations with incentives and funding to implement nonpoint source pollution controls and outreach; and (3) identifying approved nonpoint source management practices and supporting nonpoint source outreach and education activities.

The 2000 Nonpoint Source Management Program identified these four priority categories of nonpoint source pollution to focus the development and implementation of controls:

- Stormwater Management
- Onsite Wastewater Systems Management
- Hydrologic Habitat Modification
- Agricultural Environmental Management

The principal goal of the Stormwater Management Program is to prevent or correct such stormwater-related problems as closed beaches and shellfish beds, spoiled fishing and swimming, excessive weed growth, destruction of aquatic habitat, soil erosion, and flooding.

The principal goal of the Onsite Wastewater Treatment Systems (OWTS) Program is to target key communities for federal or state-funded mini-grants to inspect or manage onsite systems and work with federal, regional and state organizations to address community wastewater treatment needs with improved onsite systems, hybrid wastewater systems, or centralized sewers and treatment plants. Another important goal of the OWTS Program is to promote use of onsite systems as an alternative to, or in conjunction with, new sewers and expanded wastewater treatment plants, particularly in difficult topography or in communities that cannot afford the conventional centralized sewer and treatment system upgrades or installation

The principal goals of the Hydrologic Habitat Modification (HHM) initiative are to collaborate among stakeholders to: facilitate the protection and restoration of rivers and streams; promote needed institutional and administrative improvements; and cultivate local stewardship. The program's objectives include the development of science based tools and guidance, the training of stream professionals and other targeted audiences in appropriate stream restoration and protection methods and practices, raising awareness of projects that demonstrate reduced stream corridor impacts, and advancing education at the local level on sound land use and floodplain management.

The Agricultural Environmental Management (AEM) Program has four general goals. The primary goal is to enhance and grow a voluntary program by encouraging proactive environmental stewardship through adequate technical assistance and incentives. The AEM Program also is designed to project a consistent message to all stakeholders through coordinated and comprehensive communication. Finally, the AEM Program is intended to establish and nurture farmer, neighbor and community communications on a broad range of environmental concerns.

New York has established a unique funding structure to support pollution reduction projects: the Water Quality Improvement Projects Program (WQIP) for non-agricultural BMPs and the Agricultural Nonpoint Source Program for agricultural BMPs. This funding structure broadens the scope of project implementation beyond that of most states that rely exclusively on Section 319 funding.

The additional nonpoint source program activities in New York, beyond those of the NYS Department of Environmental Conservation, are coordinated through the NPSCC cited above. These include the key activities of the Agricultural Nonpoint Source Program (Department of Agriculture and Markets and the Soil and Water Conservation Committee), the Coastal Nonpoint Pollution Control Program (Department of State), the Drinking Water Source Water Protection Program (Department of Health), and the Transportation Environmental Science Program

(Department of Transportation). They also include the key local program activities of New York's County Soil and Water Conservation Districts, town agencies, and the planning and implementation activities of county health and planning departments and regional planning councils. These state and local institutions are key partners in implementing the BMPs funded through mechanisms described above and in providing education and outreach to citizens and businesses across the state.

New York State's successes are documented in annual reports to USEPA on implementation activities in each of these four priority areas. New York has documented pollutant load reductions from these nonpoint source implementation activities and reporting them in the USEPA Grant Reporting Tracking System. They include funding a wide range of installed BMPs for both agricultural and urban land uses across all areas of the state. In some cases, the pollutant load reductions have also significantly contributed to the restoration of certain waterbodies and their subsequent removal from the Section 303(d) list of impaired waterbodies.

Most witnesses advocated for a flexible approach to managing pollution against a "one size fits all approach". Can you give the committee some examples of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse need of the populations, urban, suburban, and rural?

While some flexibility is useful, we support a strong national floor of water quality standards, particularly in the area of technology-based standards.

In the context of interstate water resource concerns, states do need to a certain level of flexibility. For example, New York State water quality standards apply state wide. Yet, because New York is in an entirely different ecological/climate zone than say, Maryland, it is understandable that Maryland and New York water quality standards might be somewhat different.

To help assure various sectors of our state were comfortable with our Chesapeake Strategy, we engaged the various stakeholders early in the development process and left open some details, like exact location of management practices, knowing that the specific type and location of a practice was not as important as long as the practice is implemented somewhere and is effective at reducing pollution.

Ultimately, successful programs seem to have three essentially components: 1) a good plan or rule to follow, 2) the political will and money necessary to install controls and 3) the people or technical capacity to get the jobs done.

Does your state have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?

New York has concerns with equity principles currently offered for reallocating pollutant reduction loads. The portion of New York that is within the basin has not experienced growth and is 70% forested. Other portions of the basin have grown rapidly. New York provides about

10% of the water but only 5% of the pollutants to the bay. We wonder if an appropriate target is for other basins to seek to mimic the water quality in New York – so that those with the development and the associated economic benefit shoulder the major burden of pollutant reduction efforts. New York expects to continue to aggressively implement its pollutant reduction strategy but cannot be expected to shoulder a disproportionate amount of load reduction on account of down basin growth.

New York fully endorses the concept of short 2 year action agendas for specific implementation actions. Far away end dates appear less constructive in making specific actions happen and do not encourage effective accountability.

123

Once again, thank you for providing this opportunity to provide information on this important matter. Please do not hesitate to contact me if I can be of any further assistance.

Sincerely,

/s/

James M. Tierney
Assistant Commissioner for Water Resources

Enclosure



Cornell University

Department of Ecology and Evolutionary Biology

Robert W. Howarth, Ph.D.

Hearing on Non-point Source Pollution: The Impacts of Agriculture on Water Quality
2165 Rayburn House Office Building

April 19, 2007

Contact information:

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Professional qualifications and experience:

Howarth is a biogeochemist and aquatic ecosystem scientist. He is an expert on the global alteration of nutrient cycles, climatic influences on nutrient fluxes from large river basins, the sources of nutrients that reach estuaries and coastal oceans, and the consequences of coastal nutrient pollution. Howarth earned a BA in biology from Amherst College (1974) and a Ph.D. in biological oceanography jointly from MIT and the Woods Hole Oceanographic Institution (1979). He was on the staff of the Marine Biological Lab in Woods Hole, MA, from 1979-1985, and has been on the faculty of Cornell University since 1985. Since 1993, he has held an endowed professorship at Cornell: the David R. Atkinson Professor of Ecology & Environmental Biology. Since 2000, Howarth also has served as an Adjunct Senior Scientist at the Marine Biological Lab in Woods Hole.

Howarth is President Elect of the Estuarine Research Federation, the largest professional society in the world for scientists and managers who work in estuaries and coastal oceans; he will serve as President for 2 years beginning in the fall of 2007. Howarth also represents the State of New York on the Science and Technical Advisory Committee of the Chesapeake Bay Program. He is serving on the EPA Hypoxia Advisory Panel (a group charged with determining what new science has become available since the CENR "dead zone" assessment of 1999, and how this new science should influence policy). From 1998-2000, Howarth chaired the National Academy of Sciences' Committee on Causes and Consequences of Coastal Nutrient Pollution. He was the lead author on the nutrient pollution chapter of the 2005 Millennium Ecosystem Assessment. From 1994-2002, Howarth co-chaired the International SCOPE Nitrogen Project, and just this winter has been appointed chair of a new international SCOPE project on the environmental impacts associated with biofuels such as ethanol; both of these are efforts of the International Council of Science (ICSU), and both in part address nutrient pollution. Howarth runs an active research program on coastal nutrient pollution, with funding from NSF, NOAA, EPA, and the USDA. He directs the Agricultural Ecosystems Program at Cornell, a program working to identify sources of and solutions for nutrient pollution in the Chesapeake watershed. He is the Founding Editor of the journal *Biogeochemistry*, and served as Editor-in-Chief from 1983-2004. Last fall, Howarth gave an invited briefing to White House staff in the Office of Science and Technology Policy and Office of Management and Budget on coastal nutrient pollution.

Testimony of Robert W. Howarth:

Thank you for the opportunity to address you today, and I am delighted by the Committee's interest in agricultural impacts on water quality. My statement, which focuses on nutrient pollution in estuaries and other coastal marine waters of the United States, is based heavily on several national reports over the past 7 years, including the National Academy of Sciences (2000) Clean Coastal Waters report, the Pew Oceans Commission report (2003), and the report of the US Commission on Ocean Policy (2004). I will particularly focus on nitrogen pollution, since this is generally the larger problem in coastal waters, although phosphorus pollution is also of concern. My testimony represents my best professional judgment. It should not be considered an official position of Cornell University or any other institution or organization with which I am affiliated.

Human alteration of the nitrogen cycle is one of the most dramatic aspects of global change. During my lifetime, the rate at which human activity creates reactive nitrogen – the nitrogen that can lead to water pollution – has increased 7-fold. Synthetic fertilizer is the biggest component of this increase globally, and half of the synthetic nitrogen fertilizer that has ever been used on Earth has been applied in the last 15 years. Fertilizer use and agricultural sources are by far the largest problem contributing to the nitrogen flux down the Mississippi River to the “dead zone” in the Gulf of Mexico. Thus, it is appropriate that this hearing today focus on agricultural sources of pollution. However, agriculture is only part of the story of change in the nitrogen cycle. Municipal wastewater plants are significant sources of nitrogen pollution to some coastal ecosystems, such as Long Island Sound. More importantly in many areas, deposition of nitrogen from the atmosphere can also play a role in polluting coastal waters. This nitrogen, which also contributes to acid rain, comes from burning fossil fuel for transportation, electric power generation, and other uses, and also from volatilization from agricultural sources, particularly animal wastes. Overall in the United States, my research has suggested that 40% of the nitrogen pollution reaching coastal waters comes from atmospheric deposition, an amount almost equal to the direct runoff from agricultural fields (municipal wastewater contributes 16%). The most recent estimates for the input of nitrogen to Chesapeake Bay also indicate roughly equal contributions from agriculture and from atmospheric deposition, although there is tremendous uncertainty in such estimates.

The global alteration of the nitrogen cycle has been uneven, and some regions have seen much greater changes than others. Human activity has probably increased nitrogen fluxes down the Mississippi River by 5-fold or more. The change has been even greater in the northeastern United States, and coastal systems such as Chesapeake Bay have likely seen nitrogen increases of up to 10-fold due to human activity.

As a result of this increase in nutrient inputs over the past few decades, nutrients are now the largest pollution problem in the coastal marine waters of the United States, and one of the greatest threats to the ecological integrity of these ecosystems. Unfortunately, there is no national monitoring program for this problem, and so we have significant uncertainty over the

full magnitude and consequences. Nonetheless, the best available evidence is that one third of the nation's coastal rivers and bays are moderately degraded from nutrient pollution; another one third are severely degraded. This finding by a team of NOAA-led scientists was endorsed by the Clean Coastal Waters report in 2000 from the National Academy of Sciences Committee on Causes and Management of Coastal Eutrophication. That Academy report also stressed the urgent need to develop a national monitoring system, but that has not yet happened.

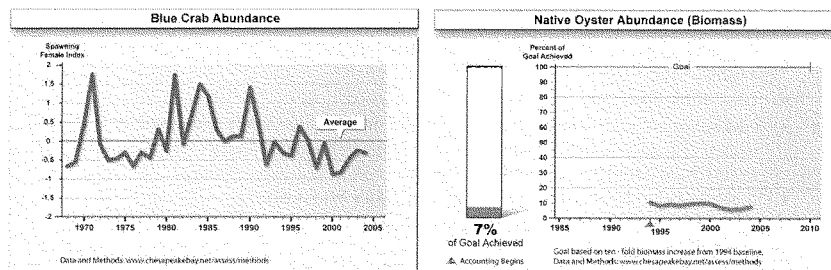
What are the effects of nutrient pollution? Nutrients are defined as substances that nourish, and so carry a positive connotation. But just as excessive consumption of food leads to obesity and a host of health issues, excess nutrients over-fertilize coastal waters and can lead to a variety of deleterious effects. These include:

- Creation of "dead zones," or regions of the ocean where bottom waters are devoid of oxygen (anoxic) or have levels of oxygen so low as to not support the ability of most animals to live (hypoxic);
- Loss of biodiversity;
- Change in ecological structure and degradation of habitat quality, potentially leading to loss of fish and shellfish resources and damage to endangered species such as sea turtles even where "dead zones" do not develop;
- Increased cloudiness of water, and greater odors from water;
- Loss of seagrasses and other ecologically valuable submerged aquatic vegetation;
- Decline of coral reefs;
- Decreased production of commercially important fish and shellfish;
- Increased frequency, duration, and extent of harmful algal blooms, with risk to human health and great damage to marine mammals;
- Increased transmittance of some human diseases such as cholera.

Not all of the consequences of nutrient inputs are bad, and at low to moderate levels, increased nutrient inputs to marine ecosystems can lead to increased fish production and little deleterious effects. However, further inputs lead to degradation and loss of resources. The sensitivity of ecosystems to nutrient pollution – that is the amount of nutrient input necessary to cause serious ecological damage -- varies greatly among systems, for reasons we only partially understand. For example, Chesapeake Bay is far more sensitive than is New York Harbor, and San Francisco Bay has an intermediate sensitivity to nutrient pollution. Unfortunately, we do not yet know how to recognize the tipping point for any particular coastal ecosystem, where further nutrient inputs lead to serious ecological and economic damage, until we reach that point in that particular ecosystem. We also do not know how reversible damage is, once it occurs, although the best available evidence suggests that recovery may be difficult once we push an ecosystem beyond the tipping point. Given our current level of uncertainty, good management calls for caution to avoid even approaching these ecosystem tipping points.

Determining the full impact of nutrient pollution on fish and shellfish resources and on economic value has proven difficult, even for highly impacted ecosystems such as Chesapeake Bay.

Chesapeake Bay is the largest estuary or semi-enclosed bay in the United States, and also one of the most productive. Economists struggle to put value on ecosystems such as Chesapeake Bay, including the value of “clean water” and a healthy environment as well as the direct and indirect values of commercial and sport fishing. According to Rebecca Hanmer, the director of the Chesapeake Bay Program, the last attempt at a comprehensive economic analysis of Chesapeake Bay was made almost 20 years ago and put the value at \$678 billion (1986 dollars). How has nutrient pollution affected the Bay’s resources and value? As the figures below from the web site of the Chesapeake Bay Program illustrate, blue crabs have been in decline for at least the last 15 years, and the native oyster is in serious trouble with populations only a tiny fraction of what they once were. In the past, these were the most valuable harvests from Chesapeake Bay.



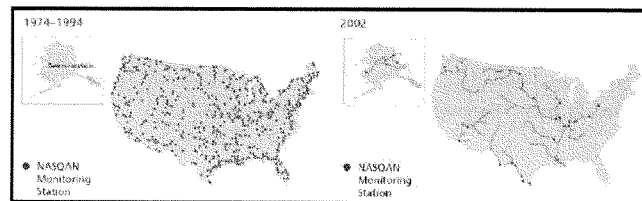
These declines undoubtedly are due in part to nutrient pollution, but other factors such as over-fishing and shellfish diseases have also played a role. Increasingly, climate change may also contribute to degradation of resources in ecosystems such as Chesapeake Bay. Teasing apart the relative contribution of these factors to ecological decline is not an easy task, and has not been done successfully in Chesapeake Bay. A growing number of scientists believe that rather than trying to isolate the causes of decline, we should be examining how the various causes interact in ways that may aggravate one another. For example, decline of oyster populations from over-fishing probably aggravates the problems of nutrient pollution, leading to further decline of oysters. And stress from nutrient pollution may well make oysters more susceptible to diseases.

What can we say about the fishery and economic consequences of the “dead zone” in the Northern Gulf of Mexico off the mouth of the Mississippi River? I know of no attempt at a full economic valuation of this region, but the direct value of the commercial harvest is huge. According to the most recent data from NOAA, the direct landing value of the commercial fish harvest in the Gulf of Mexico is approximately \$670 million per year, with more than half of this due to shrimp harvests. In Louisiana alone the shrimp landings in 2004 were worth \$140 million. The multiplier effect through the economy greatly increases these values. Further, the Gulf has a very valuable recreational fishery. In 2004, almost 5 million person-days of recreational fishing occurred in the coastal waters of Louisiana. The evidence for damage to

these resources from nutrient pollution is not strong, although fishing on brown shrimp appears to have been adversely affected. A non specialist may conclude that lack of strong evidence for adverse effects indicates a clean bill of health for the Gulf, but this is far from the case. Confounding factors in the analysis include the lack of adequate monitoring, the inherent natural variation in fish and shellfish populations over time and space, and other stresses such as climate change and over-fishing that can lead to population declines. A further complication is that “dead zones” may actually make it easier to commercially fish for a while, as fish and mobile shellfish congregate at the edges of the oxygen-depleted waters and become easier targets for fishing vessels; this practice is not sustainable, and the increased vulnerability of fish and shellfish populations from the targeted fishing may further aggravate an eventual population decline. What we definitely can conclude is that a large area in the Northern Gulf of Mexico – over 20,000 km² in most recent summers – is severely impacted from nutrient pollution from the Mississippi River. The effects include oxygen depletions, excessive algal growths, and loss of bottom-dwelling animal populations in this region. If the area has not yet experienced large fishery losses as a result, we have every reason to believe we are moving towards that tipping point where this could occur. The question is, how close are we to that point? We lack the science base to answer this question. Clearly the conservative approach would be to follow the recommendations of the 1999 CENR Assessment and move towards significantly lower nutrient fluxes down the Mississippi River.

Some general recommendations on critical research and monitoring needs:

- As recommended by the 2000 Clean Coastal Waters report of the National Academy of Sciences, the nation should develop a nationally consistent approach to monitoring the consequences of nutrient pollution in coastal marine ecosystems. No such system exists, which greatly limits our ability to understand the extent, trends, or likelihood of ecological damage, including damage to commercially valuable resources. Good management requires the support of a strong monitoring program to determine if policies and practices are actually working as intended.
- National monitoring programs on nutrient fluxes in surface waters have been curtailed dramatically over the past decade, as illustrated in the figure below from the US Commission on Ocean Policy (2004) for one key USGS program. These programs must be rebuilt, strengthened, and extended into tidal waters if we are to understand whether or not the nation is making progress in reducing nutrient pollution in coastal waters.



- National monitoring programs for sources of nutrient pollution in the landscape have also been greatly curtailed over the past decade. Key programs measuring trends in atmospheric deposition such as the National Atmospheric Deposition Program and CASTNet have seen their funding cut consistently, and are now faced with further drastic cutbacks. These programs too should be rebuilt and expanded, if we are to better understand the relative contribution of various sources such as atmospheric deposition and agriculture to the nation's water quality problems.
- We have a sufficient knowledge base to move forward as a nation more aggressively in solving our water pollution problems. However, improved understanding through focused research can lead to better targeting of problems and more cost-effective solutions. Building on the National Academy of Sciences 2000 Clean Coastal Waters report, an interagency research program towards this end was designed in 2003 by NOAA, EPA, USGS, NSF, and USDA with significant engagement of the academic community (Howarth, R. W., R. Marino, and D. Scavia. 2003. Priority Topics for Nutrient Pollution in Coastal Waters: An Integrated National Research Program for the United States. National Ocean Service, NOAA, Silver Spring, MD). The program was endorsed by many scientific societies, which together had 230,000 members. The plan should be fully implemented.

A critical issue cross cutting all monitoring is the need for sustained effort over long periods of time. The variability of process and fluxes in nature is great from year-to-year, and only by evaluating data collected over periods of many years can we adequately detect trends – either positive or negative – in nutrient fluxes and in the consequences of water pollution. The need for continued high-quality monitoring becomes even greater as we move into the future, since long-term trend data are essential to evaluate how climate change is interacting with other stresses to affect water quality and ecological health.

Finally, I feel compelled to mention the current national expansion of producing ethanol from corn. Much of the problem with agriculture as a source of nutrient pollution comes from growing corn, and while this pollution can be lessened through management practices such as planting winter cover crops, corn is essentially a “leaky” crop when it comes to nitrogen. Thus, an increase in acreage growing corn to try to meet the needs of ethanol plants is of concern. Further, the brewers grain waste from ethanol plants can be used as an animal feed, and due to the economics of transporting this waste, ethanol plants can serve as magnets for new confined animal feedlot operations. These operations can also create significant water quality problems. All of the water-quality scientists I know across the country are greatly disturbed by the rush for this corn-ethanol expansion. Producing more ethanol from corn needs much more analysis and careful consideration of the full range of environmental and economic impacts before the country proceeds further down this potentially dangerous path.

Senator CARDIN. Thank you very much.

Delegate Cosgrove, I am going to ask your cooperation for a moment. I know that Senator Carper is going to have to leave shortly, and I want to give him a chance to ask questions. Then we will return to your formal comments. Feel free to try to answer questions that Senator Carper may be proposing.

Senator CARPER. Thank you very, very much, Mr. Chairman. And again, our thanks to all of our witnesses for joining us here today.

Commissioner Tierney, you are talking about the effect of air emissions and the presence of sulfur dioxide and nitrogen dioxide in the air and the bad things that it does to our health when we breathe it in. Also, I think you were registering how part of the water degradation in the Chesapeake Bay is because of, I think you said sulfur dioxide and nitrous oxide. Is that what you said?

Mr. TIERNEY. Nitrogen.

Senator CARPER. Nitrogen oxide. As the Chairman knows, some of us have been working here in the Senate for a while on legislation to reduce the emissions from—

Senator CARDIN. The Senator has personally been in my office many times to personally lobby on behalf of his legislation, if that is what—

Senator CARPER. You are very kind to be supportive. But what we are trying to do in legislation, national legislation, is to take nitrogen oxide, which is really now only controlled east of the Mississippi, and to make sure that we try to reduce nitrogen oxide emissions by at least 70 percent between now and 2015, not just east of the Mississippi but also west of the Mississippi.

And we would reduce the sulfur dioxide emissions by some 80 percent by 2015 and mercury emissions by some 90 percent by 2015. We are delighted that the technology has moved along so that we can actually reach those goals now without undue economic damage, I think, to the utilities. But I appreciate very much the point you have made.

We talk a lot about carbon dioxide emissions and the need to rein in carbon dioxide emissions, and I fully agree with that, and while we do that to turn it into economic opportunities for us. But we can find economic opportunities by controlling sulfur dioxide emissions, nitrogen oxide emissions and mercury emissions to create technologies and products that we can sell around the world to reduce those.

I am going to ask Secretary O'Mara just to take a moment. I apologize for missing your testimony. I just came in on the train and rushed right over as soon as I got here. But just some takeaways for me as your, I started to say as your junior Senator. I am so used to saying junior Senator. As your senior Senator, some takeaways for me and for Ted Kaufman, our new junior Senator, for purposes of this hearing.

Mr. O'MARA. I think from the point of view of Delaware, sorry, from the point of view of my department, we really want to take a new approach to the challenge that the Bay presents us. It is beyond just the water quality issues. It is also getting into multimedia challenge, like you mentioned air quality, and also planning for the issues around climate change.

Now, we have done some very innovative things in Delaware, some of which started under your leadership with the Nutrient Management Program, being stakeholders together, holding people accountable. So we believe that, you know, now is the time to read-just sails and find those kinds of market-based economic solutions to try to encourage people to adopt the behavior we want, but at the same time making sure that agriculture is financially viable and other industries down in the southern part of the State.

So really I am asking for, you know, taking a hard look at whether it is the Waxman-Markey bill as it is written, are incentives being put forth for carbon sequestration and other activities like that? Let us try to advance policies that provide multiple benefits.

We know forested buffers in Sussex County will provide both water quality impacts and carbon emissions. And so if there are ways to tie things together intelligently across these bills, across media, I think the more successful it will be, and it will have a bigger impact despite the current economic downturn.

Senator CARPER. Thank you. We were pleased to work with one of your constituents, Jim Purdue, during my second administration as Governor, my second term as Governor, and we have, as you know, a lot of chickens on DelMarVa Peninsula, and they create a lot of chicken manure. We call it nutrients. But it is a lot of nitrogen and a lot of phosphorous.

In the past, we have stacked it up in fields, sometimes several inches deep, and spread it out more than we should have. And put it out in fields, laid it out in nonem pads, not covered pads, but allowed the waste to come and be washed into our streams and ditches and so forth.

We are doing a much better job. One of the things that I am very proud of is that we created a Nutrient Management Commission that required all of the farms that spread nutrients to have a Nutrient Management Plan, required training for the folks who were spreading the nutrients during the course of the year.

We did a wonderful partnership with Jim Purdue and the folks at Purdue. And the partnership basically says, let us put some State money and some Purdue money together and create a facility just outside of Seaford, Delaware, just north of Delmar, Maryland. The idea is to take about 15 percent of the nutrients from the poultry houses, take them to this facility, treat them under high temperature, create a pelletized organic fertilizer that we sell all over the country.

And I think now they are actually making some money doing this. So we kind of created an economic opportunity out of this. We still have work to do. But I think we are on the right track.

I would say to our friend from West Virginia, you were talking about the Eastern Panhandle, do you raise some chickens there? Raise any chickens? Do you all raise any chickens in West Virginia?

Mr. DOUGLASS. The Eastern Panhandle is the chicken capital of West Virginia in the Moorefield area.

Senator CARPER. I thought so. I am from Beckley, from Raleigh County, that is where I was born. So you are from Mason County, are you not?

Mr. DOUGLASS. Yes, Mason County.

Senator CARPER. I thought so. Well, welcome. We will learn from you in terms of reducing nutrients that go into our waterways and perhaps you all can learn from what we have done as well.

Mr. DOUGLASS. Well, you are aware of what we have done in Connaught Valley as well, SO₂ particulates, and so we are serious in the environmental problems and again, we want to be good citizens, the farm community does, and appreciate—

Senator CARPER. You bet. Well, those of us who live in the Del-MarVa Peninsula and the Mid-Atlantic Region who end up, we call it, at the end of America's tailpipe, breathing the sulfur dioxide and nitrogen dioxide and mercury that has come up from a lot of other places to our west, we appreciate everything that you can do there.

And I appreciate the leadership of Senator Cardin on this issue and a whole host of others and for giving me a chance to come by and join you for just a little bit. Thank you so much.

[The prepared statement of Senator Carper follows:]

STATEMENT OF HON. THOMAS R. CARPER,
U.S. SENATOR FROM THE STATE OF DELAWARE

Good afternoon, and thank you, Chairman Cardin, for convening this hearing. I appreciate your inclusion of me and the other Chesapeake Bay watershed Senators.

While I look forward to the testimony of all our panelists this afternoon, I wish to welcome in particular two panelists from my home State of Delaware—the Honorable Collin O'Mara, our new head of the Department of Natural Resources and Environmental Control.

Although he comes to us by way of San Jose, California, Mr. O'Mara is no stranger to the Mid-Atlantic, as he has spent a great deal of time along Delaware's and Maryland's coasts.

I would also like to welcome Mr. Joe Gannon, Vice President of Envirocorp, which is based out of Harrington, Delaware. Both Envirocorp and the Gannon family have a long history of protecting environmental quality and fostering citizen awareness in the watershed.

Thank you both for joining the subcommittee today to provide your perspectives.

As the Nation's largest estuary, the Chesapeake Bay supports an immense diversity of plant and animal life. The Bay is a prime example of the fact that ecological and economic significance go hand in hand. The Chesapeake yields more fish and shellfish than any other American estuary, providing jobs and supporting the regional economy.

Unfortunately, as we all well know, the Bay and much of its tributaries are not in good health. Excess amounts of nitrogen and phosphorous pose an especially grave threat to the ecosystem, as they destroy habitat and kill aquatic life.

In addition to the challenges of nutrient loading, the watershed is threatened by population growth, sprawling development, and the impacts of climate change—not the least of which are sea level rise and salt water intrusion.

Not to be overlooked is the serious impact of air pollution on water quality and the overall health of the Chesapeake Bay region. Nearly a quarter of the nitrogen pollution flowing into the Bay comes from the atmosphere.

Nitrogen emitted into the air can also negatively impact the growth and survival of plant and animal species in and around surface waters. Mercury is another very serious threat, as it is responsible for more fish contamination than any other pollutant.

Simply put, our goals for water and ecosystem quality will not be met unless we also address the contributions of air pollution. My colleagues and I on this committee are working very hard on this front, and I look forward to unveiling clean legislation in the near future.

In closing, I would like to recognize the fine work taking place on the ground in Delaware to educate the public and form grassroots coalitions to protect the watershed.

In Delaware, we're faced with no easy task—more than 90 percent of the State's waterways are considered "impaired." The most common impairments come from hard to control, non-point sources.

I applaud the work of Delaware's Tributary Action Teams, which are creating pollution control strategies tailor made for each of the State's watersheds.

The most important element of Delaware's strategy is the engagement with citizens—allowing local residents to weigh the merits of various proposals—and collaboration with stakeholders and advocacy groups.

I'm hopeful that we can build on this model of grassroots engagement and collaboration, and I look forward to hearing the perspectives of other States on this truly regional issue.

Thank you.

Senator CARDIN. Well, thank you, Senator.

Senator CARPER. You are welcome. And I understand that on the second panel there is young Joe Gannon, Vice President of Envirocorp, which is in Harrington, Delaware, where we have the State fair, they just closed it down on Saturday night. But to Joe Gannon, welcome, and thank you for inviting him and letting Delaware not only on one panel but on two. This is a good sell. Thank you.

Senator CARDIN. Well, we can learn a lot from Delaware. We know that.

I would just like to make an observation. Agriculture is very important to the State of Maryland. It is a major part of our economy. I can just assure you that we are going to do everything we can to preserve agricultural land. We think it is critically important for many reasons, including our economy as well as our environment.

I recall very vividly when we started down the Bay Program the first partners we brought in was our agricultural community, to work with them to make sure that what we did is consistent with the economics of farming which, we think, can make sense.

And of course, if there is need for special attention, as one of you pointed out, as far as the buffer zones, that is something that we should talk about, how to make it economically feasible to have that type of activity.

Delegate Cosgrove, thank you very much for your patience. It is good to hear from you.

STATEMENT OF HON. JOHN A. COSGROVE, CHAIRMAN, CHESAPEAKE BAY COMMISSION, VIRGINIA HOUSE OF DELEGATES

Mr. COSGROVE. Thank you, Mr. Chairman. I thank you for the opportunity to testify—

Senator CARDIN. You need to turn on your microphone.

Mr. COSGROVE. There we go. I am an engineer, too, I should have figured that out.

[Laughter.]

Mr. COSGROVE. I appreciate the opportunity to be here today to ask for your concurrence in the reauthorization of the Chesapeake Bay Program, section 117 of the Clean Water Act.

At the outset, I want to commend you for your leadership in bringing this important issue to the forefront to advance the restoration of the Chesapeake Bay. Senator, you are a gentleman of the Bay. You get it. We are just here to kind of reinforce, I think, what is already known well to you.

The role of the Federal Government is critical to the success of the Bay restoration. And for the effort to succeed, that role must grow stronger. I am here today as a Virginian, I am here today as the Chairman of the Chesapeake Bay Commission, and I am here as a proud Republican to tell you that we need the Federal Government to play a stronger and more targeted role in Bay restoration.

The Clean Water Act must provide new authorities and accountability measures that complement our State efforts in order to minimize pollution from all sources. We believe that restoring our Nation's largest estuary is a shared responsibility, not just of the States or local government or the private sector, but of the Federal Government as well.

In February 2008, the Chesapeake Bay Commission developed and broadly distributed a special report containing a full suite of recommendations for Federal legislation and funding to advance the Bay's continuing restoration over a 3-year period, 2008 to 2010. Included within that report were recommendations that the EPA Chesapeake Bay Program be reauthorized with a heightened focus on new authorities, increased implementation and accountability.

The bottom line—since we have to do more with less, we need to do a better job choosing what is regulated, what is incentivized, and where these programs are more strategically applied.

Now, I have been a member of this Commission for 5 years, and I have the honor of Chairing the Commission this year. In the past 5 years, I can say that we have seen a huge increase in State and local government investments in the Bay. In Virginia alone, through the State Water Quality Improvement Fund, we have invested over a half a billion dollars to upgrade our water treatment programs within the Bay watershed. We have committed to another half a billion dollars over the next 5 years to continue those efforts.

Our local governments have stepped up their commitments and are utilizing the Clean Water Revolving Loan Fund to help shoulder their burden to cover the remaining costs of the upgrades. And recently, Federal funding to the Clean Water Revolving Loan Fund has increased, and we thank you very much for that. And other States in the Bay are using this fund and making good progress in tackling their point sources of pollution to the Bay.

So thanks in large part to the increased State and Federal funding and existing regulatory permit authority within the Clean Water Act, we are reducing point sources of pollution delivered to the Bay. Hundreds of sewage treatment plants throughout the watershed are being upgraded with new technologies to reduce nutrient loads.

The Federal Government needs to step up, and we need to have those authorities in place so the States can do their job. I will say, not wanting to aggravate any of my additional panel members, that the Federal Government is making slow progress though, Senator, in upgrading the wastewater treatment plant Blue Plains located in the district. They have come a long way. But they have got a long way to go.

And as the largest point source in the entire watershed, almost 4 million pounds of nitrogen stands to be reduced from the Bay's nutrient load from this one facility. You know that. We appreciate the efforts that you have put into Blue Plains, and we ask you to continue those efforts and let us get Blue Plains up to the technology that it should be.

In reauthorizing the Chesapeake Bay Program, we have the opportunity to capitalize on additional Federal and State efforts underway to make real progress in cleaning the Chesapeake. First,

the Bay States have agreed to chart out and implement 2-year restoration milestones. Second, EPA is developing a Bay-wide TMDL. And third, the President issued an Executive Order directing Federal agencies to coordinate their restoration efforts and prioritize the Chesapeake as a national treasure.

Currently, the Clean Water Act applies to all point sources of pollution. However, many sources of pollution fall outside of the scope of the Clean Water Act. To protect a system like the Chesapeake Bay, where the majority of nutrient pollution comes from non-point sources, we must make sure that all sources of pollutants are controlled in a meaningful and highly accountable way.

And I will say, Senator, that the Navy is a model of how to develop their lands. They have done a tremendous job, especially in the Norfolk Naval Base, of doing very responsible development where they have really taken care of the storm water runoff.

We need to build our existing partnerships and increase our accountability to increase our rate of success. By reassessing what is working to clean up the Bay and building on those examples, we can continue to make progress. However, we need to make sure that the right tools are there. So far, those tools have included strong intergovernmental relationships and partnerships and clear regulatory authority.

Mr. Chairman, these waters of the Chesapeake Bay are the same passages that brought Christopher Newport and Captain John Smith to the new world. These waters captured the imagination of Lord Calvert and brought him and his descendants to establish what is now the State of Maryland. These waters are where this great Nation was conceived.

As a former naval officer, I know that now the world's mightiest ships, both merchant and warships, traverse these waters on their way to and from ports all over the world.

Most importantly, Senator, our children must have this treasure to enjoy and admire just as we have it now.

Mr. Chairman, you are doing a great job. Please help us do ours.
Thank you.

[The prepared statement of Mr. Cosgrove follows:]



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COMMITTEE ASSIGNMENTS:
 CHESAPEAKE BAY COMMISSION (CHAIRMAN)
 PRIVILEGES AND ELECTIONS (VICE CHAIRMAN)
 GENERAL LAWS
 TRANSPORTATION
 SCIENCE & TECHNOLOGY

**Testimony Before the Subcommittee on Water and Wildlife
 U.S. Senate Environment and Public Works Committee**

**A Renewed Commitment to Protecting the Chesapeake Bay:
 Reauthorizing the Chesapeake Bay Program**

Monday, August 3, 2009

Thank you, Mr. Chairman and Members of the Committee, for this opportunity to testify in support of the reauthorization of the Chesapeake Bay Program, Section 117 of the Clean Water Act. At the outset, I want to commend Senator Cardin for his leadership in bringing this important issue to the forefront to advance restoration of the Chesapeake Bay. The role of the Federal government is critical to the success of the Bay restoration. For the effort to succeed, that role must grow stronger. I am here today, as a Virginian, as the Chairman of the Chesapeake Bay Commission, and as a proud Republican, to tell you that we need the Federal government to play a stronger and more targeted role in Bay restoration. The Clean Water Act must provide new authorities and accountability measures that complement our state efforts in order to minimize pollution from all sources.

Let me begin with a brief explanation of the Chesapeake Bay Commission. The Chesapeake Bay Commission is a tri-state legislative commission established in 1980 to coordinate Bay-related policy across state lines in Virginia, Maryland and Pennsylvania. Our focus is to develop shared solutions for the region. The Commission serves as the legislative arm of the Chesapeake Bay Program and as such has signed every agreement and directive since the Program's start. There is hardly a piece of state or Federal Bay-related legislation that the Commission has not been involved in, and we continue to promote policy initiatives on a full spectrum of Bay issues: from living resources protection and land conservation, to water quality restoration. Important to today's meeting, the Commission also acts as the liaison to Congress on all issues of concern to the health and resources of Chesapeake Bay. I am here today to stress the importance of enhanced Federal participation in the Bay restoration via the reauthorization of Section 117. We believe that restoring our nation's largest estuary is a shared responsibility -- not just of state and local governments and the private sector, but of the Federal government as well.

Along these lines, in February, 2008, the Commission developed and broadly distributed a special report containing a full suite of recommendations for Federal legislation and funding to advance the Bay's restoration over the three year period 2008 to 2010. Included within that

report were recommendations that the EPA Chesapeake Bay Program be reauthorized with a heightened focus on new authorities, increased implementation and accountability. Bottom line: Since we have to do more with less, we need to do a better job choosing what is regulated, what is incentivized, and where these programs are more strategically applied.

I have been a member of the Commission for five years and have had the honor of Chairing the Commission in 2009. In the past five years, I can say that we have seen a huge increase in state and local government investments in the Bay. In Virginia, through the state Water Quality Improvement Fund we have invested well over a half a billion dollars to upgrade our wastewater treatment plants within the Bay watershed. Our local governments have stepped up their commitments and are utilizing the Clean Water Revolving Loan Fund to help shoulder their burden to cover the remaining costs of the upgrades. Recently, Federal funding to the Clean Water Revolving Loan Fund has increased and we thank you very much for that. Other states in the Bay are also using this fund and making good progress in tackling their point sources of pollution to the Bay.

So, thanks, in large part to increased state and Federal funding and existing regulatory permit authority within the Clean Water Act, we are reducing point sources of pollution delivered to the Bay. Hundreds of sewage treatment plants throughout the watershed are being upgraded with new technologies to reduce nutrient loads. In Virginia alone we have already cut over one million pounds of nitrogen from our wastewater treatment plants and we are expected to slash the amount of nitrogen by another two million pounds. Bay-wide we expect to reduce nitrogen loads by over 12 million pounds from 2005 levels. Because of this successful Federal, state and local government partnership we are achieving real results in cleaning up the Bay.

The Federal government is however making slow progress in upgrading its own wastewater treatment plant, Blue Plains, located within the District. As the largest point source in the entire watershed almost four million pounds of nitrogen stands to be reduced from the Bay's nutrient load from this one facility. Mr. Chairman, we thank you for your ongoing leadership in securing essential Federal funding for this key action to reducing nitrogen pollution to the Bay. We ask that you remain vigilant in your efforts to support this immense task.

While the states have been making significant progress overall with our point sources, we have not been as successful with reducing other diffuse sources of nutrient pollution entering the Bay. For our non-point sources of pollution we have good established Federal and state partnerships but we lack the necessary funding and the regulatory authority to get the job done.

Nearly one-quarter of the Bay watershed's land area is devoted to agricultural production. Through the Federal Farm Bill we now have a program targeting funding to the Chesapeake Bay watershed for the first time ever. This, together with state funding, provides an important new tool to reach new farmers and increase farmer participation in on the ground conservation practices. But the enrollment levels are not close to where we need them to be.

The other sector of non-point source pollution that must be addressed is stormwater runoff from urban and suburban lands. Here we are actually losing ground. Polluted runoff from the land is actually escalating because of increased development across the Bay watershed. As the states

tackle this challenging problem, we need the Federal government to continue to be a strong partner in this effort. As a large landowner of property throughout the watershed, the Federal government, as called for in the Presidential Executive Order, should be a leader in addressing these issues. We have seen such leadership exhibited by the U.S. Navy within Virginia. The Navy has committed to use low-impact development techniques to ensure reduced runoff from their facilities within the region. It would be great to see this impressive initiative expanded across all Federal lands, including Federal highways. We need stronger Federal, state and local government partnerships and increased regulatory authority to restore this 64,000 square mile watershed that is degraded by a diverse range of nonpoint sources of pollution.

In reauthorizing the Chesapeake Bay Program we have the opportunity to capitalize on additional Federal and state efforts underway to make real progress in cleaning up the Chesapeake. First, the Bay states have agreed to chart-out and implement two-year restoration milestones. Second, EPA is developing a Bay-wide TMDL. And third, the President issued an Executive Order directing Federal Agencies to coordinate their restoration efforts and prioritize the Chesapeake as a National Treasure.

Because of these current efforts and the previous three decades of restoration invested in the Chesapeake, we believe that the Bay's TMDL should be a model for the nation. We ask that you codify the Bay TMDL within the reauthorization of Section 117 of the Clean Water Act and set the highest standards for the region. Strengthen language within the Clean Water Act to better ensure an effective and enforceable TMDL will achieve the necessary nutrient and sediment reductions for the Bay. If we are to achieve the goal of a clean Bay within our lifetimes, we must have more accountability and more Federal authority to get the job done. We must also keep in mind that while restoring the Chesapeake Bay is our ultimate goal, much of the land within the watershed is private property. And as such, it is critically important to remember private property rights so that the owners can get full enjoyment or value from their investments.

Currently, the Clean Water Act applies to all point sources of pollution. However, many sources of pollution fall outside the scope of the Clean Water Act. To protect a system like the Chesapeake, where the majority of the nutrient pollution comes from nonpoint sources, we must be sure that all sources are controlled in a meaningful and highly accountable way.

If we are to learn from what has worked in the past and what continues to work in the present, the Clean Air Act offers some useful models for success. The Clean Air Act utilizes State Implementation Plans, or SIPs, and time schedules giving states discretion to develop state-specific means to attain air quality standards within a region by a certain date. The watershed-based approach of the Bay-wide TMDL would benefit from a similar regulatory approach. States would be provided with the flexibility to develop and implement their own plans to meet their share of a watershed goal. The Clean Air Act also contains noncompliance sanctions that work as incentives for expeditious and effective state programs. Enhancing this approach with the already agreed upon two-year state milestones would help to ensure progress continues throughout the restoration process- not only with our point sources but also with our multitude of non-point sources of pollution.

We need to build on our existing partnerships to increase our accountability and to increase our

rate of success. By reassessing what is working to clean up the Bay and building on those examples we can continue to make progress. However, we need to make sure we have the right tools. So far those tools have included strong intergovernmental partnerships and clear regulatory authority.

Mr. Chairman, that concludes my testimony. Thank you very much for the opportunity to appear before your subcommittee this afternoon.

**Answers to Questions Posed to Virginia Delegate John Cosgrove, Chairman,
Chesapeake Bay Commission
August 28, 2009**

**Environment and Public Works Committee Hearing
August 3, 2009
Follow-Up Questions for Written Submission
Questions for Delegate John Cosgrove**

Questions from:
Senator Thomas R. Carper

1. As you know, discharges and runoff into the water are only part of the challenge we face. Could you discuss the link between air pollution and the health of the Bay? To what extent are air and water quality experts in your state collaborating - both to understand the role of air emissions and to address the impact of these emissions on water quality?

Much work is being done at the federal and state level to examine the links between air pollution and the health of our waters, including the Chesapeake Bay.

Several specific air pollutants have been identified and linked to contamination of Virginia waters, including:

- **Sulfur Dioxide (SO₂)**- Water acidification has long been linked to emissions of SO₂ into the air.
- **Nitrogen Oxides (NO_x)**- Air emissions of NO_x, predominantly nitrate, are partially responsible for the significant nitrogen pollution entering the Chesapeake Bay and its tributaries.
- **Mercury (Hg)**- Airborne mercury emissions (with subsequent water deposition) have been linked to water and fish contamination.

In particular, airborne nitrogen is a contributor to pollution in the Chesapeake Bay and its tributaries, accounting for about one-third of the total load of nitrogen pollution to the Bay. Airborne chemical contaminants such as mercury can also affect the Bay.

Nitrogen oxides (NO_x), ammonia and organic nitrogen are three specific nitrogen compounds that are released into the air and can harm the Bay. NO_x are primarily released into the air as a by-product of combustion (the burning of fossil fuels like oil, gas and coal). Ammonia is

primarily released into the air through evaporation and emissions from industry processes. Every living creature — including humans — releases wastes that include ammonia.

Chemical contaminants that are released into the air and can affect the Bay include metals such as mercury and organic contaminants such as PCBs and PAHs. Mercury is released into the air when coal, oil, natural gas and hazardous wastes are burned. PCBs can pass into the atmosphere as a vapor from old electrical equipment. PAHs are released into the air when fuel is burned.

In terms of what is being done at the Federal level, since 1985, the Chesapeake Bay Program has been working towards a goal to implement enhanced air pollution controls that will correct nutrient-related problems in the Bay and its tidal tributaries by 2010.

The Bay Program partnership is relying on federal and state laws that regulate emissions to significantly reduce airborne nitrogen. EPA reports that implementation of Clean Air Act and related regulations would achieve nitrogen reductions of about 15 million pounds annually by 2010. Effective implementation of other federal and state Clean Air Act programs will result in further reductions in the Bay watershed. Reducing the release of airborne nitrogen is likely to reduce the release of toxic chemical contaminants as well.

The way we use the land has a significant effect on the amount of airborne nitrogen that reaches the Chesapeake Bay and its rivers. For example, nitrogen that falls on forests can be absorbed and filtered by trees and plants before the pollutant reaches local waterways. Conversely, nitrogen that lands on roads, sidewalks and other impervious surfaces can be carried by stormwater runoff into the nearest storm drain. In particular, the Chesapeake Bay Program includes key restoration strategies such as restoring forest buffers and implementing agricultural conservation practices that will help reduce airborne as well as runoff borne nitrogen sources to the Bay.

In Virginia, during the 2006 session, the General Assembly passed legislation (HB 1150) requiring the Secretary of Natural Resources to develop a plan for the cleanup of the Chesapeake Bay and Virginia's waters. The Virginia Water Clean-Up Plan addresses both point and nonpoint sources of pollution and includes measurable and attainable objectives for water cleanup, attainable strategies, a specified timeline, funding sources, and mitigation strategies. Air division staff from the Virginia Department of Environmental Quality helped with development of the plan and among its strategies, the Virginia Water Clean Up Plan includes an air component. The specific objective of the air component of the Plan is to fully implement the

many state and federal programs to reduce the impacts of airborne pollutants on water quality throughout Virginia.

Historically, efforts to reduce air pollutants like SO₂, NO_x and Mercury, have focused on improving air quality, such as compliance with air quality standards and adoption of more stringent criteria governing emissions of hazardous air pollutants. However, some programs, such as Title IV of the Clean Air Act and programs regulating mercury emissions, are specifically designed to reduce the impact of air pollutants on water quality. Specific programs that are intertwined with the protection of water quality include:

Air Quality Standards: The Clean Air Act requires the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS) for wide-spread pollutants that are considered to be harmful to public health and the environment. Currently there are standards for seven air pollutants: ozone, particulate matter (both PM₁₀ and PM_{2.5}), carbon monoxide, sulfur dioxide, nitrogen oxides, and lead. These standards must be reviewed periodically to determine if updated science requires revision to these standards.

Attainment Plans: Attainment plans must be developed for areas that do not meet one or more NAAQS. In Virginia, this has historically involved violation of the ozone standard in Northern Virginia, Richmond, and Hampton Roads. As a result, these areas have been required to develop and implement emission reduction plans to come into compliance with the ozone standard. These plans have produced emission reductions of deposition-related pollutants (mostly NO_x) as part of these plans.

Motor Vehicle Emissions Standards: The U.S. EPA also establishes vehicle engine emissions and other standards aimed at reducing air pollution from this significant source category. As a result, emissions from vehicles have dropped dramatically over the last 40 years. These reductions will continue in the future as new standards are implemented.

Non-Road Engine Emissions Standards: More recently, the U.S. EPA has turned its attention toward regulation of non-road vehicles and equipment, which is also a significant source of air pollution. Several programs are now in place that will continue to reduce emissions from this source category.

NO_x Emissions Budget Rule (SIP CALL): In order to reduce the transport of ozone from one area to another and to assist areas in complying with the standard, the U.S. EPA and states have implemented a program to reduce NO_x emissions from the electrical power generation sector. This program began in 2004 and has resulted in substantial reductions of both NO_x emissions and transported ozone levels.

Clean Air Interstate Rule (CAIR): To further reduce pollutant transport, the U.S. EPA has adopted the CAIR rule, requiring additional pollution reductions from the electric power generation sector. This rule covers most Eastern U.S. states, requiring each state to adopt a corresponding rule to implement this program. A key component of the CAIR program is a large reduction of SO₂ emissions, leading to a significant reduction in fine particulate pollution and improved regional visibility. It also will produce further reductions of NOX emissions. Virginia has adopted and implemented a state rule to achieve the CAIR emissions reduction requirements and caps.

On July 11, 2008, the U.S. Court of Appeals for the D.C. Circuit vacated the U.S. EPA's CAIR rule. However, in a subsequent reversal of this decision, the Court remanded the CAIR rule in place to U.S. EPA on December 23, 2008. In essence, this means that the CAIR reduction requirements and caps remain in effect until the U.S. EPA adopts regulations consistent with the Court's holdings.

Clean Air Mercury Rule (CAMR): The U.S. EPA has adopted the national CAMR rule to reduce mercury air emissions from the electric power generation sector. In response, Virginia adopted a state rule to implement the CAMR emission reduction requirements and caps. However, another decision by the U.S. Court of Appeals for the D.C. Circuit vacated the federal CAMR rule on February 8, 2008. The U.S. EPA initially appealed this decision, but recently dropped this appeal. The U.S. EPA now plans to regulate power plant emission of mercury under Section 112 of the Clean Air Act. Pursuant to this decision, the Virginia Department of Environmental Quality issued a Maximum Achievable Control Technology (MACT) permit to the Dominion Virginia Power's Virginia City Hybrid Energy Center in Wise County, Virginia. This permit required state-of-the-art mercury controls and stringent emissions limits.

Virginia Mercury Study: This state study assessed mercury emissions and local deposition from Virginia sources, examined the mercury reductions expected to occur as a result of the CAIR and CAMR regulations, the requirements of the state specific regulations, the costs of available controls, public health impacts, and if Virginia would benefit from additional controls on Electric Generating Units (EGUs). The issue of additional controls on EGUs beyond the CAMR became irrelevant when the US Court of Appeals of the District of Columbia Circuit vacated CAMR on February 8, 2008 in response to a legal challenge by a group of states and environmental organizations. As a result, U.S. EPA decided to "develop appropriate standards" that would regulate power plant emissions under Section 112 of the Clean Air Act. The U.S. EPA also has recently issued mercury standards for cement kilns.

The data strongly suggest that the vast majority of mercury deposition in Virginia is due to the global emissions component. The report concludes that Virginia would benefit from reduced mercury deposition as a result of implementation of pollution controls.

2. Runoff from our roads is a significant source of water pollution - contributing to flooding, erosion, and contamination. Could you highlight best practices in your state with respect to transportation planning and road design? In what way could our transportation policies be better aligned with water quality goals?

The Virginia Department of Transportation (VDOT) conducts its erosion and sediment and stormwater management work under annual standards and specifications approved by the Department of Conservation and Recreation (DCR). Erosion and sediment control and stormwater management requirements minimize the environmental impact of erosion and sedimentation and other pollutants associated with the construction activities. These requirements further minimize the environmental impact of the roads in the post construction phase by mitigating changes to hydrology resulting from the construction and by requiring best management practices that treat runoff for pollutants resulting from increased impervious areas and pollutants incidental to the operation of vehicles on the roadways.

One way that transportation policies could be better aligned with water quality goals would be to ensure that environmental review addresses secondary and cumulative impacts. Currently, the focus is on direct impacts, yet long term cumulative impacts resulting from transportation improvements can be significant. Federal Highway Administration guidance states that to fulfill the National Environmental Policy Act (NEPA) mandate of environmentally sensitive decision making, FHWA and the States must "develop and use techniques to incorporate secondary and cumulative impact issues in the highway project development process." It further states that the techniques "must ensure that social, economic and environmental impacts are analyzed in both the present and future context." The NEPA process needs to ensure that these impacts are considered and addressed.

Questions from:
Senator James M. Inhofe

1. The Clean Water Act says that: It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise

of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States' rights as primary protectors of their land and water?

With a 64,000 square mile watershed, the impact of six states and the District of Columbia's land, water and air management decisions is felt within the waters of the Chesapeake Bay. The diverse sources of pollution and the multistate involvement in this complex effort to restore Chesapeake Bay require a central source of authority. Section 117 of the Clean Water Act establishes the Chesapeake Bay Program as a Federal and multistate partnership to restore and protect the Chesapeake Bay. This unique Federal and state partnership, established in 1983, continues to bring together diverse regional interests to further the restoration of the Bay.

Under EPA's leadership the Bay states have developed common goals to restore the Chesapeake Bay and have also been given the flexibility to achieve those goals by their own means. It is imperative that EPA maintain the pivotal supporting functions for these efforts by implementing and coordinating science, research, modeling, support services, monitoring, data collection, technical assistance, and education. The Chesapeake Bay Program Office also coordinates EPA actions with those of other Federal agencies and the states in developing strategies to improve water quality and living resources in Chesapeake Bay and conducts outreach programs for public information, education and participation to foster stewardship of the resources of the Bay. Other Federal agencies that play critical roles in the Bay partnership include the National Oceanic and Atmospheric Administration, U.S. Department of Agriculture, Corps of Engineers, National Park Service, U.S. Geological Survey, the Forest Service and Fish and Wildlife Service.

As part of the Clean Water Act, in 1987 Congress established the section 319 Nonpoint Source Management Program because it recognized the need for greater Federal leadership to help focus State and local nonpoint source efforts. Under section 319, states receive Federal grants to support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects. This is another prime example of how the Federal government can continue to assist and support in the cleanup of the Bay without violating States' rights.

2. We understand that in order to have a successful Chesapeake Bay program, there must be wide spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in successful environmental programs that have had the support of diverse interest groups. What can the Federal government learn from these successes?

Because pollution prevention is extremely more cost effective than pollution remediation, the Bay region has long focused on prevention of pollution at the source. Back in the 1980s, the

Chesapeake Bay watershed was successful in instituting a ban on phosphates in laundry detergents. The ban resulted in nearly a 40 percent reduction in phosphorus entering the Bay watershed from point sources. This represented one of the largest single reductions of nutrients achieved and at no cost to government and little if any to consumers.

Over the past three years, states within the watershed and the District of Columbia have worked together with the soap and detergent industry to enact laws that extend the phosphorus ban to automatic dishwashing machine detergents. The expected overall nutrient reductions to the Bay are not nearly as dramatic as the laundry detergent gains because of installed new technologies. However, because of lower levels of phosphorus in wastewater it is expected that municipalities will save money at their wastewater treatment plants.

Virginia and Pennsylvania have developed nutrient trading programs for water quality bringing very diverse interests to their tables. Agriculture, waste water treatment plants, builders and state and local governments are all engaged toward a common goal – achieving the most cost-effective nutrient reductions. By creating a market value for nutrient reductions, entrepreneurs are encouraged to develop new technology. Much of this technology is centered around bioenergy, creating additional benefits for small farms and non-ag firms, communities and the region.

3. Please describe what your state is doing to implement non point source pollution controls. What success have you had with these efforts? With the 319 program? What additional state non-point source programs do you have? How are these run? What is their effectiveness?

The Commonwealth of Virginia has developed a wide range of technical assistance, incentive, educational, and regulatory programs and committed substantial funding to control nonpoint source pollution. To help ensure maximum efficiency and effectiveness, the Commonwealth has also developed programmatic and geographic targeting tools. For example, by focusing agricultural incentive programs on priority practices that achieve the maximum benefit at the least cost, Virginia has been able to make highly efficient use of state funding provided through the Virginia Water Quality Improvement Fund. The Commonwealth has made effective use of monitoring and assessment data to target funding toward impaired watersheds and watersheds identified as having high pollutant loading potential.

Virginia's nonpoint source pollution control programs are efficient and effective; however, the scope of the problem is daunting. Based on the Commonwealth of Virginia's Chesapeake Bay Nutrient and Sediment Reduction Tributary Strategy, it is estimated that best management practices (BMPs) would need to be installed and maintained on 92 percent of all available agricultural lands, 85 percent of all mixed open lands, 74 percent on all urban lands and 60 percent of all septic systems. Estimated implementation costs are also daunting; to reduce and

cap the discharge of nutrients and sediments to the Chesapeake Bay will cost at least \$10 billion with significant ongoing costs.

Pursuant to Section 319 of the Clean Water Act (33 U.S.C. § 1251 et seq.) the Commonwealth of Virginia has developed a nonpoint source pollution management program. Section 319 provides base funding for ongoing support of the Commonwealth's core nonpoint source pollution control programs. In addition, Section 319 provides substantial funding for BMP implementation to restore impaired waters. Despite progress in improving water quality in targeted watersheds, the challenge of restoring and preventing future impairments is daunting as well. Nevertheless, the Commonwealth has been able to maintain satisfactory progress as required by federal grant guidance.

Key nonpoint source pollution control programs in Virginia include:

- The Virginia Agricultural Best Management Practices Cost-Share Program is designed to encourage implementation of various agricultural BMPs statewide through cost-sharing of both structural practices and annual practices capable of reducing the loss of sediment, nutrients, toxics, and pathogens to ground and surface waters.
- Virginia's Nutrient Management Program encourages efficient use of fertilizers and other sources of nutrients. Virginia has developed biosolid regulations that require nutrient management plans for all fields receiving biosolids, unannounced inspections of the land application sites, and an applicator certification program. In addition, Virginia is developing an end user regulatory program to result in proper utilization of poultry litter that is transferred to end-users of litter.
- Virginia also has a Memorandum of Agreements with six poultry integrators to achieve a 30% reduction in phosphorus excreted in broiler and turkey litter by December 31, 2010. Virginia has also provided funding to implement a targeted litter transport program to provide incentives for the movement of surplus poultry litter to areas of the state that can better utilize the nutrient content.
- The control of erosion and resulting sediment loss from construction sites is a foundational nonpoint source control program. Virginia has made substantial progress in increasing implementation levels for the state's erosion and sediment control program, with local compliance greater than 80%.
- The Virginia Stormwater Management Program is another core nonpoint source control program. This program seeks to maintain, protect, or improve the physical, chemical, biological and hydrologic characteristics and the water quality and quantity of receiving state waters, as well as, protect properties from damages caused by increased volume, frequency and peak rate of stormwater runoff.
- Pursuant to the Chesapeake Bay Preservation Act Regulation, Virginia also works with local governments in Tidewater Virginia to determine the extent to which the Tidewater localities are implementing measures to protect water quality, particularly requirements

to reduce impervious cover, minimize land disturbance and maintain indigenous vegetation.

- Another core nonpoint source program is the control of nonpoint source pollution from forest harvesting activities. Through the Silvicultural Water Quality Law, Virginia requires that silvicultural activities be conducted without contributing sediment to the waters of the Commonwealth.
- In addition, the Virginia Agricultural Stewardship Act receives complaints about agricultural operations and then works directly with the farmer to take corrective action to ensure that any water pollution issues are corrected. The program can be effective but is limited by lack of resources.

Virginia has outstanding nonpoint source pollution control programs that are efficient and effective where implemented. These programs incorporate a mix of voluntary, cooperative efforts and regulatory mechanisms. However, there remain significant implementation tracking challenges, inadequate state and Federal funding, and significant cultural barriers that will need to be overcome in order to restore and conserve water resources.

4. Most witnesses advocated for a flexible approach to managing pollution and against a "one size fits all" approach. Can you give the committee some examples of programs that have worked in your state and some that have not? How has your state come up with solutions that are flexible enough to handle the diverse needs of populations, urban, suburban, and rural?

Virginia and its stakeholder partners are leading the way in establishing a trading program that will allow the Commonwealth to maintain caps on phosphorus and nitrogen inputs to the Chesapeake Bay from point sources. This unique trading program incorporates trades both between point sources and also using non-point source best management practices in trades with point sources. In a letter dated December 14, 2006, EPA Region III recognized Virginia's innovative approach: "We want to thank the Virginia Department of Environmental Quality (VADEQ) for the development of this innovative permit for the protection and restoration of the Chesapeake Bay and look forward to working with VADEQ in its further development and use."

In September 2006, Virginia adopted a general Virginia pollutant discharge elimination system (VPDES) watershed permit for total nitrogen and total phosphorous discharges and nutrient trading in the Chesapeake Bay watershed (9 VAC 25-820-10 et seq.). The general permit establishes annual effluent loading limits for nitrogen and phosphorus and caps the loads for the watershed. The general permit also establishes the conditions for exchanging credits and purchasing offsets. Existing facilities that have exceeded their allocation, or new or expanded facilities not assigned a waste load allocation can purchase offsets to meet limits. Only new

facilities and those with expanding loads can trade with nonpoint sources to allow for expanded capacity in a watershed.

This program is relatively new, but has over 125 dischargers using the general permit as of February 2009. A private Nutrient Credit Exchange has been established to manage the trading process. Some of the benefits of this approach include:

- Using a general permit allows Virginia to address the problems with nitrogen and phosphorous in the Chesapeake Bay and its tributaries on a watershed level to work towards protecting the entire watershed. Individual permits do not provide the same opportunity.
- Exchanging and purchasing credits provides flexibility to facilities that cannot meet limits and rewards facilities that are meeting limits, while still ensuring the total amount of nitrogen and phosphorous in the watershed remains the same.
- A general permit provides accountability through the waste load allocations set for each facility.
- Using a general permit creates rationale for point sources to assist in the reduction of nonpoint source loads.
- A general permit allows for greater nonpoint source reductions if new or expanded point source dischargers are forced to reduce more than an equal amount of a nonpoint source load

5. Does your state have a preferred method of setting up targets for the bay program? What intervals does your state believe are reasonable and achievable?

Yes, at the May 2009 Chesapeake Executive Council meeting, Governor Kaine, the Chesapeake Bay Commission and the other Council members announced a new approach to setting a Bay restoration goal. Virginia committed to set new short-term goals to reduce pollution to the Bay and accelerate the pace of restoring the Bay and its rivers. Virginia will now focus on two-year milestones with the goal of having all pollution control measures necessary for a restored Bay in place no later than 2025.

The first milestones are set to be met by December 31, 2011, with Virginia increasing progress to reduce nitrogen by 86 percent and increasing progress to reduce phosphorus by 52 percent. By making steady progress, success is dependent upon continued state and Federal leadership, dedication and financial commitment.

6. Maryland and Virginia are the states with the closest ties to the Chesapeake Bay. What lessons has your state learned that could help states up-watershed from the Bay?

After over 25 years of Bay restoration efforts we have learned a number of valuable lessons. First of all, it is imperative to begin with comprehensive scientific studies that combine theory, detailed data, monitoring, and modeling. The EPA Bay Program presented the public and political leadership of the region with a solid, scientific foundation for decision-making. The information was comprehensive and multi-disciplinary. It identified clear linkages between land, water, and living resources. Since the release of the original EPA report in 1983, highly sophisticated monitoring, modeling and targeted research have continued to play a central role in the formulation of policy within the region. On-going monitoring helps policy-makers to measure their progress while modeling offers a useful tool to test the monitoring findings into the future.

Secondly, the goals that are being set must be clear, specific, comprehensive and measurable. The Bay Agreements and the high-level leaders who have signed them provide an enduring commitment to the restoration of the Bay ecosystem. These goals covered a comprehensive array of issues including water quality, living resources, growth management, public information and education, research and monitoring, and public access. The commitments should be realistic, but they should also challenge the programs to implement significant change. Goals that are quantifiable make progress measurable and keep leaders accountable. The goals also last beyond the terms of the elected leaders and provide for continuity in the face of political change.

Thirdly, involving the participation of a broad spectrum of participants is vital to success. Ecosystems like the Chesapeake's are extraordinarily complex. The framework to manage it has to involve a complex array of players representing all levels and branches of government, the private sector, scientists, and citizens. Six governors and the mayor of the District of Columbia, over 40 members of Congress, hundreds of state legislators and local elected officials, 13 federal agencies, four interstate agencies, more than 700 citizen groups, and hundreds of businesses all play a role in our restoration effort. Together, these players bring immense political leadership and financial support to the Program. Strong communication strategies, frequent meetings, and an inclusive process have become the signature of the Chesapeake Bay Program.

Fourth, target your resources in the most cost-effective means possible. The costs associated in cleaning the Bay are in the billions of dollars. By focusing our limited resources in the areas where we will see the largest improvement in the Bay's overall health, we can target our money to get the most value out of each practice implemented. In 2004, the Chesapeake Bay Commission published a report on the six most cost effective practices that if fully implemented would result in the largest nutrient and sediment reductions for the least cost. Those six practices include; point source upgrades, conservation tillage, cover crops, livestock diet and feed management, traditional nutrient management and enhanced nutrient management.

In its efforts to restore the Chesapeake and its statewide waters, Virginia has dedicated almost \$1 billion to upgrading sewage treatment plants. Virginia has also identified its top five priority

agricultural practices to be funded with state cost share dollars that follow along with the Commission's report.

As a further commitment to targeting, NRCS is focusing implementation of the new Chesapeake Bay Watershed Initiative to priority sub-watersheds in the region. Created by the 2008 Farm Bill, the Watershed Initiative will select areas that are most in need of agricultural best management practices and that can deliver significant nutrient reductions in a short period of time.

Finally, integrating government agencies is key to making progress. In Virginia we have separate agencies for point source and non-point source water quality issues. Our natural resources agencies are separate from the agriculture, planning, budget, and economic development agencies. This dissection of responsibility often leads to difficulties in integrating management efforts that cross agency lines. As our knowledge of the inter-relationships and connectedness of air, land, water and living resources grows, we periodically attempt to restructure our government agencies to better integrate the component parts.

7. Please share your experiences with how the Navy has dealt with their non point source pollution reduction. What lessons can we apply in other non-government areas? What is the best way, in your opinion, to disseminate this information?

The Department of the Navy issued a policy in November 2007 to apply Low Impact Development (LID) technologies at all Navy and Marine Corps facilities worldwide. LID is a storm water management strategy that mitigates the adverse effects of construction projects on water quality by maintaining or restoring predevelopment hydrology. The policy applies to all major construction projects (exceeding \$750,000) and major renovation projects (exceeding \$5 million) with the goal of achieving no net increase in storm water volume and sediment or nutrient loading. Although the policy directs the Navy and Marine Corps to immediately plan, program and budget to meet the requirements starting in FY 2011, it emphasizes that all efforts shall be made to incorporate LID practices in fiscal years 2008-2010. There are annual reporting requirements on implementation and a waiver process if the goals cannot be achieved. The Navy's LID policy was announced at the December 2007 Chesapeake Executive Council annual meeting.

In November 2008, LID practices were highlighted at a conference and field trip geared toward Base Commanders in the Chesapeake Bay watershed to help them understand and promote LID application at their installations. The Executive Director of the Chesapeake Bay Commission addressed the group about the importance of the Chesapeake Bay in terms of natural beauty and economic livelihood and challenged the military to take action to improve the health of the Bay. Based on that speech and information from the conference, the Regional Engineer for

Navy Region Mid-Atlantic sent a directive to all subordinate commands in the Northeast and mid Atlantic states requiring the incorporation of LID into every project and, where possible, to change existing designs that do not incorporate these technologies. This concept was also embraced by the Regional Engineer for the Navy Capital Region.

LID training was provided to over 200 Navy planners, designers and facility construction and maintenance employees in the Bay watershed in January 2009. Additional training will be provided in Fall 2009 with plans to produce a webinar that can be archived for viewing by new employees and potentially by other entities.

In February 2009, the Chesapeake Bay Commission Executive Director toured several LID projects at Norfolk, VA Navy bases and spoke to all of the Public Works Officers from Navy and Marine Corps installations located in a 15 state area stretching from Maine to North Carolina about the Bay and the Navy's LID policy. The Director was impressed by the feedback from the audience on not limiting LID to major construction and renovation projects, but to incorporate at any project where it is feasible. She continues to keep members of the Chesapeake Bay Commission updated and informed on programs and innovations that are incorporated by the United States Navy in their efforts to be environmentally responsible.

Under the new Executive Order on Protection and Restoration of the Chesapeake Bay, DoD is designated as lead agency to recommend practices to strengthen stormwater management at Federal facilities and on Federal lands within the Chesapeake Bay watershed; the EPA was assigned to develop stormwater best practices guidance. As the DoD Executive Agent, Department of Navy will lead this effort and coordinate with the other services, Federal agencies and states in the Bay watershed to develop recommendations that demonstrate leadership in stormwater management. The recommendations will be included in a report that will be available to the public and will be considered by Federal leadership under the Executive Order as part of a comprehensive strategy for protection and restoration of the Bay. Low Impact Development not only complements existing state and local strategies, but will provide technologies that can be transferred to state and local governments, non-government organizations and private landholders.

What lessons can we apply in other non-government areas?

The Department of the Navy LID policy played a major role in the LID implementation at Naval installations. In order to encourage the use of LID in other non-government areas, states and municipalities need to issue stormwater policies or regulations that encourage the use of LID techniques for stormwater management or that require stormwater control and stormwater pollution reduction to force entities to consider how to best manage and reduce runoff. An

incentive program in the Bay region to incorporate these techniques could also be helpful in jump starting incorporation of these actions at existing buildings and facilities.

What is the best way, in your opinion, to disseminate this information?

In addition to training environmental engineers, it would be valuable to provide training for designers, planners, and construction managers on LID techniques. There is a misconception that LID is more expensive and harder to implement than conventional stormwater management. LID training should focus on total cost and long term environmental benefits of LID. Success stories about projects that incorporate LID techniques should be published in professional construction and environmental magazines and on associated web sites and presented at environmental and engineering conferences. Award programs at state and federal levels that recognize LID successes could help motivate organizations and get information out. The Navy and EPA should encourage engineering school participation/adoption of LID practices. Also, better incorporation of LID practices into the LEED standard by the U.S. Green Building Council offers a good opportunity to spread the word.

Personal Comment on the role of the United States Navy in protecting the health of the Chesapeake Bay.

As a former Naval officer, I am very proud of the efforts expended by the Navy in protecting the health of the Bay as well as their initiatives to help clean up the waters of our Bay. The enthusiasm for environmental protection is evident from the Command structure of the Norfolk Naval Base to the individual sailor aboard each ship. The civil service employees are also highly engaged in maintaining the stormwater runoff that might impact the Bay. The Navy's continuing commitment to environmental stewardship should be recognized as a benchmark for all agencies of the federal, state, and local governments.

Senator CARDIN. Well, let me thank you. That was excellent testimony to conclude the formal presentation by the panel. So I thank you very much for that.

I want to put one commercial in. We, in this committee, have passed out the State Revolving Fund reauthorization. It will be the first time, I believe, in 20 some years that we would have a reauthorization. It modernizes the formula so that it is based more on need, primarily on need.

As a result of putting more money into the authorized program, every State will get more funds to deal with their wastewater treatment facilities. However, the percentages will change to meet the current needs. So not every State will see their percentages increase.

We are in danger of not getting that bill moving forward, and we could use all of your help in talking to your Senators as to the importance to get that done without relieving the national pressure on wastewater treatment facility modernization and new facilities. It is difficult to deal with Blue Plains in isolation. There just are not enough funds out there to deal with all of these problems.

So the Chesapeake Bay is very much dependent upon the reauthorization of the State Revolving Fund. I would just urge you all to talk about the urgency of getting that done. It also makes sense for our economy in so many different ways.

But that was just a commercial to get that bill moving. Senator Boxer is working very hard with our leadership. We have strong bi-partisan support for it. We are pretty close to getting there, but we could use continued interest on that.

Let me talk a little bit about the two issues that most of you have talked about, and that is the tools that you need to get the job done and whether there should not be some type of enforcement to the goals that are set.

I think that we all agree that we should have goals set under the current way it is done. I mean, it is a partnership, it is a consensus type of goals that are established, it is multi-year with a way to evaluate on a periodic basis, whether it is every 2 years or so forth. A point is to take a census as to where we are and the progress that we are making.

We also must have actionable progress in each of the areas that are adding to the pollution in the Bay, whether it is the point source pollution or whether it is airborne or whether it is agriculture or whether it is runoff or wastewater treatment facilities. And it needs to be based upon good science.

Now having said that, I think, Secretary Griffin, you mentioned it, and others mentioned it, that we could perhaps learn a lesson from the Clean Air Act, where we have—where it requires the development of State implementation plans, recognizing full well that not one jurisdiction can solve the problems or our air as one jurisdiction cannot solve the problems with the Bay. Then there are certain expectations and enforcement provisions that are in the Clean Air Act.

Can that be a model that we could use in the Chesapeake Bay program, recognizing that we also must provide the resources and tools so we can realistically achieve the objectives that we say?

Can I hear from Secretary Griffin? And if anyone else wants to comment, fine.

Mr. GRIFFIN. Senator Cardin, that is a great question, and my answer is, unequivocally, yes. I think, having worked with this program for 25 years, several things are clear in terms of what we have to do to change the way we do business and get different results.

I think one of them is to require each State to come up with an implementation plan that is approved by EPA and that they can enforce, so that you have more of a watershed focus as opposed to simply relying on EPA's individual permitting authorities, whether they are NPDES permits or MS4 strong water permits, whatever.

I do not think, you know, something that has been lacking here is we talk about watershed-wide efforts but our regulatory scheme is not aligned with that, and I think this moves us in that direction.

But most importantly, I think it gives each State some assurance that if they do their part, the Federal Government, which is really the only level of government that can do this over the States, makes sure that every other member is doing their part as well. I think that is the fundamental idea here. It is watershed-based, and everybody gets bound to develop and implement these plans.

Another example in my world, dealing with fisheries is somewhat of a parallel. And that is that my State's Fisheries Commission and their counterparts across the country, when they develop plans with the States, if the States do not implement them after a series of due process requirements are met, the Commission can impose a plan. You know, I am thinking of our years together in the State with the whole rockfish issue some time ago.

But I do not think it is unprecedented, certainly. Those are two examples. And I think it is something we really need.

Senator CARDIN. Thank you.

Secretary O'Mara.

Mr. O'MARA. Thank you, Senator.

We completely concur with Secretary Griffin that it is a valuable approach. We want to make sure that we are looking holistically across all sources and that rather than just focusing on agriculture, really looking across transportation, commercial development, residential development and recreational.

But one point that we are struggling with a little bit in Delaware, as Senator Carper said, we are kind of at the tailpipe of the eastern corridor, looking at air emissions. We have been struggling a little bit trying to have our 126 Petition take into account the emissions that are coming from outside of our immediate corridor with Maryland and Pennsylvania, but actually going further up the line with coal plants in Ohio and Indiana and kind of up that way.

So as we are looking at this holistically, I do think we have to have a balance of both the State responsibilities, but also looking at the impacts we are having on each other and tying ourselves together, as Secretary Griffin said.

Senator CARDIN. That would be particularly true on airborne. There is no question about it. Does anyone else want to comment on this?

Yes, Mr. Tierney.

Mr. TIERNEY. We have an example for you in Long Island Sound where we have a nitrogen dead zone, a nitrogen-caused dead zone. It is rimmed by Long Island, New York City, and highly populated centers in Connecticut. And unlike the Chesapeake Bay Program, New York and Connecticut got together with EPA and did a TMDL and finished it in 2000.

We had all our permit fights, litigation and the like done and wrapped up by 2004. And since that time, because this is nitrogen and the big issue there was wastewater treatment plant discharges, we focused on the 102 larger wastewater treatment plants right around Long Island Sound. And it was an enforceable, binding program.

We got into this TMDL, Total Maximum Daily Load Program—
Senator CARDIN. It was enforceable?

Mr. TIERNEY. Absolutely enforceable. I am the dark angel of New York State when it comes to this sort of thing. I make people spend extraordinary amounts of money on upgrading the wastewater treatment plants. We are set to finish approximately 90 to 95 percent of our reductions under the TMDL by 2014.

Senator CARDIN. What was the authority for you to be able to do that?

Mr. TIERNEY. The Clean Water Act. Under the Clean Water Act, if a water body does not meet State water quality standards, which are also the Federal water quality standards, then you have to do a pollutant budget program for it. Those pollutant budget programs have results. They can get incorporated into binding Clean Water Act permits that are enforceable.

So the Newtown Creek Wastewater Treatment Plant, by the time it looks like it is done, the upgrade has other things in it too, it might be \$5 billion, Senator.

But what was distinctly different from the Chesapeake Bay Program is that we did develop an enforceable program. We put it on a schedule of compliance, and we did the enforcement to make things happen.

I am not very big on voluntary programs in many ways. Sure, I like it, I think they are good. But for instance, I beg to differ with my friend from West Virginia that frequently a lot of the results on agricultural enforcement, agricultural land management, agricultural pollution eruptions, do not show up, necessarily, outside of a regulatory context.

Yes, we need to help the farmers. But in New York, for example, we have 88 CAFOs within the Susquehanna-Chemung area, 88 regulated CAFOs for dairy cattle. Only two would be regulated under the Federal program. We do it as binding, State Clean Water Act permits.

So just that program itself gives you an example of how there is a compliance assurance context here that I think really could be useful if injected into the Chesapeake Bay Program.

Senator CARDIN. I want to get to Commissioner Douglass in 1 second.

In that program, do you also have on runoff issues, the non-point—

Mr. TIERNEY. Yes. Senator, on the farms, every farm has to have a comprehensive Nutrient Management Plan, nonstructural pro-

grams and structural programs, down to 200 cows. We have, and I think other States as well, have storm water permits, polluted runoff permits, both for construction activities, industrial sites and city streets that are well more stringent than the Federal minimum.

Senator CARDIN. You have authority over that in enforcement?

Mr. TIERNEY. Yes. And we enforce it.

Senator CARDIN. Thank you. I appreciate that.

Commissioner Douglass.

Mr. DOUGLASS. Senator, it is interesting that you make reference to the Clean Air Act. I can tell you from some experiences in that because, back in the 1960s and the 1970s, there was a West Virginia Air Pollution Control Commission, and I served as Chairman of that for 9 years. And I will tell you, AEP and Union Carbide and the others were tough people to convince that new technology was out there and that they could prosper from the new technology.

I certainly think that is true to an extent with what we are looking at as water. I alluded to technology in my presentation and in the lengthy—and when are we going to learn from England, the U.K., that there is a solution that is profitable out there, and that is anaerobic digestion.

We just go back to the old technology here, and I think that we are wasting money when we can gather methane, we can gather plant foods, and there is a saleable product, rather than trying to dispose of sewage sludge which, again, causes us major problems out there.

Senator CARDIN. Thank you.

Mr. DOUGLASS. Well, that is my two cents worth, Senator.

Senator CARDIN. I appreciate it, Mr. Douglass.

Mr. Cosgrove.

Mr. COSGROVE. Senator, one thing that I hope the committee will keep in mind is that we always talk about agriculture a lot. Now, my district is a little strange because half of it is agriculture and half of it is suburban. And we always talk about farm runoff and cows and whatever, and corn that is being grown and fertilizer that is being used.

But what is really missing, I think, in many cases, is the discussion on non-point source pollution. In Northern Virginia, where I grew up, it is nothing but a big parking lot when you look at it. It is all imperious surfaces. You look at all of metropolitan Washington, and it is the same way. Look at Hampton Roads where I live now. To a great extent, it is like that. And Richmond, and all along that watershed. That water has no place to go but into the James River and into the Potomac River and right into the Bay.

I think that a lot of the progress we made is in non-point source pollution, and I hope that the committee looks seriously at that. The farmers are doing a lot. They are doing a lot now to try to mitigate the runoff, whether it is no till or whether it is BMPs or any other of the tributary strategies, they are doing everything that they can right now within their financial capability.

But I hope that we will not forget those non-point sources which have a real impact on the Bay.

Senator CARDIN. I think that point is very well made, and on enforcement we would have to include non-point sources. Otherwise,

I think we lose the confidence and credibility and probably the political ability to get this done from the other communities that would be directly impacted.

Senator Brubaker.

Mr. BRUBAKER. Well, thank you. I just wanted to speak to agriculture for 1 minute because it was referred to frequently. I said in my testimony that I have written hundreds of nutrient management plans, worked for firms that have written thousands in all of the States that are being referred to here.

It is perfectly clear that there are some nutrient management plans that have made a significant difference in water quality emissions from farms, and to the opposite side, a significant amount of money has been spent on nutrient management plans on some farms that have yielded very little true net gain. So again one size does not fit all. There are some farms that are in a whole lot more sensitive position than others.

I do agree with the Commissioner of West Virginia on agriculture, that you have got to build a productive partnership with the farms if you expect the real life activity on that farm to change in a substantive way. That farmer needs to believe that technology improvement or that scientific or best management practice is actually in that producer's best interest. Otherwise, you simply get a plan, a strategy, a book that will go onto a shelf and not be utilized.

Senator CARDIN. Director Hawkins.

Mr. HAWKINS. I think the question of how the State implementation plan construct under the Clean Air Act is a fascinating one. The reason, and this is where the District is an interesting example, we do a State implementation plan for air issues for the District. There had been a debate in the District about whether we would decentralize the testing of air emissions for automobiles. There was a consequence to our SIP plan that was enforceable on air emissions.

In order to do that plan, we had to have an alternate strategy to make up for those emissions somewhere else that was measurable and knowable before the first change could be done. And we were looking at expanding bus routes, increasing—well, there were all sorts of steps.

A SIP plan on a water base would have to have the same thing—non-point source and point source handled. I have run a farm, I have owned a farm, I know about farming. It has to be included. But once you have your equation to a certain amount of reductions, the SIP plan would work to say, if you cannot reach this much here, you have to reach it somewhere else. There is a one-for-one trade. And if you do not, we enforce on the whole. We expect you to meet the whole. You can be flexible about which tools you use to apply to reach that whole.

The feature that we have for State implementation plans under the Clean Air Act, which I think we need under the Clean Water Act, is a standardized model for how much reductions we assume come from certain strategies. That is why I have advocated very strongly, as many people know, for standardized responses, not that they are not changed for urban, rural and suburban.

But in the Clean Air Act model, and it is assumed how much reductions you make if you put in a bus line based on characteristics, if you do low impact development requirements of this amount for suburban jurisdictions, you get a credit in your SIP plan.

And we are constantly improving the science, not in any one jurisdiction, but for the entire basin, scientifically based. So yes, you would account for different types of topography or different locations. But that way, everybody is equal and the science that backs of the implementation of the SIP plan that is enforced, that is a workable model that will make a difference.

Senator CARDIN. Well, I think you make a very valid point.

I want to talk about one additional tool that we are looking into, and that is a nutrient trading program to provide ways in which you can reach the levels by basically underwriting the costs of nutrient reductions in other segments.

Any thoughts as to whether that would be a valuable tool in helping reach our objectives here?

Senator.

Mr. BRUBAKER. Thank you, Senator. There is no doubt that the answer is yes. Within my senate district and within Pennsylvania we have a few trades on the books. Each one of those trades has been properly evaluated and, there is just no doubt about it, significant gain on nutrient reductions and huge economic gains to the originating sewage treatment plant.

One of them is Mount Joy, Pennsylvania. It is the Brubaker Farm. Same last name as me but not a family relative, but a good friend. Seven hundred dairy cows. With a neighboring sewage treatment plant, they did a trade where significant modification was done on that 700-cow dairy, and in exchange, enough nitrogen and phosphorous reduction and sediment reduction was verified that, ultimately, that local sewage treatment plant that needed to make upgrades did not need to make the type of upgrades that were being required.

It saved the sewage treatment plant money and took some of those dollars and put them back into the farm operation to allow the farm operation to move down more significantly into their environmental compliance.

Senator CARDIN. That seems like a logical help because you can get savings in agriculture. The problem is the economics for the developers. The economics make sense, to help the farmers out.

Mr. Tierney.

Mr. TIERNEY. But Senator, if you are talking about everything by everybody everywhere, that means every farm needs to be done, that means every retrofit needs to happen, that means all of the air sources need to be addressed. So in a context where the bar is so high, this poses a problem for you to consider going forward.

Where the non-pollutant reductions are so high, you may very well need both the wastewater treatment plant and the pollutant reduction program that my friend from Pennsylvania just spoke about. So if you need it all, trading amongst point sources allow more to happen in one place than another, poses a problem, I think, going forward, to reaching that ultimate end line where people can focus.

Senator CARDIN. I think, though, that we want to have the numbers make good science that is achievable. So we do not want to set the bar so high that it is unrealistic that we are going to be able to achieve that. On the other hand, we can certainly do a lot better than we done in the past meeting the goals, at least as we are right now.

Doug.

Mr. COSGROVE. Senator, at the risk of alienating my friend right here, we all have to live in the real world. And agriculture is becoming more and more of a very expensive real world. And if there are ways to reduce the overall impact through trading, then I think that has to be part of the solution.

Granted, in a perfect world, everybody would be everything they possibly could everywhere. But the dollars involved, especially for that small farmer, will be the difference between are they going to do that, or are they just going to go away. And if they go away, what is going to go on their place? More impervious ground cover, houses or whatever. We have to look at that.

Senator CARDIN. Senator Brubaker.

Mr. BRUBAKER. Thank you. Very briefly, my friend to my left makes a very good point. But in that case in Mount Joy that I spoke about, pound one of reduction was not offset with pound one of gain. There were a number of pounds that were removed, and then the balance beyond that was ultimately traded.

Senator CARDIN. Secretary Griffin.

Mr. GRIFFIN. Mr. Chair, I would only make two quick points. First of all, I do not think nutrient trading programs, like any trading program, work unless you have an effective cap.

Second, if you are talking about trading between regulated sources, i.e., at this point, essentially, point sources and unregulated, at least in the context of agriculture, non-point sources, it seems to me it is not an apple. It is an apple and an orange in the sense that you are foregoing more assured enforceable requirements on a point source for a non-point source where there is no assurance that it is going to be, at least from a regulatory standpoint, implemented.

That is just something that, you know, I certainly appreciate the comments that others in this panel are making about the marginal operation of a lot of farms these days, and there are some costs that have to be absorbed. But there are certainly ways to deal with that.

Senator CARDIN. You raise the last question that I had, and that is non-point sources. It is a challenge in the Chesapeake Bay how we get a handle on non-point sources. Do any of you have any suggestions on more enforceable ways on non-point sources?

Director, you seem to be the popular one here on developers. Let us hear from you.

Mr. HAWKINS. I do. And I do not think this is much different than what we did for technology-based standards under the Clean Water Act of 1972. The question was the same.

Prior to 1972, the only way we were figuring out how to reduce pollutants to water bodies was to try to reason from the water body and scientifically prove back to the discharger, in every jurisdiction

differently. It was exceedingly difficult to do, and we had very little improvement to water quality from 1956 to 1972.

The decision in the Clean Water Act in 1972 was to have technology-based standards that were stable, that asked what is the property doing to discharge, not what the receiving body can handle. If, in section 117, we establish standardized requirements for development anywhere, so a suburban development is taking over a farm in any of these jurisdictions with some grades to show differences in topography and otherwise, but there is a standardized requirement in every place, that would then become the requirement that is a technology onsite the same way an end of pipe discharge requirement is at every metal finishing plant of a certain kind no matter where it appears in the country.

I think—we have requirements in the District, we built it into the Code. My review is that it is the rules of the game. Create the rules of the game to have the outcome. That does not favor my jurisdiction over anybody else's. It is a clean game between us, because we have at least a clear set that everybody must do. So a developer does not get a better deal somewhere else.

Senator CARDIN. Well, that also applies to governmental development, whether it is infrastructure, roads—

Mr. HAWKINS. Absolutely. And in the District, green building requirements are now built into the requirements. Now, every District building must be LEED silver. In 2012, every commercial, private, must be LEED Silver. It is not a rule of the game—

Senator CARDIN. We are moving in that direction at the Federal level also. I think it makes sense. Whether we will be able to do it in our highway program has yet to be seen. That is still on—well, there are real intentions to do that. We will see how the economics of this all plays out.

Secretary O'Mara.

Mr. O'MARA. Thank you, sir. In Delaware, we are trying to do a lot of work on our pollution work control strategies. We are really looking at local land use decisions and really working with the counties and all those other stakeholders, whether that is implementing buffers or other mitigation techniques.

One of the concerns that we have is how do we coordinate across our jurisdictions so that we do not create kind of perverse economic development incentives to develop in some States and not in others because of these different types of requirements. And these are all authorities that the EPA does not currently have that we have kind of challenge of trying to implement at the State level in collaboration with the counties and municipalities to try to get at some of these non-point sources.

But whether it is, you know, a golf course, or some kind of a residential or commercial development or agriculture, having some kind of common standards. And then, as Director Hawkins was saying, making sure that we are using the best science and giving the right credits for the different types of approaches.

But we have had some luck. You know, there are some kinds of legal questions about the approach, but having that stakeholder behind you when getting to local land use decisionmaking we found to be absolutely key.

Senator CARDIN. I think Director Hawkins raises a very valid point about having uniform standards of expectation using best science so that deals with the non-point sources. There are also mitigation issues that we could talk about, including the building shorelines and other programs that have been very successful, a combination of which could make a real impact on non-point sources.

Does anyone else want to comment?

Certainly, Commissioner.

Mr. DOUGLASS. Through my activities over the years, I learned a long time ago that I am better off if I stay with the facts and make the decisions on the best science that is available. It is for that reason that I alluded in my presentation that I initiated a water sampling program on the Potomac River in West Virginia back in 1998.

I have a 10-year projection on that, or facts on that. We were sampling those various streams in West Virginia from one to five times a month, and I think you will find it interesting what we have found and we are publishing that report. It should be out momentarily.

But again, this is what I have based my decisions on in West Virginia. And of course this information is available to EPA, and we are very close to several agreements right now that you alluded to here on clean water nutrients and the other effluents that are in that water.

Senator CARDIN. Well, we appreciate that. I was a little bit reluctant when I was told that were going to have seven people on the first panel. I was happy because it means that there are seven jurisdictions that are part of the Chesapeake Bay effort, which gives us a lot of power and interest.

I was concerned about how we would interact with seven witnesses at one time. I must tell you, I found this panel to be very, very helpful and very informed. I really do congratulate all of the jurisdictions for their leadership on this area.

This has truly been a commitment in which the States and the District of Columbia have taken on the real responsibility and have brought in the Federal Government as a partner. But it started with our States willing to make the tough choices to deal with the Bay.

It was not easy for any State. But when you live in Virginia, or you live in Maryland, and you live on the shores of the Chesapeake, it is a constant reminder. If you live in New York or you live in Pennsylvania or Delaware or West Virginia, it is not quite as easy to understand the impact that you have on this incredible estuary. So I really do thank all of you for your leadership on this.

And Senator, since you are a senator, I will give you the last word on this.

[Laughter.]

Mr. BRUBAKER. Well, thank you sir. I just felt the burning desire just to make one very last brief comment regarding trading. Farms, as we all know, are businesses. Dairy today, in Pennsylvania it costs about \$16 to make 100 pounds of milk, and producers are getting \$12 for it. Dairy farmers are losing tens of thousands of dollars a month.

Farm families, and we have 63,000 farm families in Pennsylvania, farmers want to do better environmentally. But their business has to yield a level of profitability that will allow them to come to the table. Right now, in certain business sectors of agriculture, economic profitability does not allow them to come to the table.

Trading provides that economic stimulus for producers to step up and say, yes, I can do better. And it is not government money. It is money coming out of a system. So it is a true gain, and I would just argue as strongly as possible that it ought to be a tool in the toolbox.

Senator CARDIN. Well, thank you for that comment.

And again, let me thank all of our panelists for their testimony.

[Recess.]

Senator CARDIN. Let me invite the next panel forward.

We are pleased to have Alan Wurtzel, who served as the CEO of Circuit City until 1986. He is currently a Trustee of the Chesapeake Bay Foundation. I think it is also worth noting that Mr. Wurtzel once served as the legislative aide to former Senator Joe Tydings, who held the U.S. Senate seat from Maryland that I am privileged now to hold. So Mr. Wurtzel, it is a pleasure to have you before the United States Senate.

Brent Fults is the Principal, Nutrient Land Trust, Earth Source Solutions and its successor organization, the Chesapeake Bay Nutrient Land Trust, where he has experience with markets for environmental credits.

Joe Gannon, III is Vice President of Envirocorp, a water quality testing company based in Delaware. Mr. Gannon is also a Board Member of the Nanticoke Watershed Alliance.

Finally, we have Marty Mitchell, Vice Chief Executive Officer of Mitchell & Best Homebuilders. Mitchell & Best is headquartered in Rockville, Maryland. It is a pleasure to have a Maryland company represented here at the table.

Mr. Wurtzel, we would be glad to hear from you.

**STATEMENT OF ALAN L. WURTZEL, CHAIRMAN EMERITUS,
CIRCUIT CITY STORES, INC.**

Mr. WURTZEL. Senator, thank you very much. Thank you for inviting me to testify.

I am here on behalf of the Chesapeake Bay Foundation, and it is, as you pointed out, a bit of déjà vu because I did work for Senator Tydings as a legislative assistant in his first 2 years in office.

I would just note that in those days this building was known as the New Senate Office Building, and Senator Dirksen was the Majority Leader. Actually, Joe Tydings' first major legislative effort was to try to derail Senator Dirksen's attempt to overrule the one man-one vote decision. So it was a privilege to watch Senator Dirksen on the floor almost every day trying to bring forth his constitutional amendment.

Getting back to the business at hand. The Chesapeake Bay Foundation has been working to save the Bay since 1967, over 40 years. We focused public attention on the deplorable state of the Bay and have been there every step of the way as Congress and the Federal

Government and the States have worked together to solve the problems of the Bay.

CBF currently has 225,000 members spread across the watershed and a staff of approximately 100 talented policy, education and restoration specialists working out of locations in Maryland, Virginia, Pennsylvania and the District of Columbia.

Meeting in this room brings back memories of Senator Muskie who led the effort in 1972 to produce the Clean Water Act. The opening sentence of the Clean Water Act says, "the objective of this act is to restore and maintain the chemical, physical and environmental integrity of the Nation's waters."

Mr. Chairman, I can tell from your very perceptive opening statement you also believe that these were laudable objectives, and while a lot has been done, we have not achieved the objectives that Senator Muskie and his colleagues put forward in 1972.

Partly it is because the population of the area, as you pointed out, almost doubled, and a lot of it has been paved over. There has been a lot of good work. But we have not been able to achieve the objectives of a chemically, physically and biologically clean Bay.

I am going to skip my discussion about some examples. You know very well about the dead zones in the Bay and the fact that there are so many nutrients that there are a lot of areas where there is no dissolved oxygen in the water.

The various jurisdictions have tried, in 1982, 1987, 1992 and as recently as 2000, to set voluntary standards to reduce phosphorous, nitrogen and sediment. And none of those efforts, including the 2000 effort, have been successful in achieving the objectives.

So one has to ask, with all the goodwill, and all the work and all the effort, why has there not been more progress? I was delighted to see the seven jurisdictions here today. They were all supportive to amendments to the legislation to create more teeth, to create more accountability, to create more results. What it shows, I think, is that there is a systemic issue here. And the systemic issue is the structure of the Clean Water Act itself.

As you have pointed out, the Chesapeake Bay Foundation believes that most of the low hanging fruit, most of the progress, has been made with point source pollution. Maryland and Virginia have stepped to the plate, and Pennsylvania, with very large appropriations to deal with point source pollution, both industrial as well as sewage treatment. We have made a lot of progress, and there is more in the works. But still the levels of phosphorous and nitrogen in the Bay continue to be at least constant and may be slightly rising over time.

And so what we need to do is begin to address our non-point sources. You pointed out, and I was pleased to see, all seven jurisdictions represented here seem to agree.

The next thing I was going to say is that the way to deal with non-point sources is to follow the model, or to use the Clean Air Act as a model. You obviously have that on your mind because you raised that question yourself. The Chesapeake Bay Foundation strongly believes that it is a good model for attacking the non-point sources in the Bay.

We would encourage you and your staff to examine that model carefully and tailor the successful approach there to the Bay. The

Clean Air Act has reduced air pollution by 50 percent. We believe that is largely because of the way the Act works. It creates accountability, State by State. States, as you know, must limit the sources of air pollution, and if they do not meet the standards, they have to go back to those sources and require further reductions of air pollution.

We need to do similar things with non-point sources, terrestrial non-point sources, in the Bay. To be more specific, we have eight recommendations which are in my testimony but I will outline them very quickly here.

Senator CARDIN. We will put all of your statements, full statements, in the record—

Mr. WURTZEL. Thank you. I assumed that.

Rewrite section 117 of the Clean Water Act to create a national pilot program for clean water. I mean, this is a nationwide problem. I have in my statement some statistics, but it is like one-third of the rivers, and one-half of the lakes, and one-third of the estuaries that are not swimmable or fishable. This is nationwide.

So this problem, while we are focusing on the Bay, is not limited. Obviously the Clean Water Act is a national act. We are recommending that you possibly make the Bay a pilot project and give us a few years to show what we can do as a way of leading the Nation to improving other waters, by using the Bay as a pilot.

One, require that the TMDL contain separate loads for permitted, that is sources that require a permit such as point sources, as well as non-permitted or non-point sources, so that we look at those separately and begin to address the non-point sources separately. And then divide them into whether it is runoff, or agriculture, or whatever.

Two, require the States of the Bay watershed to submit to EPA State water quality implementation plans, similar to what is required under the air pollution act.

Three, require the States to submit reports every 2 years detailing the progress made in achieving the pollution caps.

Four, provide meaningful consequences if a State fails to meet its objectives.

Five, authorize citizen suits against the States for failure to comply and against EPA for failure to respond appropriately where the States have not made adequate progress. Over the last 8 years, we feel the Federal Government has not done a good job using the powers of the Act to enforce the standards it has set.

Six, we agree with your suggestion of an interstate nutrient trading program, and we think that cap-and-trade is a way to effectively share the burden and shift the burden to those places that can most easily afford to meet the standards of water quality.

And finally, to authorize a new competitive grant program that supports local governments which in turn can support the localities and the farmers and the other individuals that are required to make difficult changes. This kind of a grant program will help to facilitate the implementation of the tougher standards.

So in conclusion, I encourage you and the other Senators on this committee to embrace the legacy of Senator Muskie and the other environmental visionaries of the past generation. The Clean Water Act set the objective—restore and maintain the chemical and phys-

ical and biological integrity of the Nation's waters. As I said, we have made progress, but a lot more needs to be done.

The focus should be, we think, on non-point sources so that our streams, rivers, lakes and bays become both fishable and swimmable again.

Thank you.

[The prepared statement of Mr. Wurtzel follows:]

Statement of Alan L. Wurtzel
Before the Subcommittee on Water and Wildlife
Senate Environment and Public Works Committee
at a hearing entitled
“A Renewed Commitment to Protecting the Chesapeake Bay:
Reauthorizing the Chesapeake Bay Program”
August 3, 2009

Good afternoon. My name is Alan Wurtzel. I am a lawyer by training, a businessman by profession and a resident of Virginia. For more than twenty years I was an officer and director of Circuit City stores. I took over a family business and built it to a billion dollar corporation before I retired to do other things. They include private investing and serving on a number of not for profit boards, including the Chesapeake Bay Foundation, the Virginia Council on Higher Education, the Phillips Collection in Washington DC and Oberlin College. My residence in Virginia is in Fauquier County, along Goose Creek, which flows into the Chesapeake Bay. I very much appreciate your invitation to be here today.

Chairman Cardin and other distinguished members of the Committee, as you well know, a generation ago Senator Ed Muskie sat in this room chairing hearings of the Subcommittee on Air and Water Pollution. Senator Muskie and a small handful of others in this body believed that the federal government had a strong obligation to its citizens to provide them with a clean, healthy environment. These days we take that pretty much for granted, but at the time it was controversial. However, thanks to the vision of that small group of legislators, today we have the Clean Air Act, the Clean Water Act, and many other environmental laws that have dramatically improved our national quality of life.

The Chesapeake Bay Foundation has been working to “Save the Bay” since 1967. We were instrumental in bringing attention to deplorable state of the Bay long before government got actively involved in trying to solve its problems, and we have been there every step of the way as the states and the federal government created new agreements and new programs. Our annual State of the Bay report became the standard by which the health of the Bay was tracked, and has been, as the old saying has it, imitated but never duplicated. We currently have about 225,000 members spread across the watershed and the nation, and talented policy, education, and restoration staff members working out of several locations in Pennsylvania, Maryland, Virginia, and the District of Columbia.

Before I speak specifically about the Chesapeake Bay, I ask you to return for a moment to the vision that Ed Muskie and a handful of other Senators had for one of the most fundamental elements of a decent quality of life in the nation’s communities: clean water. The first twenty words of the 1972 Clean Water Act are straightforward and completely impossible to misinterpret:

The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.

Mr. Chairman, thirty seven years after Congressional passage of those words, we have largely failed to honor them. Take hypoxia – dead zones – as just one example. According to the NOAA Administrator, there are now about 250 regions around the country where, during warmer months, there isn’t enough dissolved oxygen in the water for aquatic life to prosper, or even, in some cases, to survive. Though the biochemistry of the dead zones is complex, the principal man-made input that causes the dead zones is too much nitrogen and phosphorus which enters the water from many land-based sources.

In the Chesapeake Bay, the observed volume of the hypoxic zone last year (2008) was significantly bigger than it was in 1972, or in any measured year before that. Significant variations occur from one year to the next depending on weather conditions and freshwater flows, so comparing two particular years doesn't provide a scientifically fair picture. However, there is wide scientific agreement that as far as hypoxic and anoxic volumes in the Bay are concerned, there has been no trend in the direction of improvement over the past two decades or more.

The Chesapeake Bay Program is the principal means through which the federal government, in cooperation with the states, has tried to address the dead zones and other Bay issues of concern. During the 1980s, after many years of study, a federal-state Chesapeake Bay Program partnership was created to try to improve the deteriorating condition of the Bay. The 1987 amendments to the Clean Water Act, Public Law 100-4, passed over President Reagan's veto, formally authorized the Chesapeake Bay Program and created the Chesapeake Bay Program Office of the US Environmental Protection Agency to provide it with support (§117; 33 USC §1267). Section 117's authorities were considerably strengthened during its reauthorization as part of the Estuaries and Clean Water Act of 2000, and its authorized funding level was raised from \$13,000,000 annually to \$40,000,000 annually. The current authorization formally expired in 2005.

Good work has been done by the Chesapeake Bay Program partnership over the years, but the hard truth is that the partnership has not solved the problem of water quality in the Bay. A recent report from the EPA to this Committee honestly characterized the overall performance of the Chesapeake Bay Program as "unsatisfactory". Time after time, the partnership has made agreements to substantially reduce the nitrogen and phosphorus pollution that is the Bay's main problem, only to fail to achieve that end. There has been undeniable progress in some areas, but as far as the big stuff is concerned, the problem has not gotten better and may well have gotten worse.

Let me highlight but one example. On June 28, 2000, the Administrator of the EPA, on behalf of the United States, signed the Chesapeake 2000 agreement with the Chesapeake Bay Commission, Maryland, Pennsylvania, Virginia, and the District of Columbia. The 2000 agreement incorporated and reaffirmed earlier commitments made in 1983, 1987, and 1992, and outlined specific targets in five areas including the protection and restoration of the Bay's living resources, vital habitat, and water quality. The 1987 commitment to reduce point and nonpoint nitrogen and phosphorus pollution by 40%, which had not been met, was repeated, and a new commitment was made: to reduce nitrogen, phosphorus, and sediment pollution to the Bay and its tidal tributaries sufficient to remove the Bay from the Clean Water Act section 303(d) impaired water list by 2010.

The nitrogen, phosphorus, and sediment commitments in that agreement are not even close to being met, just as earlier commitments were not met. The 2008 "Bay Barometer" published by the Chesapeake Bay Program includes the line "the overall health of the Bay did not improve in 2008" and notes that only 47% of the 2010 goal for nitrogen reduction has been reached.

The consistent inability of the EPA and the states to achieve the changes necessary to get the Bay cleaned up, or to even get close to meeting their agreed goals, may indicate a serious system failure that goes beyond simple management issues. The Chesapeake Bay Foundation has argued elsewhere that the EPA, particularly under the previous administration, has not been doing its job sufficiently and needs to improve its accountability and overall performance. The recent Executive Order on the Chesapeake Bay requires EPA and other federal agencies to seriously evaluate and publicly report on how they can do a more effective job. We are hopeful that we will see significant changes after the new plan required by the Executive Order is delivered and implemented.

However, Mr. Chairman, the challenge may well be more fundamental. Allow me to revert back to a national perspective for a moment. The Clean Water Act, for all the good that it has done, has only been substantially updated twice in 37 years, most recently nearly a quarter of a century ago. The tools that the Act provides for point source pollution reduction are reasonably strong and effective, but the tools that it provides for nonpoint pollution reduction are simply not. The latest water quality inventory report submitted to Congress (National Water Quality Inventory: Report to Congress, 2004 Reporting Cycle; EPA 841-R-08-00) summarizes the situation neatly:

In 2004, states reported that about 44% of assessed stream miles, 64% of assessed lake acres, and 30% of assessed bay and estuarine square miles were not clean enough to support uses such as fishing and swimming. Less than 30% of U.S. waters were assessed by the states for this report. Leading causes of impairment included pathogens, mercury, nutrients, and organic enrichment/dissolved oxygen. Top sources of impairment included atmospheric deposition, agriculture, hydrologic modifications, and unknown or unspecified sources.

Two of the sources of impairment listed above are significant for nitrogen and phosphorus loading to the Bay. 43% of the nitrogen and 45% of the phosphorus delivered to tidal waters comes from agricultural sources, and as much as 33% of the nitrogen comes from atmospheric deposition. In addition, 16% of the nitrogen and 31% of the phosphorus comes from urban and suburban runoff. Almost all of this is nonpoint pollution, which should not be surprising given the Clean Water Act's primary focus on point source tools.

In fact, a recent submission from the EPA to this Committee notes EPA's conclusion that 60% of the nitrogen load delivered to the Bay, 65% of the phosphorus load, and 96% of the sediment load is "not subject to federal regulation." (Underlining in original EPA document.)

Mr. Chairman, it is now time for Congress to do something dramatically different to improve the tools available to clean up the Chesapeake Bay, and eventually, other streams, rivers, lakes, bays, and estuaries around the nation. We simply cannot tolerate more wasted years of agreements being made and broken, federal and state dollars being spent ineffectually, and the biggest problem of the Bay going unresolved. As EPA Administrator Jackson wrote recently

"The American public has a right to expect their water will be clean, and EPA has an obligation to use its resources and authorities to the fullest to ensure this result. Despite the successes we have achieved over the years, water in the United States is not meeting public health and environmental goals. Too many of our streams, lakes and rivers do not meet our water quality standards."

I believe that the best example of how the United States might approach this problem can be found in the Clean Air Act. As you well know, the Clean Air Act establishes an overall "cap" on the amount of pollution that we put in the air (the National Ambient Air Quality Standards) and requires any state that has designated non-attainment areas to submit an enforceable plan explaining how a state will come into compliance. The State Implementation Plan leaves the states a good deal of flexibility to deal with local circumstances on their way to achieving federal air quality standards. While the Clean Air Act could certainly see some improvement, I am told that the basic framework has helped to reduce the six major air pollutants by more than 50% since the Act was passed.

There is no good reason that such a framework should not be incorporated into the Clean Water Act as well. There is no reason, of course, to revise parts of the Clean Water Act that are working, but rather to add analogs to the Clean Air Act's State Implementation Plans – to the basic framework of the Clean Water Act to make it more effective in the weakest parts. I further want to suggest that the model be tried first in the Chesapeake Bay watershed before being evaluated for the entire country.

I therefore want to use the rest of my statement to make some respectful recommendations for a new and far more effective approach to the challenges of the Chesapeake Bay that have been developed by the Chesapeake Bay Foundation in cooperation with many other partner organizations.

- 1) Rewrite section 117 of the Clean Water Act – the Chesapeake Bay section – to create a national pilot program in improving the Clean Water Act. Don't eliminate the Chesapeake Bay Program partnership, but fundamentally change the responsibilities of the parties. Monitor the results, and if it looks promising, use it as a basis on amending the Clean Water Act in the next Congress.
- 2) Require the Baywide TMDL that is currently under development to contain wasteload allocations for all permitted activities (to be incorporated into such permits no later than May 2011) and load allocations for all unpermitted, significant sources of nitrogen, phosphorus, or sediment. The TMDL should only be approved after a finding of reasonable assurance that the load allocations can be met, and must not allow any net increase in pollution above the caps for new activities.
- 3) Require the states of the Chesapeake Bay watershed to submit to EPA State Water Quality Implementation Plans, analogous to the Clean Air Act's State Implementation Plans, to achieve the TMDL wasteload and load allocations by a specified date. Require EPA to provide minimum criteria and to establish approval and revision procedures for the plans as is done in the Clean Air Act. Such minimum criteria might include enumeration of state-adopted control measures requiring reductions from pollution sources; state programs to achieve reductions through enforceable of otherwise binding funding commitments; enforcement mechanisms for when a party fails to meet an assigned pollution cap, implementation schedule or permit terms; a requirement for a 2:1 offset for all § 402 NPDES discharge permits to new sources; and assurances that the state will have adequate resources to carry out such implementation plan.
- 4) Require the states to submit reports every two years detailing progress made on achieving pollution caps, as well as any revisions to the plan necessary to meet the caps.
- 5) Provide consequences for a state failing to meet the requirements of the section or making inadequate progress. Such consequences might include the explicit authority for EPA to withhold certain Clean Water Act funds; develop and administer a federal implementation plan; put a moratorium on NPDES permits to new sources; or require permits for currently unpermitted stormwater discharges if they are found to contribute to violations of water quality standards.
- 6) Authorize citizen suits under Clean Water Act section 1365 against states for failure to comply with requirements and against EPA for failure to respond appropriately if the states' progress is inadequate.
- 7) Authorize and set minimum criteria for an interstate nutrient trading program to be available under certain conditions, to allow for possible cost efficiencies.
- 8) Authorize a new competitive grant program to support local governments by facilitating pollution reduction measures required of local governments as part of the Chesapeake Bay State's Water Quality Implementation Plan.

Back in 1972, Ed Muskie was working in the realm of big ideas as he argued for the Clean Water Act. His ideas are equally true today, especially as more and more news emerges about the effect on humans and animals of minute amounts of "emerging contaminants" in our water:

"It is imperative that we attempt to stop pollution and to restore the quality of our environment. I suggest that we begin by adding to our approach some humble ideas about ourselves and our place upon the planet.

"It may be, as some argue, that man is the most adaptable of Earth's creatures. It may be that he can remain essentially the same, changing only slightly as he adjusts to higher levels of pollution.

"But what we do not know, and what we cannot predict accurately, are the long-range effects upon man of prolonged exposure to bigger and bigger doses of pollution. Man, no less than the peregrine falcon and the mountain lion, is an endangered species.

"He is also the principal danger to himself, the principal polluter of his environment. Foul air, dirty water, ravaged land, are more than complex problems in resource management. What must be managed, and properly managed for our own protection, are our activities within our environment."

Mr. Chairman, I want to encourage you and other Senators to take hold of the legacy of Senator Muskie and the other environmental visionaries of the past generation and to move their work substantially forward. You should not let down on your efforts on climate change and biodiversity and all the rest, of course, but neither should you neglect the streams, rivers, lakes, bays and estuaries that are a critical component of the quality of life in nearly all of America's communities. As Administrator Jackson said, the public has a right to expect that their water will be clean. I know that Administrator Jackson will act aggressively as she can to clean up the Chesapeake Bay and the rest of the nation's waters, but the tools that she has at her disposal may just not be up to the job. The federal Clean Air Act provides a useful model to incorporate into the nation's water quality efforts, and the Chesapeake Bay, one of America's great National Treasures, is an appropriate place to start.

Senator CARDIN. Thank you very much for your testimony.
Mr. Fults.

**STATEMENT OF BRENT L. FULTS, MANAGING MEMBER,
CHESAPEAKE BAY NUTRIENT LAND TRUST, LLC**

Mr. FULTS. Thank you, Senator Cardin and members of the subcommittee who will hear this testimony.

I am Brent Fults, Managing Member of the Chesapeake Bay Nutrient Land Trust, known as CBNLT. Thank you for the opportunity to discuss an important market-based approach to reducing the level of nutrient pollution entering the Chesapeake Bay.

We are all familiar with the environmental challenges faced by the Bay, most notable of which is the unsustainable loading of nutrients and sediments. My testimony will provide a brief history of the nutrient trading programs, the milestones in Virginia, the roles that CBNLT has played, and the importance of private market-based solutions.

I have spent 22 years navigating development and regulations. In 2000, my business partner and I founded EarthSource Solutions to provide innovation to the growing green economy. In 2005, the Commonwealth created a nutrient exchange program aimed at point source reductions. That legislation also created the opportunity to create non-point nutrient reductions known as offsets.

CBNLT was founded in 2006 as a response to my core environmental values and the growing concerns for the Bay. CBNLT began to develop land stewardship strategies that reduced nutrient loads and generated offsets. In September 2008, CBNLT became the first private entity in Virginia to generate and offer certified nutrient offsets.

These initial offsets were generated through land conversion practices on a 110-acre core portion of a 904-acre heritage farm known as Wildwood Farms. The nutrient offsets derived at the farm have been implemented in advance and sequester 100 pounds of phosphorous and 376 pounds of nitrogen annually. In a 30-year period, Wildwood Farm will reduce a combined phosphorous and nitrogen load of over 14,000 pounds. In a 100-year period, 47,000 pounds will be reduced.

In 2008, CBNLT identified the need to expand the use of offsets to address nutrients associated with storm water. This opportunity would require a legislative effort. The resulting legislation received bi-partisan support and was unanimously passed on all fronts. The legislation took effect on July 1, 2009.

There are several important points of the legislation. Offsets must be generated in the same tributary as the permitted activity. Offsets represent reductions above and beyond existing tributary strategies. And offsets may not be used in contravention of local water quality regulations. This represents a leading first step model by the Commonwealth for addressing nutrient pollutions resulting from storm water runoff.

In a little over 3 years, Virginia has expanded from a broad vision to an on-the-ground implementation. This effort has set the bar high. Virginia's proactive approach has resulted in verifiable opportunities for private market participation in the green econ-

omy. This private investment in the environment results in multiple public benefits. It is a real solution.

Although still opportunities and barriers exist, should a multi-State trading program be developed, it would be important to establish a level of equivalency between the States with regard to the generation of offsets. As Federal funding is directed toward the clean up of the Bay, it is important that funds are distributed equitably. It may even be possible for the development of some sort of nutrient neutral standard.

It is important to note that this committee, the reauthorization of updated strategy, and equitable stakeholder participation can create a private offset market. First step models start somewhere. The obligation for change is now.

We still need to be creative in seeking potential uses for offsets as they will prove essential to the Bay-wide clean up strategy. As stakeholders strive to achieve water quality goals for the Chesapeake Bay, a private nutrient credit market will be essential to success. The implemented offsets will provide real on the ground reductions that are validated and are retired for a permanent change.

CBNLT follows a belief that private markets working with an appropriate regulatory framework is the most effective approach.

I hope as the subcommittee continues its legislative efforts toward the reauthorization of the Chesapeake Bay Program that it carefully considers the opportunity for public-private partnerships. I encourage the committee to review my written testimony for more detail and call upon CBNLT for further information.

Thank you for this opportunity.

[The prepared statement of Mr. Fults follows:]

**TESTIMONY OF BRENT L. FULTS
MANAGING MEMBER
CHESAPEAKE BAY NUTRIENT LAND TRUST, LLC
BEFORE THE
WATER AND WILDLIFE SUBCOMMITTEE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE**

August 3, 2009

Senator Cardin and Members of the Subcommittee, I am Brent L. Fults, Managing Member of the Chesapeake Bay Nutrient Land Trust, LLC (CBNLT). Thank you for the opportunity to discuss an important market-based approach to reducing the level of nutrient pollution entering the Chesapeake Bay and its tributaries. The Chesapeake Bay is a national treasure, and we are all familiar with the critical ecological, economic, cultural and recreational benefits the Bay provides to those of us in its watershed. We are also familiar with the environmental challenges faced by the Bay, most notable of which is the unsustainable loading of sediment and nutrients into our waterways. Stemming from population growth, increases in development and impervious surfaces, historical agricultural practices, discharge from wastewater treatment and industrial facilities and atmospheric deposition, current levels of these pollutants have contributed heavily to degraded water quality and reduced habitat for many species of fish and shellfish and aquatic dependent ecosystems. The current state of the Bay has resulted in millions of dollars in lost revenue for states, localities and private businesses. My testimony will provide a brief history of the nutrient trading programs in Virginia, the milestones the Commonwealth of Virginia has achieved, the role that CBNLT has played in the development of those programs, and the importance of innovation and private, market-based solutions to the environmental challenges faced by the Chesapeake Bay.

I graduated from Ball State University in 1986 with a Bachelors of Landscape Architecture and am currently a Virginia Certified Landscape Architect. A resident of Virginia for 22 years, I worked for 13 years as an environmental consultant with private business specializing in land planning, development projects and regulatory permitting. Along with my business partner Mike Stegman, I founded EarthSource Solutions, Inc. (ESS) in November of 2000. ESS is a provider of environmental credits and permit liability solutions in Virginia, specifically through the ownership and management of environmental banking facilities. Over the past 9 years, our environmental projects have supported ecosystem restoration by providing functioning compensatory mitigation for wetlands and streams in multiple Virginia watersheds. ESS provides ownership and/or joint management of 5 operational

wetland and stream banks in multiple Virginia watersheds, and has been a forerunner in innovative resource projects adapting to the evolving regulatory environment supporting environmental credit markets.

The following sections of this testimony will discuss:

- Creation of Chesapeake Bay Nutrient Land Trust, LLC;
- The Virginia point source nutrient trading program;
- Evolution of the nutrient market from point source to nonpoint source;
- Passage of the nonpoint nutrient Offset legislation;
- Development of nonpoint nutrient Offset guidance;
- Benefits of Offsets; and
- Moving Forward.

Chesapeake Bay Nutrient Land Trust, LLC

As a response to the public, governmental and our own personal interest in improving the water quality of the Bay, ESS founded Chesapeake Bay Nutrient Land Trust, LLC (CBNLT) in August of 2006. Through the combined resources of CBNLT and ESS, we provide land stewardship strategies that will reduce nutrient loads and generate nonpoint nutrient offsets (Offsets). These Offsets are similar in concept to other types of environmental credits and represent on-the-ground nutrient reductions that are in place in advance of the need for their use. CBNLT believes in innovative and adaptive nutrient reduction strategies that are pre-implemented in order to begin improving the health of the Bay immediately. We strive to encourage environmental stewardship and the development of partnerships with landowners, federal, state and local governments and other stakeholders in order to create long-term and effective solutions to complex environmental issues. The following sections detail the origins of Offsets as a nutrient-reduction mechanism and a brief history of the nutrient trading programs in Virginia.

Point Source Nutrient Trading Program – Virginia Department of Environmental Quality

The Chesapeake Bay Watershed Nutrient Credit Exchange Program (Code of Virginia §§62.1-44.19:12 et seq.) was created in July of 2005 when the Virginia legislature enacted legislation aimed at reducing the levels of nitrogen and phosphorus entering the Chesapeake Bay through its numerous tributaries. The Patron of the legislation was Delegate Preston Bryant, who is now Virginia's Secretary of Natural Resources. The statute addressed nutrient pollution from point source dischargers, consisting primarily of wastewater treatment plants and industrial facilities. This legislation also provided the opportunity to

develop, certify and operate Offset-generating facilities that allow new and expanding point source dischargers to achieve nutrient discharge requirements through the purchase of Offsets. One of the initial activities of CBNLT was to participate in the Virginia Department of Environmental Quality (DEQ) Technical Advisory Committee (TAC) meetings regarding the development of the point source nutrient trading regulations. Following the regulatory TAC, CBNLT participated in DEQ workgroup meetings that developed guidance regarding the creation of Offsets and established the mechanics by which Offsets may be used. The DEQ guidance currently only addresses Offset generation from agricultural land; however, we continue as a stakeholder to explore additional opportunities to create nutrient reductions. Offsets are jointly certified by the DEQ and the Virginia Department of Conservation and Recreation (DCR), and are generated through implementation of adaptive strategies including land use conversion, land use alterations and the implementation of varied Best Management Practices.

It is important to mention that the nutrient reductions that generate Offsets are above and beyond what is required by or funded under existing state or federal law and the Tributary Strategies. Offsets represent *delivered* loads to the Bay, and therefore already take into account the natural attenuation of nutrients as they move through an aquatic system. The number of Offsets created under the DEQ program was determined through the application of the Bay Model, and nutrient reductions were computed for each tributary based on a variety of land conversion or agricultural BMP practices. The reductions were further averaged into two regions: east and west of the fall line. The result of this methodology is that the nutrient reductions and associated Offsets created through this program are conservative in nature, and may not accurately reflect the full reduction in nutrients taking place.

In September of 2008, CBNLT became the first private entity in Virginia to generate certified Offsets. These initial Offsets were jointly authorized by both DEQ and DCR for use in the existing DEQ point source program and were generated through land conversion practices on a 904± acre farm located in Appomattox County and known as “Wildwood Farm”. To provide some background, Wildwood Farm has been family owned for over 100 years and consistently managed for silvicultural, agricultural and livestock production, with an ingrained stewardship mentality. The landowner and ESS became acquainted in the 1990’s and beginning in 1999 developed a stewardship plan for the property that would enable the landowner to meet his desire for the property to retain its rural character and generate an environmentally conscious source of income that would hold off development sale as a legacy. In 2005, the landowner and ESS established the Wreck Island Stream Bank (WISB) within the property. WISB encompasses all onsite streams and associated riparian buffers ranging up to 300 feet per side for a total bank area of 261± acres. The enhancement and preservation of these systems has led to the generation of stream credits that are used to compensate for authorized impacts under state and federal permits.

Subsequent to the development of the stream bank, the landowner allocated an additional 110± acres to the generation of the nonpoint nutrient Offsets. Specifically, 91± acres of hay production were converted to forest and 19± acres of active cropland were converted to hay production. Together, these conversions annually reduce nutrient loading from the site by approximately 100 pounds of phosphorus and 376 pounds of nitrogen. These reductions in turn created a corresponding number of Offsets that may be used to compensate for nutrient-related pollution to tributaries of the Bay. This project has served as a model for the preservation of land based on stewardship and the creation of an environmental legacy.

Transition to Legislative Effort

Shortly after the DEQ nutrient trading program became active, it became apparent that the market for Offsets as a tool to address point source nutrient pollution was going to be extremely limited, and for the near-term, nonexistent. The enabling legislation created a nutrient “exchange” where point source facilities could trade excess allocation to each other. From a technology-based standpoint, the cost of reducing nutrient effluent by one pound is incremental compared to the cost of reducing stormwater runoff by one pound of nutrients. The difference in cost structures was significant: point sources could trade between one another for a couple dollars a pound, whereas the costs associated with reducing nutrient loading by one pound from an acre of farmland can run into the thousands of dollars. The costs associated with creating an Offset include not only the nutrient reducing activity itself (ex: land conversion of cropland to forest), but also compensation for the landowner and/or farmer for the perpetual loss of future income derived from historic land use or potential development opportunities.

This lack of a point source market, combined with the importance of addressing nonpoint source nutrient contributions to the Bay, created the need to expand the applicability of Offsets to nutrients associated with stormwater from development projects. At question was whether reducing nutrient pollution from stormwater runoff required an addition to the suite of management tools. During conversations with localities and DCR, it became obvious that to provide the clear legal authority for Offset use in a stormwater context, CBNLT would have to support a legislative effort to enable the use of Offsets to address nonpoint nutrient pollution in Virginia.

Nutrient Offset Legislation – DCR Stormwater Program

In order to support the development of a nutrient Offset market in Virginia, CBNLT initiated and supported nutrient Offset legislation (HB2168) in the 2009 Virginia General Assembly session that provides the clear legal authority to use Offsets as a method to address nutrient pollution from development projects. The legislation was introduced by Delegate Watkins Abbitt and cosponsored by Delegate David Boluva. CBNLT, with the counsel of Shannon R. Varner, Esquire, of Troutman Sanders

LLP, worked with the Secretary of Natural Resources office, DCR, the Chesapeake Bay Foundation, the James River Association, local government associations, the development community and other stakeholders in the crafting of the final language regarding the use of Offsets for mitigating all or a portion of permitted stormwater phosphorus requirements placed on a development project by DCR and individual localities. The resulting legislation received bipartisan support and was unanimously passed by both the Senate and the House of Delegates, exemplifying how a solution to a complex environmental problem could be embraced by all people and political parties. The legislation was signed into law and subsequently took effect on July 1, 2009.

There are several important points of note regarding the legislation, including:

- Unanimous approval of the legislation in Subcommittees, Committees, and the full House of Delegates and Senate;
- Offsets must be generated in the same tributary as the permitted activity;
- Offsets may not be used to address water *quantity* requirements;
- Offsets may not be used in contravention of local water quality requirements, including laws or regulations regarding Municipal Separate Storm Sewer Systems (MS4s), TMDLs, or impaired State waters; and
- Permit applicants must demonstrate to the permit issuing authority that onsite controls have been considered and will be installed to the maximum extent practicable.

This legislation is critical and represents a first step model by the Commonwealth of Virginia for addressing nutrient pollution resulting from stormwater runoff. Although the DEQ point source program is designed to make significant contributions towards cleaning up the Bay, a significant amount of the excess nutrients entering the Bay is generated by nonpoint source pollution from stormwater runoff from agricultural and developed land. The legislation initiated by CBNLT provides an opportunity to reduce nonpoint nutrient pollution from both agricultural and developed lands.

Virginia Department of Conservation and Recreation - Offset Guidance

Following the successful passage of the Offset legislation, CBNLT served on the DCR-sponsored Technical Advisory Committee to provide real-world expertise regarding the ability of environmental credit markets to assist in the cleanup of the Bay watershed. This committee created agency guidance regarding the use of Offsets for stormwater impacts, and the resulting guidance was reviewed and unanimously approved by the Virginia Soil and Water Conservation Board (the "Board") on July 23, 2009. The approved guidance provides permit-issuing authorities and regulated entities with the mechanics for using Offsets to compensate for the nutrient loading attendant with permitted development activities. CBNLT was instrumental in the development of the guidance by providing the

workgroup with a detailed understanding about the real world mechanics, challenges and opportunities of environmental credit markets.

The resulting Offset guidance, coupled with the enabling legislation, provides a common-sense based opportunity for a private market to develop and substantially contribute to the reduction of nutrients entering the Bay. CBNLT has committed its resources to continue to join the Commonwealth, DCR, DEQ and other stakeholders as the guidance is implemented to ensure that it provides both the permit-issuing authorities and the regulated entities with a useful tool for reducing nutrient impacts to the Bay and its tributaries.

Benefits of Offsets

The use of nonpoint nutrient Offsets to compensate for stormwater impacts from development projects provides numerous environmental and economic benefits. In addition, Offsets have several advantages over many traditional and non-traditional Best Management Practices (BMPs), particularly when discussing many Low-Impact Development (LID) practices and Manufactured Treatment Devices (MTDs) associated with land disturbing activities.

- **BMP Maintenance and Monitoring** - Maintenance and monitoring of numerous BMPs, particularly those installed underground, is very difficult, time consuming and expensive. Both the localities and the State have acknowledged that they face difficult challenges when it comes to the inspection and enforcement of traditional, manufactured and LID BMPs. Offsets generated from the land conversion of agricultural lands to forest are much less expensive and easier to enforce than BMPs. In fact, Offset providers must verify to DCR and DEQ that the lands generating offsets are maintained in such condition so as to provide the associated nutrient reductions on an annual basis.
- **Long-Term Costs of BMPs** - The true long-term maintenance and monitoring costs of many BMPs will potentially be much higher than expected. There are also several issues regarding which party will bear those long-term costs. For example, BMPs installed in a subdivision are usually the liability of the Home Owner's Association, which raises many additional questions. Another example may include a commercial development whose ownership files for bankruptcy and leaves the locality with the expense of maintaining the on-site BMPs. The long-term cost for governments may include increases in taxes and infrastructure upkeep expense and exposure to increased liability related to BMP function and safety.
- **Technical Uncertainty of BMPs** - There is a degree of technical uncertainty regarding the efficiency of BMPs in removing nutrients from stormwater runoff. The variation in site-specific conditions, the quality of the installation, frequency of maintenance and other factors play a

significant role in how well any given technology removes nutrients from the runoff. There are also questions regarding the actual lifetime of many BMPs and to what extent the performance of the practice is degraded over that time. With Offsets, a land conversion removes one hundred percent of the difference in loading when transitioning from one land use (i.e., active cropland) to a less polluting one (forest).

- **Removal of Multiple Pollutants** - The transfer of Offsets for a development project involves the removal of multiple pollutants, i.e., both phosphorus and nitrogen are accounted for in the transfer even though phosphorus is the regulated pollutant in Virginia. As phosphorus is Virginia's keystone pollutant for the stormwater program, every time a phosphorus Offset is acquired, the associated nitrogen will be retired from inventory, providing nutrient removal benefits on multiple levels.
- **Offsets Exceed Existing Requirements** - Under Virginia's programs *nonpoint nutrient Offsets represent nutrient reductions in excess of those otherwise required by or funded under state or federal law or by tributary strategy plans*. This provides an added incentive to landowners to achieve tributary strategy and other "baseline" requirements and then go beyond those requirements through additional nutrient reduction strategies.
- **Offsets are Perpetually Protected** - Offsets generated from land conversion are protected from development or alteration to a more nutrient-intense land use through various perpetual legal mechanisms such as restrictive covenants or easements.
- **Offsets are Financially Assured** - Offsets are financially assured by the Offset provider until such time as the land conversion has been deemed to be established.
- **Offsets are Pre-Implemented** - Offsets represent verifiable and authorized on-the-ground nutrient reductions that are in place well in advance of the land disturbing activity that will need the Offset even occurring. For example, the Offsets created at Wildwood Farm, CBNLT's first authorized facility (and Virginia's as well), have been providing actual nutrient reductions for 24 months to date. As with Virginia's wetland and stream programs, environmental credits such as nutrient Offsets are providing ecological benefits in advance of their need, and will provide those benefits whether they are transferred or not, providing a "win-win" situation for the Commonwealth.
- **Offsets will not Contribute to Nutrient Impairments** - The legislation and guidance regulating the generation of Offsets in Virginia ensures that Offset generation will not negatively effect State waters that have been listed as nutrient impaired or with nutrient TMDL conditions.

- **Offsets Eliminate Leakage** - Prior to enactment of Virginia's Offset legislation, waivers could be granted to a permit applicant when it was difficult to capture nutrients onsite at a development project. In effect, this allowed uncontrolled nutrients to enter the Bay and its tributaries. The legislation now prohibits the granting of waivers unless there are no Offsets or other offsite controls available within the tributary-scale watershed.
- **Conservative Nature of Offsets** - The nutrient reductions created through the Offset program and the resulting number of Offsets are a conservative estimate based on the Bay Model for *delivered* loads to the Bay, with the result being that in reality, more nutrients are removed than are actually transferred to a permit applicant for a specific project.
- **Advantage Over Agricultural Programs** - Many of the funding programs that are in place to reduce nutrient run-off from agricultural lands have limited lifespan - payments may be made to a farmer to temporarily take lands out of production or modify equipment practices. This does not represent a long-term or permanent solution. Once the contract with the farmer has expired, the agricultural land could go back into production, once again adding nutrients to the Bay. Offsets on the other hand (i) do not require federal, state or local funding and (ii) are permanently protected under deed restriction or other preservation mechanism. The result is a permanent (as opposed to temporary) nutrient reduction at no cost (initial or reoccurring) to government.
- **Private Investment with Public Returns** - In conclusion, an operational Offset market will serve as a turnkey solution and will be funded through private investment and provide both private and public returns. From a private perspective, the landowner and Offset provider will receive compensation for developing a functional environmental service, and developers receive an opportunity to achieve required nutrient reductions through the addition of a potentially cost-effective method. The benefits to the public include improved economic, cultural and recreational conditions from enhanced water quality in the Bay, as well as providing additional business opportunities in the growing "green economy".

Moving Forward

Despite the many advantages this market-based approach provides, there are several significant issues to consider as the private sector strives to create a successful Offset market:

- Although environmental credit markets have been around for some time, nutrient Offsets are an innovative and novel approach to improving water quality. Clear endorsement and support of the use of Offsets by state and federal governments will be instrumental in addressing the level of

unfamiliarity and potential reluctance that permit issuing authorities, landowners and the development community may have toward the use of Offsets.

- Private Offset providers may be at a competitive disadvantage to localities if the localities decide to generate Offsets and apply them toward their own projects or those of the regulated community. Projects that are funded with public dollars do not operate under the same financial model that a private business does. Local government Offset prices would not reflect the actual costs incurred in the process of developing the Offsets. Tax dollars might end up paying for land acquisition, Offset-generating activities, monitoring, maintenance and reporting expenses, government employees and equipment and all other costs associated with the creation and sale of Offsets.
- It is essential to remember that Offsets should be in place and authorized prior to their need. These nutrient reductions have begun and continue to be in effect regardless of when the purchase of the associated Offsets occurs.
- Should a multi-state nutrient trading program develop it will be important to establish a level of equivalency between the states with regards to the generation of Offsets and the mechanics by which they are authorized for use and transferred in the market, therefore effectively creating a common currency.
- As federal funding is directed toward the cleanup of the Bay, it is important that the funds are distributed equitably. One approach may be to offer additional "first to market" funding for those states that are taking the lead in reducing their nutrient loading to the Bay through innovative and effective measures.
- It is important to note that there are certain barriers to an effective Offset market that legislation, regulations or guidance governing a nutrient trading program should be cognizant of:
 - Too narrowly defining a trading area (i.e., where Offsets could be purchased in relation to the nutrient load being compensated for);
 - Establishing Offset pricing structures – the market should determine the Offset price and will more efficiently account for costs;
 - Calculating nutrient reductions at too conservative a rate – provides a disincentive to the supply side of the market;
 - Being overly prescriptive in the creation and use of offsets.
- CBNLT will continue to work with the Secretary of Natural Resources office, DCR, DEQ and other stakeholders to develop additional innovative ways to use Offsets as an effective nutrient reduction

method. We need to all be creative in seeking potential uses for Offsets, as they will prove to be an essential component of the entire suite of nutrient reduction strategies. Examples include:

- In a situation where a BMP is not functioning sufficiently to remove the required nutrients, Offsets could be advantageous over retrofitting the BMP;
- Offsets could be used in an enforcement setting where BMPs are not installed, maintained or functioning properly;
- In addition to compensating for the mostly private development market, Offsets should be promoted for use with state, federal and local projects including transportation, revitalization projects and others, including existing impacts from development that pre-date modern stormwater control requirements; and
- It may even be possible for the local, state or federal government to take the lead and develop some form of “nutrient-neutral” or “nutrient-free” standard that would set the bar for all public and private entities to achieve the nutrient loading reductions necessary to restore the health of the Bay. Rather than simply meeting the required standard, entities could go above and beyond and account for their complete nutrient footprint.

Closing

As the Bay States strive to achieve the water quality goals for the Chesapeake Bay, the active participation of a private nutrient credit market will be essential. The implemented nutrient reduction Offsets will provide landowners with additional stewardship opportunities while encouraging land use alternatives that will contribute to improved water quality of the Bay and its tributaries. Furthermore, nutrient Offsets are verifiable on-the-ground nutrient reductions that are in place prior to a permittee’s nutrient impacts, providing a water quality benefit from the moment the Offset-generating activities are implemented.

Professional and personal experiences have led me and the CBNLT team to believe in the importance of a collaborative approach and an active stakeholder process in resolving complex environmental issues. As is exemplified by the core mission of CBNLT and ESS, we believe that a private business market, working within the appropriate regulatory framework, is the most effective approach to reducing nutrient pollution in the Chesapeake Bay. I hope that as this Subcommittee continues its legislative efforts towards the reauthorization of the Chesapeake Bay Program, that it carefully considers the opportunity for a public-private partnership and a market-based approach to significantly contribute towards improving the health of the Chesapeake Bay.

Thank you for the opportunity to provide these comments, and I encourage you to contact me if you have any questions regarding this testimony. CBNLT will ensure a commitment of time and resources to assist the Subcommittee and the Chesapeake Bay Program as it continues to consider this topic.

Thank you,

Brent L. Fults

Brent L. Fults, LA
Managing Member
Chesapeake Bay Nutrient Land Trust, LLC

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

BRENT L. FULTS
MANAGING MEMBER – CHESAPEAKE BAY NUTRIENT LAND TRUST, LLC
RESPONSE TO

SENATOR JAMES M. INHOFE - FOLLOW-UP QUESTIONS FOR WRITTEN SUBMISSION
WATER AND WILDLIFE SUBCOMMITTEE HEARING – AUGUST 3, 2009

September 1, 2009

Senator Inhofe and Members of the Committee, on behalf of Chesapeake Bay Nutrient Land Trust, LLC (CBNLT), I greatly appreciate the opportunity to respond to Senator Inhofe's follow up questions to the Water and Wildlife Subcommittee hearing on August 3, 2009. My August 3rd testimony provided the Committee with a brief history of the nutrient trading programs in Virginia, the milestones the Commonwealth of Virginia has achieved and the role that CBNLT has played in the development of those programs. The focus of my testimony was on the importance of innovation and market-based solutions to the environmental challenges faced by the Chesapeake Bay.

CBNLT provides land stewardship strategies that will reduce nutrient loads and generate nonpoint nutrient offsets (Offsets). These Offsets are similar in concept to other types of environmental credits and represent on-the-ground nutrient reductions that are in place in advance of the need for their use. CBNLT believes in innovative and adaptive nutrient reduction strategies that are pre-implemented in order to begin improving the health of the Bay immediately. We strive to encourage environmental stewardship and the development of partnerships with landowners, federal, state and local governments and other stakeholders in order to create long-term and effective solutions to complex environmental issues.

We believe that the establishment of a private market, working within the appropriate level of regulatory framework and federal and state government support, is a very effective approach to reduce nutrient pollution to the Chesapeake Bay. Consistent with my testimony, this submittal provides my response to Senator Inhofe's questions from the perspective of a private business whose core mission is to apply an innovative, market-based approach to improving the environmental health of the Bay and its tributaries. It is important to note that the following discussion is grounded in the nutrient trading programs that the

Commonwealth of Virginia currently has in place, which provide an excellent first step model and starting point for other Bay states to follow. In order to facilitate publication and review of the record, Senator Inhofe's questions have been reproduced in this document.

Question 1: *The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States rights as primary protectors of their land and water?*

Response

As Senator Inhofe stated in his written opening statement for the August 3rd Subcommittee meeting, "A top-down, heavy handed federal approach will not lead to the kind of real changes that are necessary to ensure the health of the Bay". The reauthorization of the Chesapeake Bay Program is an ideal opportunity for the federal government and the Bay states to increase the efficiency and effectiveness of their long-standing partnership and capture the energy and public support of the "green" mentality increasingly found at national, state and local levels. The role of the federal government in this partnership can take many forms, including but not limited to:

- **Support Nutrient Trading:** Provide support for nutrient trading and other innovative programs. Encouraging a private market reduces the need for increased government funding and provides incentive for additional private stakeholder participation in cleaning up the Bay. Although environmental credit markets have been around for some time, nonpoint nutrient Offsets are a relatively new, innovative and verifiable approach to improving water quality. A crucial first step toward gaining acceptance of a new market-based program is clear endorsement and support of the use of Offsets by state and federal governments. This support will be instrumental in addressing the level of unfamiliarity and reluctance that permit issuing authorities, landowners and the development community may have toward the use of Offsets. As stated in the introduction, Offsets represent real, implemented, on-the-ground reductions in nutrient loading to Bay tributaries.
- **Provide Technical Assistance:** Continue to provide significant technical assistance and resources to the Bay Program and the Bay states to ensure that the best science available is applied to modeling, monitoring and other necessary functions of any nutrient reduction program. With federal assistance, the Bay Program should continue to refine the Watershed Model, and create or build upon existing web-based interactive models that are usable by the public.

- **Funding State Efforts:** As federal funding is directed toward the cleanup of the Bay, it is important that the funds are distributed equitably to the Bay states. One approach may be to offer additional “first to market” funding for those states that are taking the lead in reducing their nutrient loading to the Bay through innovative and effective measures.
- **Program Funding:** The federal and state governments should continue to fund programs that encourage the agricultural community to reach the targets set by the tributary strategies. A market-based approach would then provide additional reductions beyond this “baseline” level, allowing the development of a heritage approach to land ownership.
- **Resource Oversight:** Ultimately, in addition to stakeholder interest, the Clean Water Act is the most important driver of the clean up of the Bay. A federal role in the management of a resource that provides so many regional and national benefits is critical. Federal participation should ensure that all states do their part to compensate for their relative nutrient impacts to the Bay. The Bay is a “multi-jurisdictional” resource, and all stakeholders must do their part to achieve success, including federal, state, and local governments, private business, the development community, point source contributors (wastewater treatment and industrial facilities), the agricultural community and other groups. It should be the federal governments role to assist in establishing the water quality goals for the Bay and provide support and resources where appropriate, and allow the states to determine the best way to achieve the agreed upon goals. However, the federal government needs to be properly informed in order to appropriately exercise its authority when necessary to ensure adherence to agreed upon targets and implement enforcement in cases of default by permitted entities.

Question 2: *How do we ensure the goals we're setting for the Chesapeake Bay are technologically feasible and achievable?*

Response

An important point to consider when examining this question is that the water quality goals for the Bay are set by the desire of many independent stakeholders to restore the critical ecological, economic, cultural and recreational benefits the Bay provides to those of us in its watershed. These goals in turn drive the creation of technologically feasible and achievable means of goal attainment. It appears that there are many technologies available presently to reduce the loading of nutrients to the Bay, but it is also apparent that we need to add new approaches such as nutrient trading to the existing suite of tools (public education, regulations, BMPs) to fully realize our goals.

We believe that a market-based approach is the most effective way to achieve those goals. I explored the many advantages of a market approach and the use of nutrient Offsets in my written testimony, but

would like to reemphasize some of the more salient points here. As you can see from both this document and the testimony, sometimes the less “technical” answer is the most effective in achieving actual nutrient reductions.

- **Financial Commitment:** In Virginia, the development and point source contributors are required to reduce nutrients through applicable permit programs, and the goal becomes doing so in a cost effective manner. With the agricultural community, the goal becomes one of creating a profitable and environmentally beneficial land use alternative. In order to clean up the Bay, financial feasibility is of the utmost importance, and can be an essential result of private market solutions. The best way to reduce nutrient loading to the Bay is to make it financially advantageous to do so.
- **BMP Maintenance and Monitoring:** Maintenance, monitoring, inspection and enforcement of numerous BMPs, particularly those installed underground, is very difficult, time consuming and expensive. Offsets generated from the land conversion of agricultural lands to forest are much less expensive and easier to enforce than BMPs. Offsets result from a low-technology approach that reduces nutrient loading to the lowest levels (that of forested land) found in the model.
- **Technical Uncertainty of BMPs:** There is a degree of technical uncertainty regarding the efficiency of many BMPs in removing nutrients from stormwater runoff. The variation in site-specific conditions, the quality of the installation, frequency of maintenance and other factors play a significant role in how well any given technology removes nutrients from the runoff. There are also questions regarding the actual lifetime of many BMPs and to what extent the performance of the practice is degraded over that time. With Offsets, a land conversion removes one hundred percent of the difference in loading when transitioning from one land use (i.e., active cropland) to a less polluting one (forest).
- **Offsets Exceed Existing Requirements:** Under Virginia’s programs *nonpoint nutrient Offsets represent nutrient reductions in excess of those otherwise required by or funded under state or federal law or by tributary strategy plans.* An Offset trading market provides an added incentive to landowners to achieve tributary strategy and other “baseline” requirements and then go beyond those requirements through additional nutrient reduction strategies. In order to be eligible for Offset generation in Virginia’s portion of the Bay watershed, agricultural land must meet certain baseline requirements including: maintaining a 35’ minimum riparian buffer, planting fall cover crops, excluding cattle from streams, and implementing both a nutrient management plan and a soil conservation plan. Offset may only be generated from nutrient reductions generated through agricultural BMPs or land conversion beyond those conditions created by meeting baseline requirements.

- **Offsets are Perpetually Protected:** Nonpoint nutrient Offsets generated from land conversion are protected from development or alteration to a more nutrient-intense land use through various perpetual legal mechanisms such as restrictive covenants or easements. There are questions surrounding both the long-term viability and efficiency of many of the BMPs, including traditional, manufactured treatment devices and LID technologies and the enforcement ability and resources of the permit issuing authorities.
- **Offsets are Pre-Implemented:** Offsets represent verifiable and authorized on-the-ground nutrient reductions that are in place well in advance of the land disturbing activity that will need the Offset even occurring. As with Virginia's wetland and stream programs, environmental credits such as nutrient Offsets are providing ecological benefits in advance of their need, and will provide those benefits whether they are transferred or not.
- **Offsets are Conservative in Nature:** Offsets are based on calculations of a particular activity's reduction in *delivered* loads to the Bay, and therefore already take into account the natural attenuation of nutrients as they move through an aquatic system. The number of Offsets created through a specific practice in Virginia is determined through the application of the Chesapeake Bay Model, which computes nutrient reductions for each tributary based on a variety of land conversion or agricultural BMP practices. The reductions were further averaged into two regions: east and west of the fall line. The result of this methodology is that the nutrient reductions and associated Offsets created through this program are conservative in nature, and may not accurately reflect the full reduction in nutrients taking place. The Bay Program could support a nutrient Offset market through the development of better tools that more accurately define reductions.
- **Long-Term Costs of BMPs** - The true long-term maintenance and monitoring costs of many BMPs will potentially be much higher than expected. There are also several issues regarding which party will bear those long-term legacy costs. For example, BMPs installed in a subdivision are usually the liability of the Home Owner's Association, which raises many additional questions. Another example may include a commercial development whose ownership files for bankruptcy and leaves the locality with the expense of maintaining the on-site BMPs. The long-term cost for governments may include increases in taxes and infrastructure upkeep expense and exposure to increased liability related to BMP function and safety. A breakdown in infrastructure, including stormwater management systems, can also cause many negative impacts to the greater community. Offsets resulting from land conversion to forest are a low-technology approach that is relatively inexpensive to maintain and monitor, and all costs are borne by the private sector.

It is important that the federal and state governments select means for achieving the nutrient reduction goals for the Bay that foster rather than hinder market-based approaches. A nonpoint nutrient Offset market can be an important tool for reducing nutrient loading to the Bay, and there are certain barriers to an effective Offset market that legislation, regulations or guidance governing a nutrient trading program should be cognizant of and avoid:

- Too narrowly defining a trading area (i.e., where Offsets could be purchased in relation to the nutrient load being compensated for).
- Establishing Offset pricing structures. The market should determine the Offset price and will more efficiently account for costs.
- Calculating nutrient reductions at too conservative a rate – providing a disincentive to the supply side of the market.
- Being overly prescriptive in the creation and use of offsets.
- Allowing government programs to compete with the private sector. If allowed, government run offset programs should be required to adhere to the same terms and conditions as private enterprise and should provide for equitable cost accounting. Projects that are funded with public dollars do not operate under the same financial model as private business and are not likely to reflect the actual costs of Offset development. Tax dollars might end up paying for land acquisition, Offset-generating activities, monitoring, maintenance and reporting expenses, government employees and equipment and all other costs associated with the creation and sale of Offsets but not be reflected in government pricing. The private sector is better equipped and motivated to control their costs.
- Relying on in-lieu fee programs. Although in-lieu fee programs can be a useful tool in addressing water quality issues, they should only be allowed where there are no existing private sector Offsets available. Experiences with wetland, stream and stormwater in-lieu fee programs show that Offsets should be prioritized over in-lieu programs for several reasons: some in-lieu programs have a considerable lag time between receiving funds and application of those funds to on-the-ground environmental solutions, creating a temporal loss of environmental resources; in-lieu programs can be anti-competitive in pricing structures by not accounting for all costs or not anticipating the true cost of Offset creation; and projects funded through the receipt of in-lieu payments are often not held to the same requirements and standards as those funded through the private sector. In-lieu or other fee programs should not be allowed to accumulate funds for long periods of time, should not be used when private alternatives are available and should use accumulated funds to acquire private Offsets as they become available.

Question 3: *How do we ensure that we're meeting both the environmental goals for the Bay as well as our economic recovery goals?*

Response

All too frequently, the goals of economic development and environmental quality have been viewed as mutually exclusive. As is shown by the growing "green economy" the clean up of the Bay is an ideal opportunity to show that these goals can indeed coincide. Toward that end, the Commonwealth of Virginia has made great strides in creating an approach that balances economic development with environmental stewardship.

- **Improved Bay = Improved Economy:** By improving water quality in the Bay, we can positively affect the economy by increasing revenues in tourism, recreational opportunities, and water dependent industries (crab, oyster, sport fishing, etc.). The loss in revenues to these industries due to water quality issues has been well documented. However, those areas that have shown improvement (for example, striped bass recovery) have led to related economic benefits.
- **Provide Incentive to Grow Green Economy:** Supporting a nutrient trading program provides incentive for a private market to develop and support the growth of small businesses within the green economy. Small businesses and entrepreneurial enterprises are very important to the recovery of the overall economy, providing the grass roots involvement required to create buy-in at all levels.
- **Private Investment with Public Returns:** Most of the risk associated with a nutrient trading program is borne by the private sector. An operational Offset market will serve as a turnkey solution and will be funded through private investment and provide both private and public returns. From a private perspective, the landowner and Offset provider will receive compensation for developing a functional environmental service, and developers receive an opportunity to achieve required nutrient reductions through the addition of a potentially cost-effective method. The benefits to the public include improved economic, cultural and recreational conditions from enhanced water quality in the Bay, as well as providing additional business opportunities in the growing "green economy".
- **Offset Market Provides Economic and Environmental Benefits:** We all need to be creative in seeking potential uses for Offsets, as they will prove to be an essential component of the entire suite of nutrient reduction strategies. Examples include:
 - In a situation where a BMP is not functioning sufficiently to remove the required nutrients, Offsets could be advantageous over retrofitting the BMP;
 - Offsets could be used in an enforcement setting where BMPs are not installed, maintained or functioning properly;

- In addition to compensating for the mostly private development market, Offsets should be promoted for use with state, federal and local projects including transportation, revitalization projects and others, including existing impacts from developments that pre-date modern stormwater control requirements; and
- It may even be possible for the local, state or federal government to take the lead and develop some form of “nutrient-neutral” or “nutrient-free” standard that would set the bar for all public and private entities to achieve the nutrient loading reductions necessary to restore the health of the Bay. Rather than simply meeting the required standard, entities could go above and beyond and account for their complete nutrient footprint.

Question 4: *We understand that in order to have a successful Chesapeake Bay program, there must be wide spread buy-in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in environmental programs that have been both successful and unsuccessful in gaining the support of diverse interest groups. What can the Federal government learn from these experiences?*

Response

Virginia’s 2009 Legislative Session proved that an active stakeholder process is essential to establishing a successful environmental program. CBNLT developed, supported and funded legislation that would allow the use of Offsets for mitigating all or a portion of permitted stormwater phosphorus requirements placed on a development project by the Virginia Department of Conservation and Recreation (DCR) and individual localities. CBNLT, with the counsel of Shannon R. Varner, Esquire, of Troutman Sanders LLP, worked with the Secretary of Natural Resources office, DCR, the Chesapeake Bay Foundation, the James River Association, local government associations, the development community and other stakeholders in the crafting of the final legislation’s language. The resulting legislation received bipartisan support and was unanimously passed in Subcommittees, Committees and the full Senate and the House of Delegates, exemplifying how a solution to a complex environmental problem could be supported by a disparate group of interests and political parties. The legislation was signed into law and subsequently took effect on July 1, 2009. The Virginia Offset legislation is an example of a privately funded environmental initiative that merged public and private stakeholder interest in reducing nutrients to the Bay into a common plan of action.

Additionally, Virginia’s wetland and stream mitigation programs are another example of how federal, state and local agencies, the development community and other stakeholders can work together to restore and preserve aquatic ecosystems. There are now active wetland and stream

credit markets in Virginia, with multiple credit providers in each watershed and accepted use by the regulated entities. It is our vision to establish a similar situation for nutrient Offsets.

The combination of a market-based system with active stakeholder participation as shown in these examples leads to buy-in and subsequent participation by all parties, greater understanding and public awareness of the issue at hand, and most importantly, measurable results. Every stakeholder group will need to be involved in a successful clean up of the Bay, and in turn each should have input into how that clean up will occur. The old standard relying only on “command and control” is time consuming, lacks stakeholder buy-in, and often results in unnecessary litigation and limited progress towards attaining the goal of improved water quality.

Question 5: *What are your suggestions to make the current Chesapeake Bay Program better? How can we ensure greater community buy-in to the program?*

Response

We believe that an active nutrient trading program would increase landowner and agricultural community participation by providing a means of generating income from providing an environmental service (nutrient reduction). As agricultural sources contribute a large percentage of the nutrients to the Bay, it is essential to enlist their assistance toward achieving our collective water quality goal. In order for a landowner or farmer to remove land from active production or implement agricultural BMPs that may reduce arable land or crop yield, there has to be a financial incentive in place. Existing cost-share and grant programs have had relative success, but as we can see from the most recent report cards on the Bay, we are still far from attaining our goals. Some agricultural programs may have had unintended consequences as well, resulting in more intensive farm practices to maximize yield in available areas.

Nutrient trading may also provide a cost-effective means for other sectors to reduce nutrient pollution. In Virginia, the point source community (wastewater treatment and industrial facilities) is required by statute to reduce nutrient loads, and is making progress toward achieving those goals in part through a cap and trade process. The development community may find that in certain situations, a nonpoint nutrient Offset may provide a cost-effective solution to their permit requirements where onsite controls are not practicable. Verifiable nutrient reductions occurring through market-based approaches provide numerous water quality benefits that will appeal to the environmental community. Over time, as we use all of the tools at our disposal, including market-based solutions, we will see improvements in the health of the Bay. With the assistance of the federal government working through the Bay Program, the Bay states have been able to show improvements in some categories, but it will take increased commitment by all stakeholders to take the next step.

Closing

Senator Inhofe stated in his written opening statement to the Subcommittee's August 3rd meeting, "My state's experience is that heavy handed regulations that ignore economic realities and property rights do not work." As the federal government and the Bay States strive to achieve the water quality goals for the Chesapeake Bay, the active participation of a private nonpoint nutrient Offset market will be essential. The implemented nutrient reductions and resulting Offsets will provide landowners with additional stewardship and income opportunities while encouraging land use alternatives that will immediately contribute to improved water quality of the Bay and its tributaries. A nutrient Offset market is primarily a private investment resulting in a variety of private and public benefits.

I hope that as the Committee continues its legislative efforts towards the reauthorization of the Chesapeake Bay Program, that it carefully considers the opportunity for a public-private partnership and a market-based approach to significantly contribute towards improving the health of the Chesapeake Bay. Thank you for the opportunity to provide these comments, and I encourage you to contact me if you have any questions regarding this submittal. CBNLT will ensure a commitment of time and resources to assist the Committee and the Chesapeake Bay Program as it continues to consider this topic.

Thank you,

Brent L. Fults

Brent L. Fults, LA
Managing Member
Chesapeake Bay Nutrient Land Trust, LLC

Senator CARDIN. Well, thank you very much for your testimony. It is very helpful to us.

Mr. Gannon.

**STATEMENT OF JOE GANNON, III, VICE PRESIDENT,
ENVIROCORP, INC.**

Mr. GANNON. Thank you, Chairman Cardin, for the opportunity to appear today and to provide my testimony.

I would also like to thank Senator Carper. Although he had to leave, I would like to thank him for mentioning me earlier. And also, Secretary O'Mara, hopefully he stuck around, but I am not sure if he did, I would like to thank him as well.

I fear that my testimony may be slightly anecdotal in comparison to the testimony that has been provided, especially by the Secretaries from the States earlier.

Basically, I grew up in Delaware, and I have lived surrounded by both the bays, the Delaware Bay and the Chesapeake Bay, for 29 of my 33 years. I have a degree in biology from the University of Pennsylvania at West Chester. I am also a husband, a father of two, a business owner, a scientist and a naturalist. I have deep family ties to the Chesapeake Bay as well as the Delaware Bay.

My grandfather was born and raised on the Tuckahoe River, a major tributary to the Chesapeake Bay. I grew up kind of right on the cusp of the time when you could still swim in the ponds of Delaware. In their current state today, seeing someone swim in the ponds is a rare occurrence. As a little kid, I vaguely remember swimming in local ponds. Today, I would not let my kids go near a pond for fear of what may lie within and the consequences that may befall.

I look at our ponds as that canary in the coal mine over on the Eastern Shore. Our ponds and tributaries are the first victims of our constant and enduring pressure on the environment. My role at Envirocorp Labs is Vice President of the laboratories. It is actually a small family business that was started by my father back in 1984. It was born out of wanting to take an active role in monitoring and supporting the wastewater treatment plants in Delaware, on DelMarVa.

As I said, it was started by my father as a modest venture that saw him up early, collecting samples by himself and at the few clients he could support. Today, that business has grown to 13 employees and stands as one of the leaders in environmental business in the watershed and the surrounding region.

We perform analytical testing for everything from point source wastewater treatment plants to homeowners for drinking water, and also, recently, the Bay Restoration Fund through the septic analysis for nutrient reduction. We also routinely analyze storm water, soils and sludge, and have participated in several projects in support of DNREC's monitoring of the Delaware Bay and its tributaries.

For the Bay Restoration Fund, also known as BRF, we perform sampling and analysis for four of the highest disbursed units participating in the program, which means that a large percentage of that data that is generated to support BRF is performed right there in our laboratory.

In the data we have seen and generated, the effluent from home septic far exceeds anything being discharged by a point source treatment facility in respect to the variability of nutrient loading. Though the volume of water pales in comparison to the millions of gallons a day flowing over that weir from your local wastewater treatment facility, the high nutrients being placed back into the water cycle from home septic cannot be denied.

The effort of the BRF to introduce secondary treatment to home septic is commendable and certainly a step in the right direction. I am not privy as to the existence of a study comparing non-treated standard septic to units that are treated using the secondary treatment devices. However, I am confident that the reduction achieved on a whole is a significant contribution.

I will add a caveat to that statement with the fact that we found that the units must be properly maintained to meet the goals of the BRF. A properly maintained unit is capable of meeting the reduction goals. However, it stands that the units can quickly fall into a state where reduction goals are not being met.

I would propose that a review of the BRF program is necessary with the valuable input of the scientific community and the incorporation of specific organized monitoring as its primary goal.

Wow, I cannot believe I went through 4 minutes that fast.

[Laughter.]

Mr. GANNON. I will skip a couple of things then.

Our tie to the Bay Program at Envirocorp is really in recognizing the importance of injecting good science into the Bay's efforts. We donate staff and volunteer over \$50,000 annually supporting analytical services to the Nanticoke Watershed Alliance Creekwatcher Program. It is formulating a data baseline of one of the major tributaries feeding into the Chesapeake Bay, and that is the Nanticoke Watershed.

The Nanticoke Watershed Alliance is just what it says. It is an organization that is in partnership with agriculture, industry, volunteers, advocates, municipalities, industry, regulators and other non-profit groups. The NWA seeks to develop and implement actionable plans for lessening environmental pressures and impacts within the watershed through community-supported and wholly volunteer effort to bring the Creekwatcher Program to the Nanticoke.

They monitor 40 sites in the watershed, covering a huge geography of nearly 370,000 acres and crossing political boundaries that are historically very difficult to work across.

In addition, funding targeted at localized watershed groups for the restoration project has seen, the potential has seen great leaps forward for the implementation of projects that will help the health of our waters, support for all the tributaries.

A uniform creek watch effort by the Bay Program could vastly improve the knowledge base about the health of the water. Likewise, Federal support put into action through local groups is an organic and proactive way to help achieve water quality goals.

Bringing all interested and involved parties to the same table to discuss a plan, while at the same time involving them in the process, is central to NWA's goals. Nanticoke Watershed Alliance's strategic intent is to build one of the strongest, most efficient, most ac-

curate citizen volunteer organizations on the Bay. And NWA has successfully grouped together businesses and municipalities and citizen advocates in that effort.

This is the key factor to the program's success and ultimately one that I feel would be the linchpin for turning the degradation of the Bay around. The coming together of those that make a living within the watershed, from farmers to major corporations, with those that are attempting to protect it from further decline, is going to be essential.

We need these bridge organizations at the forefront because they are the ones doing all the legwork for this effort. At some point, throwing money at the problem will not be enough. We will need the passion and due diligence of these grassroots organizations. But we will, at the same time, need the full cooperation and investment of the infrastructure, from the farmers to the treatment plants and the industries and the regulators.

What leaves the premises 365 days a year needs to be at all times in the best interests of the tributaries and, ultimately, the Bay. We need to reduce our nutrient loads while at the same time making it easier for operators and farmers to do so.

We can no longer impose stringent guidelines without at the same time giving the permit holders the technology to achieve the necessary reductions and lessen their impact. To do so only perpetuates an already declining situation.

Funding research that explores these technologies and experiments with innovative ways to reduce our impact or treat the Bay's waters is going to be crucial and support worthy in this effort. Funding for advocacy organizations is essential to their success. Monitoring their efforts, however, is equally as crucial. Some would say more so since it helps the legitimacy and garners public support, perhaps the most crucial part of the pie.

Without a cohesive, concerted, well funded, supported effort, they cannot continue to do the groundwork. They cannot continue to bridge the relationships that are becoming all the more important in the Bay's effort. The fostering of that relationship between industry and advocacy is where the Bay effort will be won.

Last night, as I was preparing for today's testimony, my son asked me to help him with a little jigsaw puzzle. It was an easy puzzle, 100 pieces, perfect for a 5-year-old. I had not done a puzzle in years, but I remembered the old trick about finding all the edge pieces and then filling in the middle.

As we worked our way through the edges, and having this testimony on my mind all the while, I realized that the work being done by non-profits, volunteers and researchers in support of the bill is akin to filling in all the edge pieces to that puzzle.

To finish the job in an accurate and timely manner, it really starts with the groundwork laid in the initial stages out there on the edges. This is the dirty work—the clean-ups, the early morning samplings, the bird counts, the men and women in the labs cranking out nitrate after nitrate after TCAN, after inter-caucus. This is the most important work.

The non-profits and volunteers are out to change hearts and minds, not because they are looking for financial gain or fame but

because they inherently believe they cannot sit by and watch the Bay decline even further.

So we work the edge, we lay the groundwork, all the while the organizations supporting the Bay are showing us what is on the box, allowing us to see what the final picture could be if we put in the time and effort.

Without that picture, we are just shuffling pieces around the table like a 5-year-old, watching and waiting for Dad to give us the guidance. We need his help, but we also need to learn to finish the puzzle on our own with his support.

Bringing together all of the remaining puzzle pieces for the Bay is where the supporting organizations truly will shine. Ultimately, their investment of time, funding, both public and private, organization and passion, will guide us toward placing that final puzzle piece.

I was also reminded looking at my son sit there that we are just borrowing the Bay from his generation.

Thank you for your time.

[The prepared statement of Mr. Gannon follows:]

Water Quality Issues Facing the Chesapeake Bay and Watershed: A Laboratory Perspective

Howard J. Gannon, III

Thursday, July 30, 2009

Summary: Envirocorp Labs (Harrington, Delaware) has a growing presence in providing analytical data from both point and non-point discharges within the Chesapeake Bay Watershed. The reach of our facility extends to well over 75% of NPDES Discharge permit holders on Delmarva and has grown recently to include individual homeowners through Bay Restoration Fund analysis.

We also volunteer staff and analytical capabilities to support the Nanticoke Watershed Alliance (NWA), an organization attempting to monitor, conserve and ultimately restore our local watershed, the Nanticoke River Watershed. The role of good science and increased government oversight is instrumental in ensuring that the protection of the bay is successful. However, volunteer organizations and their supporting associations are the fundamental solution to halting the deterioration of the bay. Through the ongoing and exhaustive efforts of these volunteers, reversing damage to the bay is a real possibility.

Background: On a daily basis, Envirocorp Labs obtains samples from numerous point sources within the Chesapeake Bay and Delaware Bay Watersheds. These samples span the spectrum of analysis and frequency from large analyte lists on a monthly basis to specific analytes on a daily or weekly schedule. A majority of compliance samples are collected by Envirocorp staff. However, NPDES permits also allow for the flexibility of sample collection by facility personnel. The implementation of third party, independent, non-biased monitoring has been a significant step toward ensuring the quality of wastewater treatment plant effluent. Certification programs for laboratories and mandatory participation in laboratory audit programs ensures that the quality of data released from laboratories meets or exceeds EPA standards.

Permit limits for wastewater treatment plants and pre-treatment program participants are becoming increasingly stringent in their allowable concentrations of all constituents. Quality data and strict standards will further accelerate the improvement of the Watershed and ultimately improve the condition of the bay.

As a trained biologist and the manager of an operation that gets a first-hand look at water quality data, it is my contention that strict water quality standards are necessary. We can't restore the Chesapeake without improving the water quality, and I can tell you from first-hand experience, that we aren't there yet.

Perhaps no less as important, however, is opening the dialogue between point source producers and regulatory officials. As tighter effluent limits have been introduced, the pressure for operators to meet the limits has increased.

I see first-hand the pressure on NPDES holder to meet their obligations. We need to make sure that obligation is understood and shared among citizens, community leaders, businesses, municipal point source producers, farmers, and activists from within the watershed. It is only with the cooperation of all involved that we can continue to move deliberately toward a solution for the bay.

Community organizations, especially those that are utilizing science to examine the health of the bay and its tributaries, are essential to this process. Without the hard numbers produced through a cohesive effort of volunteers, we would lack a picture of the current state of the bay. In knowing the bay's position from a data standpoint, we can make educated decisions on the further steps necessary to reduce the effects of years of mistreatment.

For sure, the population surrounding the Chesapeake Bay and its tributaries is only going to increase. The pressure imposed by our impact is only going to rise in the coming years. The current state of the bay is a result of our over-use and exploitation of the landmass. Often through no intentional fault of our own, we have (as a community) spurred the downturn in bay water quality. For this reason alone, it is essential that we change the regional mindset of the watershed's population. Organizations like the Chesapeake Bay Foundation, the Nanticoke Watershed Alliance, the Dorchester Citizens for Planned Growth, the Wicomico Environmental Trust, Riverkeepers, Waterkeepers, etc., are on the front lines of educating the citizens of the watershed. Through increased exposure and education, spearheaded by these organization's efforts, we can only hope to alter the mindset of those in our communities that have in the past put bay's health a second to commerce and recreation.

We tend to focus a lot of attention on the negative aspects of an altogether necessary situation. We will continuously exist as producers of waste. Whether it be solid waste in the form of refuse in landfills, storm water runoff from parking lots, effluent from wastewater treatment and septic infiltrators, or the effects of farmland erosion, the common denominator in them all is the need to apply technology and science to minimize or mitigate the various impacts imposed by all of us. We must aim directly at improving the infrastructure of our existing treatment facilities. At the same time we must provide a forum for citizens to learn and share in the benefits of reducing personal impact on the environment.

Organizations such as the Nanticoke Watershed Alliance are essential to raising the public consciousness. Through their efforts, the awareness of the problems – and potential solutions -- of the watershed has been significantly increased. Likewise, the existence of strong advocacy organizations overseeing the general health of the watershed has been instrumental in steering legislation aimed at solving both point and non-point sources of pollution.

The region's wastewater infrastructure as it stands today is performing at a level somewhere beneath the necessary standard for protecting the bay, much less reversing the current status of the watershed. We must focus funding and research into developing a clear and concise action plan for reversing the longstanding effects of our previous shortfalls. We can no longer pretend that the bay will right itself. We must move forward with the help of science and understanding with a broad reaching study of the bay, its tributaries, and its current state of decline.

Envirocorp's Role: Envirocorp has taken a seat at the table of those attempting to bring an action plan to the bay restoration efforts. Recognizing the importance both historically and economically of the Chesapeake and Delaware Bays, coupled with our unique geographical location on the cusp of both watersheds, we decided in 2007 to join the fast growing and enthusiastic organization -- the Nanticoke Watershed Alliance (NWA). As their statement reads, the *...mission of the Nanticoke Watershed Alliance is: Fostering dialogue, partnerships, and progress in conserving the natural, cultural, and recreational resources of the Nanticoke River watershed through collaborative outreach and education with stakeholders representing business, government, and non-profit organizations (www.nanticokeriver.org).*

This is a first in grassroots collaboration. Bringing together not only individuals concerned with the bay restoration, but also corporations and municipalities that directly effect the bay, NWA has bridged the necessary gap between the organizations upon whom the burden of responsibility has been placed and the state agencies that help regulate their impact. All parties can sit at the same table and openly discuss and design action plans for studying and monitoring the Nanticoke Watershed and ultimately the Chesapeake Bay. NWA is also the first organization to extend its arm to both Delaware and Maryland through its partnerships with organizations like the Delaware Department of Natural Resources (DNREC) and the Maryland Department of the Environment (MDE).

Through NWA's Creekwatcher program, a program that incorporates the monitoring of 40 sites in the watershed while covering a huge geography (370,000 acres) and crossing political boundaries historically difficult to bridge, a stringent precedent is being set. By demanding quality data and setting specific target analytes, while at the same time engaging business leaders and communities in the effort to collect and support the data, NWA is helping to protect and garner sustainability for the Nanticoke and its tributaries. Although Creekwatchers exist on numerous branches of the Chesapeake Bay tributaries, none has gained the notoriety and met the stringent guidelines as has the data set forth by the Nanticoke Creekwatcher Program. In partnership with John's Hopkins, the National Park Service, Horn Point Laboratory, and the aforementioned DNREC and MDE, Envirocorp Labs has signed on to donate more than \$50,000 dollars of in-kind analytical services to the NWA annually. Funding to support such testing on a scale that supports more than 1000 samples from multiple volunteer Creekwatcher samplers is non-existent. Recognizing the importance of providing this data to the NWA Envirocorp has

pledged its full support in continuing the monitoring and analytical service indefinitely. The data generated from this program, because it is produced according to EPA approved procedures and in accordance with the QAPP developed with DNREC and MDE, stands as a superior example as to what can be accomplished when civic organizations are combined with businesses and municipal partners. If this model of cooperation were to be extended throughout the watershed, coupled with the development and implementation of point source technologies, we believe that we can make real progress in improving the health of the bay.

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Senator CARDIN. Thank you for your testimony.
Mr. Mitchell.

**STATEMENT OF MARTY MITCHELL, VICE CHIEF EXECUTIVE
OFFICER, MITCHELL & BEST HOMEBUILDERS**

Mr. MITCHELL. Good afternoon, Chairman Cardin. I appreciate the opportunity to testify before you on the Chesapeake Bay Program.

My name is Marty Mitchell. I am a second generation home-builder from Rockville, Maryland. Our family company, Mitchell & Best, has been building homes in the Washington area for over 34 years. I have been actively involved in land development for 16 years. In the past 10 years, I have developed two Environmental Communities of the Year in the suburban Maryland area. I am also a lifelong resident of Maryland who regularly enjoys the benefits of the Bay.

Home builders have taken proactive steps to be a part of the solution to restore and maintain the Bay, such as, in 2002, launching Builders for the Bay, a new partnership encouraging the use of Bay friendly site design principles that reduce the environmental effects of residential and commercial development.

Builders for the Bay was ultimately able to identify and remove impediments such as mandates for wider streets, sidewalks on both sides of the streets, and facilitate use of practices and principles that reduce environmental stresses on the watershed.

Home building and development activities across the watershed have been regulated at the Federal, State and local levels for many years, and those regulations have become more stringent over time.

The requirements include sediment and erosion control plans and installation and maintenance of best management practices or BMPs to keep polluted storm water from discharging to the Bay. When these are properly installed, they do work. I have been actively involved in a project that had monitoring reports that shows the results of those BMPs.

Maryland's 2007 and pending Storm Water Management Program changes have added enormous costs to developing property. In many parts of Maryland, the cost of gaining approvals and developing land is greater than the value of that developed property.

This is somewhat a function of the current economic times. But with the added layer of the new storm water management requirements in Maryland, it will be a long time before either new development or redevelopment has a profit margin on the land development side. This is a concern across the country as we have seen how stopping housing and development has a devastating impact on the local and State budgets.

The number of initiatives currently underway to improve the Bay is many, and they cover a broad spectrum of pollutants, areas and activities. Obviously, the Chesapeake Bay Program has been working for a long time to restore Bay. Unfortunately, we have only had marginal progress because of too much emphasis placed on a small cause of the problem. In order to succeed, the program needs to properly account for the population growth and infrastructure growth that will occur and continue to occur in the Bay watershed.

The second initiative impacting the Bay and the Program is the low impact development standards that are a major tenant of the restoration program and the developing TMDL, or Total Maximum Daily Load, for the Bay. Our industry has had no opportunity to provide input to the Bay Program on our experience with LID, and yet the Chesapeake Bay Program Office is actively promoting this to the States as an aspirational goal of no-discharge development.

I have personally been involved with a project in Prince George's County where a low impact development failed miserably. You need to have the right types of soils, and in many cases low density development, to truly have it be successful.

Reviewing the initiatives, I have a number of suggestions to make to the committee regarding the Bay's restoration.

First, the greatest emphasis must be on the biggest sources of pollution, including runoff from existing urban areas, sewage treatment plants, combined sewer and storm systems, and of course agriculture.

Second, efforts must be effective, efficient and affordable, and as pointed out earlier, based on good science.

Third, maximum flexibility, options for permit compliance and workable outcomes are necessary. For example, as has been said earlier, interstate water quality trading is crucial to reduce the overall costs of bringing down the pollutants in the Bay while also ensuring that agriculture runoff is addressed.

In addition, we have had discussions with the Maryland DNR about the permitting of new development. Today, it is totally focused on the project itself as opposed to the watershed or the tributary. We believe there are better opportunities at lower costs that have greater impact on improving the Bay by expanding the viewpoint to the tributary or watershed as opposed to the project itself.

Fourth, immediate and broad opportunities for stakeholder input must be provided. A clear and continuing plan to include the public is vital to the effort's success.

Fifth, the restoration program will sorely test the Bay States' economy. Subsequently, substantial Federal support for this program is imperative.

I thank you for allowing me to express my concerns and make a few suggestions on the restoration of the Bay. I would be happy to address any questions.

[The prepared statement of Mr. Mitchell follows:]

Testimony of Marty Mitchell of Mitchell Best Homes, LLC
To the Senate Environment & Public Works Committee
August 3, 2009

Good afternoon Chairman Cardin, Ranking Member Crapo and Committee members. I appreciate the opportunity to testify before you on the Chesapeake Bay Program ("Program"). My name is Marty Mitchell and I am a second generation home builder from Rockville, Maryland. Our family company, Mitchell & Best, has been building single family homes in the Washington, DC area for over 34 years. Although in the past we constructed up to 250 homes in a year, this year we will only construct about 25 homes. I have been actively involved in land development for 16 years as well as a member of the Environmental Issues Committee at The National Association of Home Builders ("NAHB") and my local home building association. In the past ten years I have developed two Environmental Communities of the Year in the suburban Maryland area. I have also earned the designation of Certified Green Professional from NAHB.

Home builders have always been stewards of the Chesapeake Bay and its ecosystem. Our activities across the watershed have been regulated at the federal, state, and local levels for many, many years, and those regulations have become more stringent over time. For example, in Maryland, we have had to meet strict standards for all activities within designated critical areas since 1984. Likewise, storm water requirements have been mandated in all Bay states since at least 1992. This means, at least in Maryland, that anyone who disturbs more than 5000 square feet of land area must develop and implement a sediment and erosion control plan, including the installation and maintenance of Best Management Practices ("BMPs"), such as silt fences, sediment ponds, and infiltration trenches to keep polluted storm water discharges from flowing to the Bay. Depending on the location and specifics of a site, these plans can be extremely complicated and costly, but, most importantly, they work. As a builder of an Environmental Community in the early 1990's and the developer of one shortly thereafter, I am

aware of stream monitoring reports that show development, with proper BMPs work, even fifteen years ago. Our practices and use of technology has increased dramatically in the past few years.

Home builders have taken other proactive steps to be part of the solution to restore and maintain the valuable resource that is the Chesapeake Bay. In 2002, the Alliance for the Chesapeake Bay, the Center for Watershed Protection, and the National Association of Home Builders launched "Builders for the Bay", a new partnership encouraging the use of Bay-friendly site design principles that reduce the environmental effects of residential and commercial development. Because many local codes and ordinances are out of date and/or do not incorporate the lessons learned over the last 25 years, the heart of this program was working with local governments and developers to assess the current codes and ordinances and provide a platform for change so that the "new" environmentally sensitive design principles and practices could be used. Through this process, the Builders for the Bay program was ultimately able to identify and remove impediments, such as mandates for wider streets and sidewalks on both sides of the road, and facilitate the use of practices and principles that reduce environmental stresses on the watershed. Since 2002, the Builders for the Bay program is responsible for getting these principles adopted in six municipal or county jurisdictions in the Chesapeake Bay watershed. Unfortunately, funding challenges have put a hold on any further activity, but the program clearly succeeded in creating a lasting effect on how developments are regulated at the local level in certain areas of the watershed.

As described, builders clearly are the front line of defense when it comes to protecting the Bay. While challenges still remain, most builders are operating on the edge of technology in terms of what they can feasibly achieve, thus only limited improvements that can be garnered from the industry. While I think we all realize that collectively we can do a better job, collaborative efforts that address all sources and consider the cost and economic feasibility of meeting the specific goals are likely to be most effective in making the progress needed to fully restore the Bay's health.

The changes to Maryland's Storm Water Management ("SWM") program just a few years ago have dramatically increased the cost of developing property. In some cases, the cost has more than doubled. The cost increases associated with the changes to the Maryland SWM program that goes into effect on May 4, 2010 will have even greater cost implications. In many parts of Maryland, the cost of gaining approvals and developing land is more expensive than the value of that developed property. The raw land value would actually have to be negative to make the economics work. Obviously, this is partially a function of the current economic conditions; however, the new layer of costs will mean that it will be many more years before the economics work for new projects, even redevelopment. Handicapping the industry does not seem like a wise decision considering the effect the stoppage in housing and development has had on state and local budgets.

The number of initiatives currently underway to improve the health of this unique resource is many and they cover a broad spectrum of pollutants, areas, and activities. I'd like to specifically address five of those initiatives:

1. The Chesapeake Bay Program

The Clean Water Act specifically sets up an office and grant programs to collect information, coordinate federal and state efforts to improve water quality, and gather data regarding the Bay's health. Pursuant to these directives, the Chesapeake Bay Program has been working for the past two decades to restore the water quality and the living resources of the Bay but has made only marginal progress in that time because too much emphasis is placed on such a small cause of the problem. More progress can be made to improve the health of the Bay, but going forward, the Program needs to properly account for population growth and infrastructure growth in the Bay's watershed. The challenge now is to attain full water quality restoration in the Bay by 2025. That will likely require a level of effort from the Bay states and its citizens that has never been seen before in the U.S. under any water restoration program. There are a number of concerns with the challenges to come because the Bay states have limited

resources, now more than ever, and very difficult choices will be necessary regarding how to spend those limited resources.

2. The Executive Order

On May 12, President Obama issued an Executive Order (“E.O.”) directing federal agencies to take a number of steps to protect and restore the Chesapeake Bay, including establishing a new Federal Leadership Committee composed senior representatives of seven federal agencies. The new committee will oversee the development of a coordinated strategy for the Bay restoration and complete seven important reports that address the existing challenges to restoration.

3. Legislative Efforts

Any legislation that is aimed at controlling pollution or storm water runoff into the Bay needs to address the runoff from existing development that does not have state of the art best management practices. Because urban runoff from existing streets and buildings has been identified as a major source of pollutants in the watershed, if progress is to be made, legislation must address all sources of pollution and not just new development. The majority of new development projects are using state of the art techniques to reduce their overall environmental footprints, and as a result, new development is typically not the problem.

4. The Chesapeake Bay Total Maximum Daily Load Rule

The regulatory driver for the Bay Restoration Program will be the Chesapeake Bay Total Maximum Daily Load (“TMDL”), a new rule which is due to be published by EPA next year. The costs associated with the new water quality standards in the TMDL are likely to put enormous strain on the struggling economies of the affected Bay states. It remains to be seen if future growth can be accommodated under the new TMDL considering there has been little success in meeting past water quality standards. Since construction in urban areas will likely be more

costly than construction in nonurban areas, there is also a question regarding how states will try to steer growth to their cities.

While home building will face major challenges under the Bay TMDL, municipalities will likely face the greatest challenge. We now know that impermeable surfaces in our cities quickly deliver damaging pollutants and high-flow storm water discharges to the Bay's streams and Bays. There is a concern that the new TMDL caps on pollutants, when proposed, may cause some cities to cease issuing new storm water permits for construction because the pollutant loading from the city's impermeable surfaces may equal or exceed the pollutant cap provided for the city. Instead of stretching beyond current technology for marginal to zero gains for water quality when building a new project, we should be finding ways to address the complete lack of BMPs in existing developed areas and other areas that pollute to give us a chance to meet the goals of the program.

5. Low Impact Development

One tenet underlying the restoration program and the developing TMDL is the use of low impact development ("LID") to lessen the impact of construction and new infrastructure on the Bay. Maryland, leads the charge in this direction. LID is an environmentally friendly approach to stormwater management because LID seeks to mitigate the impacts of development to land, water, and the air. Each development site is examined to integrate site planning with techniques that conserve the existing natural systems and hydrological functions of the site. Common LID controls include bioretention devices such as rain gardens, permeable pavers, green roofs, rain catchment devices such as barrels or underground chambers, "reverse slope sidewalks" which drain away from the road into vegetated areas, and many other techniques. My concern is that LID does not work on every site. You need the right kinds of soils and in many cases low density development. This will add another barrier to redevelopment. The home building industry has not had an opportunity to provide input to the Bay Program on our experience with LID and yet the Chesapeake Bay Program Office is actively promoting to the

states an “aspirational goal” of “no-discharge” development. The no-discharge goal relies on the use of LID practices to control storm water discharges and new requirements must take into account past experiences where LID used in practice has failed.

Looking Forward

The new Bay restoration program has an increasingly complex mixture of organizations and people overseeing the effort. Active overseers will include:

- Environmental Protection Agency Region III
- Environmental Protection Agency’s Chesapeake Bay Program Office.
- Charles Fox, EPA Senior Advisor on the Chesapeake Bay and Anacostia River
- The “Independent Evaluator” team (yet to be hired by EPA), and
- The Federal Leadership Committee (created in the May 12, 2009 Executive Order on Chesapeake Bay Restoration)

Many questions arise with this level of oversight: What happens when the overseers do not agree? Who has final decision making authority? It is concerning that the regulators have not yet reached out to the affected businesses or to the public on the challenges ahead, such as “no-discharge” development, while the number of regulatory organizations in the Bay grows in number and complexity. It is imperative that the stakeholders – the entities regulated under the Program – have the opportunity to express their concerns with the Program and recommend solutions to move the Program forward.

In summary, my concerns with the restoration effort include the programs overwhelming emphasis on new development that has lead to missing goals for the past two decades, overall financial cost of the effort and the effects that cost may have on the Bay state’s economies and their citizens; how future growth around the Bay will be accommodated; the lack of any stakeholder involvement to this point (beyond the environmental community) in determining what is doable to meet what will be a very difficult restoration program. and the increasing complexity of the many organizations who will oversee the Bay’s restoration.

After my experience with the current program I have a number of suggestions to make to the Committee regarding the Bay's restoration:

1. All sources of pollution must be addressed and the greatest emphasis must be on the biggest sources of pollution. If progress is to be made, all pollutant sources must play a role in making reductions. For example, runoff from existing urban areas and agricultural runoff must be addressed if the restoration efforts are to meet their goals.
2. Efforts must be effective, efficient and affordable. There are numerous options available to meet the stated goals. Interstate water quality trading, for example, is crucial to reduce the overall costs of reducing pollutants to the Bay while ensuring that agriculture is included.
3. Maximum flexibility, options for permit compliance, and workable outcomes are necessary. The public desires restoration of the Bay but realistic and affordable means to accomplish restoration goals must be identified. Maryland homebuilders have initiated conversations with the Maryland Department of Natural Resources to set up focus groups that would discuss how a more watershed or regional approach to storm water management can be implemented. The current approach only focuses on the project under approval and the amount of on-site controls that have little to no benefit but actually compete with smart growth strategies.
4. Immediate and broad opportunities for stakeholder input must be provided. Due to the impacts of the restoration effort on regulated industries and sources, communities, and citizens, a clear and commitment to include the public is vital to the success of the restoration. Accommodations must be made so the affected industry sectors can begin planning now to meet the demands that will come under the new regulatory regime envisioned for the Bay's watershed. EPA has largely neglected this requirement, to date.
5. Though many hands are out to the federal government for financial support these days, this restoration program will sorely test the Bay state economies. Federal support for

this program, which sets the precedent for similar programs to take place around the country and takes place within a stone's throw of the capitol, seems especially deserving.

In conclusion, thank you for allowing me to express my concerns and make a few suggestions on the restoration of the Chesapeake Bay. In addition to being a home builder, I am a lifelong Maryland resident, and have often enjoyed fishing, boating and swimming on and in the Bay. Clearly, the health of the Bay is important to me and my family.

Questions from Senator Inhofe

1. The Clean Water Act says that "It is the policy of the Congress, to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this act." How does the Federal government continue to be a successful partner in assisting with Chesapeake Bay clean up, without violating the States rights as primary protectors of their land and water?

Restoration of the Chesapeake Bay requires a coordinated plan encompassing all of the states in the Bay's watershed. The current implementation of the plan is through the regulatory structure of the states with oversight by Environmental Protection Agency ("EPA") and the Federal Leadership Team (as designated by the Chesapeake Bay Executive Order). This structure allows the federal partners to establish the overall water quality goals necessary to restore the Bay and allocate a loading cap for each state to meet. Importantly, each state then develops its own implementation plan for how it will meet the shared goals. In this manner, the states retain the flexibility needed to design and administer a program that is politically acceptable and adheres to its funding and staffing resources and limitations. To this point, this restoration strategy has worked well and produced the first set of 2-year milestones for each of the Bay states.

There is a concern, however, that in implementing the Chesapeake Bay Executive Order ("EO"), the federal government may remove this flexibility by establishing regulatory requirements that the states must implement, whether they make sense for that state or not. For example, in a meeting hosted by EPA on August 10, the agency staff indicated that storm water from new development would likely be targeted – despite the fact that Maryland and Virginia have some of the most stringent storm water requirements in the country.

In addition to overseeing the development and implementation of measures to meet the substantive goals, the federal government must recognize and plan for the fact that sufficient funding and resources to implement the various plans may not be forthcoming in the timeframe in which it is wanted/needed. In other words, the federal government must act work with the states when the issue of insufficient resources is brought forth.

EPA should help focus the States on affordable Best Management Practices ("BMPs") to increase the return for the dollars invested. The agency should also study and perhaps

help fund innovative, cost effective solutions and share those successes with the other states.

2. How do we ensure the goals we're setting for the Chesapeake Bay are technologically feasible and achievable?

The Chesapeake Bay restoration is a vast undertaking at a scale that has never before been tried. As such, there are plenty of unknowns associated with its implementation and whether the strategy will meet the intended goals. Because many water quality issues have been addressed on a smaller scale, it is suggested that the technology that has proven effective in these smaller initiatives be used as the starting point. In addition, to better ensure feasibility, models should be conservative, cost-benefit analysis must be completed, and the technical experts must collaborate with the policy-makers to ensure that the technology and models are used properly. Equally important, the entire restoration effort must be based on a shared, team approach that allows and facilitates input from all interested parties. Only through this process will the public have sufficient comfort that the strategy is sound and workable from all angles.

Another way to improve outcomes is through constant assessment. EPA has stressed that the restoration effort must be based on the principles of adaptive management, which means that a continuous review of regulatory goals and requirements will be done. This is especially necessary because many innovative and untested measures likely will be tried in the Bay Program. For the housing industry, the innovative measures include the wide-spread use of low impact development (LID) for stormwater management. Recent LID failures in Maryland, however, highlight the need to reexamine and possibly refashion those requirements where there has been limited experience. Adaptive management will also be necessary when considering the financial impacts of the restoration program. If, for example, the new LID requirements that now apply in the urban areas of Maryland prove to be too expensive and burdensome for redevelopment projects in the cities, Maryland will need to consider relaxing some of the provisions or providing additional flexibility to allow builders to build projects that the public is willing to pay for.

Finally, it is important to note that the goals must not only be *technically* feasible and achievable, they must be *economically* feasible and achievable, as well. A goal that does not allow economic development to occur or closes down all agricultural operations would not be achievable. In determining feasibility and achievability of technologies and strategies, consideration should be given to legal authorities; property/land ownership; overall contribution of pollutants; options for and costs of possible reductions; economic impact; and sources of funding.

3. How do we ensure that we're meeting both the environmental goals for the bay as well as our economic recovery goals?

During the next year, as the public learns more about the sacrifices that will be necessary to restore and maintain the resources of the Bay, there will certainly be questions regarding the overall cost of the effort given that the economy is expected to remain weak and unemployment levels expected to remain high. To succeed in the long run, those responsible for the Bay restoration effort must find affordable measures to reduce pollutants. Interstate water quality credit trading Bay-wide, and the maximum participation of all point- and non-point pollutant sources, including agriculture, must take place for the restoration effort to be seen as equitable and achievable. As federal and state dollars become scarcer, plans must be designed with those reduced resources in mind. For example, although \$25 million was proposed for the State of Maryland's Chesapeake and Atlantic Coastal Bays 2010 Trust Fund, only \$10 million was approved. I understand that \$10 million has since been reduced to \$8 million. As a result of this change in funding, the state should be compelled to revise and scale back its program and timeline to now operate under an \$8 million budget.

Development costs have increased exponentially in the past few years. In most areas of Maryland the cost to develop a lot is now more than the finished lot is worth. In addition, the development costs alone are above the limits for affordable housing. This is because we are already operating at our limits for technology and what new development can do. Counties and States are having severe budget deficits because the necessary growth is not occurring. If the economics of home building and other construction are made worse by more regulations, new projects will not be built and recovery will not occur.

To ensure that environmental and economic recovery goals are met, at a minimum, once the restoration plan is drafted, a comprehensive cost-benefit analysis and an affordability study of the affected industries/property owners/etc. must be conducted. Then, the program's emphasis should be placed on those activities or actions that will provide the biggest environmental benefit for the smallest cost. Likewise, the governments should be creative about finding ways to share costs among all who benefit. For example, if the best way to reduce nitrogen is to find a new way to dispose of animal manure, the farmers alone should not be held responsible for footing the bill, as their reductions could mean that the wastewater treatment facility does not have to install costly upgrades, thus a cost-share approach could be a more effective approach than burdening one source or industry. Placing significant burdens on communities and individuals who are striving to simply survive does not serve anyone's goals and can severely hinder the program's

credibility. For the housing industry, we are experiencing the lowest number of housing starts since 1940 and the value of developed land is oftentimes less than that of raw land. Further handicapping our industry to make minimal, if any, environmental gains does not seem like a wise decision considering the effect the stoppage in housing and development has had on state budgets.

4. We understand that in order to have a successful Chesapeake Bay program, there must be wide spread buy in from all affected sectors of the community. Pitting environmental interests against business and agricultural interests will not get the Bay to where it needs to be. Please share your experiences in environmental programs that have been both successful and unsuccessful in gaining the support of diverse interest groups. What can the Federal government learn from these experiences?

Unfortunately, environmental groups around the Chesapeake Bay are often negative and uncooperative. Some of those groups are not shy about stating that they seek to minimize development in the Bay watershed, all 64,000 square miles of it, without regard to efforts to minimize the environmental impact of development. There is also no regard to the societal requirement for housing and infrastructure or the impact on the Bay's economy if construction activities were to greatly decline.

There have been notable instances where industry and environmental groups have worked together to accomplish specific projects that enhance the greater public good. For example, NAHB has worked with the Low Impact Development Center to develop the "Builders Guide to Low Impact Development" published in 2002. Likewise, the National Association of Home Builders (NAHB) participated in the Site Planning Roundtable that developed a consensus agreement on Model Development Principles to Protect Streams, Lakes, and Wetlands.

It is safe to say that environmentalists and industry are both in agreement that the Chesapeake Bay is worth the cost of restoration. That being said, cost is the most important word in the preceding sentence. The Federal Government needs to continuously make clear that costs do matter. Finding the lowest-cost BMPs to meet the new water quality standards and restore the Bay is imperative. EPA is justifiably proud of utilizing the best science available to develop the Bay restoration program. Likewise, government agencies need to ensure that they utilize "out-of-the-box" thinking to fully explore ways to reduce the cost of the Bay restoration program as far as possible.

5. What are your suggestions to make the current Chesapeake Bay Program better? How can we ensure greater community buy-in to the program?

1. Better coordination and timing. There are currently efforts being undertaken at the federal, state, and local level to improve the health of the Bay, yet few of these are coordinated or collaborative in nature. For example, pursuant to the Chesapeake Bay Executive Order, the affected agencies are to prepare and submit draft reports making recommendations for accomplishing a number of steps to protect and restore the Bay by September 9, but this provided little time for the agencies to even find out what other efforts were underway, much less ensure consistency. Likewise, EPA is working with the states to develop a Total Maximum Daily Load ("TMDL") for the Bay that is expected to be completed in 2010, yet the timing of the EO all but prohibits inclusion of the TMDL in the overall efforts.
2. Improve consideration of sources and options for reducing pollution. All sources contributing to the Bay's impairment should be potential targets for reduction, not just those that are easy to identify and/or regulate. Likewise, the program proponents must think broadly and creatively about solutions. For example, tax credits for septic upgrades or maintaining open space and prohibitions on certain fertilizers could go a long way to reducing pollutant inputs. Similarly, transferrable development rights for reducing impervious surfaces, or density bonuses to pay for sewer expansions could ensure the continuation of economic development projects while protecting the Bay. Trading could also be a workable scheme to reduce impacts. At a minimum, the policies must be flexible and target those efforts that can provide the biggest benefit for the lowest cost.
3. Education and participation. Everyone who has an interest in the Bay must recognize that they can be part of the problem or part of the solution and that the Bay's health requires a shared commitment. It is not solely an agriculture problem, a septic system problem, an urbanized area problem or a new construction problem, it is a bay-wide problem that can only be solved via a bay-wide solution. As such, no one source or entity should be singled out for regulation or focus, as all contributors can do their part.

An aggressive education campaign should be initiated immediately to increase knowledge and invite participation and solutions. Efforts must be made to reach all users and supporters of the bay, including commercial and recreational fishermen, boaters, farmers, builders, communities, and citizens within the Bay's watershed. Unfortunately, to date, the public and affected industry sectors have been excluded

from the discussions taking place concerning the Bay restoration. EPA has stated that it is planning to conduct some type of public outreach this summer, but that may be too late. Developers and home builders met with EPA on August 10 to discuss the Chesapeake Bay Executive Order, though the agenda was restricted to topics of interest to EPA rather than topics of interest to developers and builders (I have attached the NAHB written comments provided to EPA during that meeting).

4. Greater effort from EPA to reach out to and listen. Now is the time that industry input would be most valuable, yet input is provided only by scientists, regulators and environmental groups. EPA should immediately make available to the public each of the assumptions and the data that are being modeled for the Chesapeake Bay so industry and other interested parties can review the material and provide their comments. EPA should also immediately plan for public stakeholder meetings for the Chesapeake Bay TMDL and specifically ask for ideas to lower the cost of the regulatory program. EPA Chesapeake Bay committee discussions have for the most part concentrated on how to strengthen the existing command-and-control structure derived from the Clean Water Act to achieve the Bay restoration.

6. Please discuss your experiences with the current process of input for the Chesapeake Bay Program. How can we ensure better inclusion of the business and development community?

NAHB staff have attended some Bay Program meetings, joined some Bay Program conference calls, and provided some input on limited occasions over the years. The Bay Program has been hospitable to NAHB input, but I am not aware of any industry representatives belonging to any Bay committees. Input from other industry sectors is negligible. Part of the challenge is the sheer number of committees, meetings, and discussions being held and the difficulty in determining what information of input is needed at any given time.

For example, the Chesapeake Bay Program website provides little information about the technical questions under discussion. Input from affected sources is not requested. To date, EPA has defended the status quo by saying that affected sources will be able to provide input when the Bay TMDL is proposed in the summer of 2010. The truth, however, is that important decisions regarding such things as the pollutant contribution made by each industry sector and the potential ways to decrease that pollutant loading are being made now. Based on past experience, the agency likely will be unwilling to revisit or reexamine those decisions or the modeling it has since developed to support its

proposal. Likewise, the most innovative new technologies will not be considered because the people who are knowledgeable about those technologies will never know that they missed an opportunity to make a change for the better in the restoration program. EPA must make its regulatory development process for the Chesapeake Bay restoration program and other similar programs around the country much more transparent and user-friendly.

Given the new federal focus on the Chesapeake Bay restoration and the recognized need for community and citizen buy-in, it is suggested that EPA take a number of steps to include the business and development community in its activities:

- 1) Develop a mailing list or listserv of business interests who would like to be notified of Chesapeake Bay Program activities;
- 2) Hold a bimonthly conference call or meeting to discuss status of efforts, gather input, and discuss concerns, solutions and implementation issues;
- 3) Appoint three or more builder or developer representatives to each relevant committee;
- 4) Ensure that all Bay committees post their technical documents to the appropriate public website once the documents are drafted.
- 5) Create tax credits for homeowners to convert to lower maintenance turf or the elimination of turf.
- 6) Create a list of BMPS and determine the cost per pound of pollution reduction that a particular BMP can achieve to show what the low hanging fruit is.
- 7) Ensure that engineers who understand the difficulties of implementing LID and BMPs on new developments are represented on technical committees.

7. What is the difference in impact between new construction and current development? How can we ensure that the burden for storm water reduction isn't placed solely on new development?

According to the Chesapeake Bay Executive Order Website, current development (i.e., runoff from existing urban and suburban development) is responsible for 11% of nitrogen, 31% of phosphorus, and 19% of sediment discharges to the Bay. While the site provides no data regarding the distinction between "new" and "existing" development, it is a very important distinction. Likewise, the site provides no information regarding inputs from active construction sites, yet this, too, should be considered independently.

The current National Pollutant Discharge Elimination System ("NPDES") program requires a permit for the active phase of construction associated with new development

(i.e., while the ground is disturbed and there is a heightened possibility that sediment may leave the site during a rain event). Once the shopping center, subdivision, or school is built, there are no requirements that compel builders, developers, or property owners to obtain a permit or otherwise reduce the runoff and/or pollutants discharging from the site. As a result, the impacts from *urban runoff*, or those already-developed areas, are much larger than that coming from active construction sites if for no other reason than urbanized areas cover more land area than active construction sites. Further, according to the 2002 National Water Quality Inventory Report, while sedimentation and siltation may be the top cause of impairment for rivers and streams, the primary source of this impairment is agriculture, followed by "unknown" and hydromodification. In fact, "construction" does not even make it into the top 10. On the contrary, EPA's data regarding the sources of impairment identify construction as being responsible for less than 3% of the impairment to the assessed rivers and streams.¹ Given that "natural sources" cause impairment in over 6% of the assessed streams – more than twice as many waters as are impaired by "construction" – it is clear that construction sites are not a significant source of pollutants.

In addition, many newly-developed areas have more efficient and/or effective storm water management and wastewater treatment facilities that are better able to manage and reduce the amount of pollutants entering the Bay. In contrast, many older, developed areas rely on undersized, ill-maintained, failing and/or nonexistent storm water management facilities that have limited or no ability to filter the discharge before it reaches the Bay. As a result, discharges from newer developments tend to have reduced flows and fewer pollutants than older projects. Importantly, however, citizen behavior also has a big impact on the type and amount of pollutants coming from developed sites – especially nitrogen, phosphorus, and fecal coliform. Examples of such deleterious behaviors include littering, especially when waterbodies are nearby, and the over-use of fertilizers and pesticides in lawn-care and gardening.

For years, builders and developers have been doing their part to reduce the pollutants coming from active construction sites and minimize storm water flows after the construction project is complete. As my testimony stated, and as reiterated above, the pollutants generated from new development are insignificant compared to the pollutants generated within the storm water flows from the existing impermeable areas of the Bay's urban areas. If the program is to make progress, the restoration plan must address these urbanized areas, but it must do so in a fair, affordable, and effective way.

¹ From EPA's National Assessment Data 2002, National Probable Sources Contributing to Impairment Table, at http://iaspub.epa.gov/waters10/w305b_report_v2.nation.

There seem to be a number of incentives and other actions that could be taken to ensure that all contributors also contribute to the cleanup efforts. For example, many communities have established storm water utilities or other mechanisms to collect a fee to cover the costs of storm water retrofits or disposal. Communities could require the installation of drywells at the time of property transfer or offer tax breaks or other incentives to install rain gardens or other small infiltration BMPs on private lots. Many storm water management facilities have been neglected and simply need to be maintained to function at or above capacity. Large storm water management facilities could be upgraded to increase capacity or retrofitted to retain storm water for a longer period of time.

Redevelopment projects could have specific requirements for addressing pollutants from the stormwater discharges as long as they do not make the project infeasible. The regulations on redevelopment in urban areas are the ideal place for the practice of adaptive management. If stormwater requirements on redevelopment prove to be too expensive or too burdensome (as evidenced over time by fewer permits for redevelopment than the level desired by the locality) then those requirements may be readjusted (with additional pollutant reductions identified and required from other sources). New developments could voluntarily install oversized storm water management facilities and sell "credits" to existing developments or communities who need additional capacity. Cities can identify and remove impediments to designing for and with nature by limiting roadway width, eliminating certain sidewalks, and promoting clustered developments.

Despite the myriad of opportunities to ensure that all pay their fair share in support of the restoration efforts, I remain extremely concerned by the lack of understanding about the home building industry and the direction EPA is currently heading. At EPA's August 10 meeting on the Chesapeake Bay Executive Order, Chuck Fox made it very clear that EPA was targeting the home building industry. Mr. Fox also indicated that states could ban the issuance of new construction permits if they did not meet their pollutant reductions. Most builders are operating on the edge of technology in terms of the reductions they can feasibly attain, and in Maryland spend about \$25,000 per unit on storm water management (most likely this figure will grow once EPA adopts Effluent Limitation Guidelines in December 2009). Placing additional burdens on this heavily regulated industry will realize limited environmental benefits and hinder the recovery of an extremely distressed industry. EPA is strongly urged to remove new construction from the crosshairs, address all sources of pollution and place the greatest emphasis on those

sources that are demonstrated to be the biggest contributors and those reduction options that are shown to provide the biggest benefit for the lowest cost.

8. Please discuss some of the problems you have encountered with Low Impact Development. How can we ensure that LID is used in an appropriate manner and that we don't have too high expectations for its ability?

While LID offers promise, industry experience with the practice is spotty and there is little long term data regarding its effectiveness. What is known is that there are some locations (high water table, solid rock underlying the site, within flood plain limits, etc.) where LID is not practicable. Indeed, several studies have found that although LID can be highly effective in retaining and reducing stormwater runoff, and thus pollutant loads, larger, less frequent precipitation events can greatly diminish this capability. Likewise, because LID oftentimes requires larger areas than traditional storm water management, sometimes it can be cost prohibitive from a feasibility standard.

In Maryland, the storm water program requires the use of Environmental Site Design ("ESD"), which requires a comprehensive stormwater plan utilizing LID practices (where possible) and, where absolutely necessary, allows permittees to use traditional structural practices. What is important is the flexibility provided by the regulations so the builder can be innovative, but, if necessary, use traditional BMPs where there is risk of LID failure or it is otherwise infeasible. In addition to LID failure, another LID challenge is the management of post-construction maintenance activities for LID. Once a developer has completed the project, he/she no longer holds a legal interest in the property and the maintenance duties associated with the LID and/or other storm water management facilities often are turned over to a homeowners association or a city or county. Currently, most homebuyers do not understand the function of LID or the value it provides. This situation has already led to disagreements between builders, localities, and homeowners, and the disappearance of LID in some locations.

Even with all the planning done in Maryland to adopt LID for stormwater management, a recent project, Oak Creek in Prince George's County, failed due to soil types and high water tables. Water sat in ditches and became stagnant. The developer was required to put French drains in all of the ditches which were a huge cost to the builder. Homeowners were very unhappy and complained to the County.

Guidance on the environmental benefits of LID at home sites is needed. It should be provided by EPA on a national level to allow builders to provide that guidance to the homeowner along with the home purchase agreement and information on how to protect the LID devices on the property and how to maintain the devices. Many localities are

stepping up to provide their own LID maintenance agreement and they will want to add their contract to the material provided to the homebuyer.

9. Please discuss the importance of flexibility in permit compliance.

Unlike many of the other permits that are required before one may legally build on or develop a piece of land, there is no easy way to demonstrate compliance with the storm water requirements. Although largely performance-based, which basically means that permittees are free to pick and choose the most appropriate best management practices (BMPs) to fit the parameters of the site, there are also a number of process mandates that must be met on every site. The myriad of duplicative and sometimes conflicting requirements at the federal, state, and local levels, coupled with the need to be able to design your best management practices (BMPs) to fit the parameters of the site necessitates flexibility.

Every construction site has its own set of challenges for sediment and erosion control and stormwater management and each Stormwater Pollution Prevention Management Plan (SWPPP) must be written anew with deference given to the site's slopes, soil characteristics, the weather expected during the project, the size of the project, nearby water bodies, space constraints if the project is a redevelopment project, and many other factors. What worked at the last site may be inappropriate or very expensive for the site the builder is working on. SWPPP writers are professionals whose good name rides on every building site that they work on. While some baseline mandates are appropriate, such as site perimeter controls, mandates, in general, restrict choices and increase the cost of a project, usually with little or no additional environmental benefit.

The most important permit concern for the builder is to meet all of the permit's requirements. They know they must do that or suffer the very real consequences. The procedures to meet the requirements should be left to the SWPPP writer's discretion since they generally know better than the regulator what options exist to meet the permit requirements on a particular site. Permittees must be able to select the most appropriate best management practices for their sites. In addition, the permit writers must have sufficient experience and expertise to allow the use of innovative and/or new technologies when they become available.

With the challenges that the Bay TMDL will bring, builders will need a fee-in-lieu program or the ability to construct off-site BMPs or participate in a water quality program in order to be able to build homes that citizens of the Bay can afford.

Like the site-by-site challenges, there are natural (i.e., climatic, topographic, geologic), philosophical, and political differences among the states (not to mention the recognition within the Clean Water Act) that necessitates giving the states sufficient flexibility to design and implement programs that are workable within their frameworks, limitations and resource constraints. The target sources and pollutants in Pennsylvania may necessitate a different approach than might be taken in DC to address a different array of sources and pollutants, and the Bay program must accommodate these needs.

Senator CARDIN. Well, again, let me thank all four of you for your testimony. Also, thank you for your patience. This has been a long hearing, and we appreciate very much your testimony and participation.

Mr. Mitchell, let me start, if I might, with you. You have an excellent reputation in the community for being sensitive to the environment, and we appreciate that very much. You also raise a very valid point on non-point sources that there is a lot of existing construction out there, and it is causing a great deal of difficulty. We do not want to stop new development. New development is important for our economy. It is important for quality of life, quite frankly.

The approach that has been suggested is that we would have a dual standard. For new construction, they would have to meet a higher standard. Now, you do raise a valid point. Some of the regulations are counterproductive if you are dealing with sidewalks or width of roads. So some of this could be gained just by eliminating some of the regulations that are counterproductive to the goals that we are trying to succeed in, but it is bound, though, to have a higher standard for new construction.

Is that acceptable to the industry? That, as we get better science and technology, we establish tougher standards for new development whereas existing development may very well escape those types of retrofits?

Mr. MITCHELL. I think there is a certain acceptance level. We understand that new development requires standards that existing retrofits do not. I think our position would be that if it is in a smart growth area, a priority funding area, the difference or the various levels would not be the same.

One of the unfortunate things that seems to be occurring is that the incentives for smart growth and redevelopment, particularly in some of the issues that we have had with the Storm Water Management Program in Maryland, is going to make it more and more difficult to redevelop those areas where we do want the development to go.

You know, we would be happy to work with you to try to figure out a way that this sort of dual program might work for the industry.

Senator CARDIN. That is a very valid point. As we look at smart growth, we are trying to affect where development will take place. It may not be in the area where you can mitigate the most, as far as new construction is concerned. And how do you deal with the holistic approach to what you are trying to do with development, mindful of trying to get the maximum advantage runoff pollution?

Mr. MITCHELL. One of the things I mentioned, we had a conversation with Secretary Griffin, actually, of DNR and we talked about the fact that you get to an incremental point on new development whether it is in the right location or the wrong location, whatever you want to look at it, that you just cannot make another step, and it would cost you tens of thousands of dollars to make that additional improvement for little impact.

I can remember one of the first jobs I did almost 20 years ago, there was a debate on how much of the BMPs that we wanted to have onsite, and the county had a program where we could go off-

site and do a stream restoration program within the same watershed and the environmental benefits for the area were much greater.

That is where I kind of learned about the fact that in suburban Maryland areas, there are locations 40 or 50 years ago where the bottoms of the streambeds were paved over. And I think that there could be a working through the permit process, say, OK, the incremental benefit on the new construction is not as beneficial as going back to retrofit, whether it be stream restoration, cutting down erosion on a stream, removing these concrete bottoms to the streams, or other various things that are available to us.

Senator CARDIN. We do have some concrete streams still remaining and there is some work being done to try to correct that. It is not easy in some places.

Mr. MITCHELL. You are right.

Senator CARDIN. But I think the way you are approaching it is right. If we are going to be looking at hard standards on the Bay, then as we look at the non-point sources and are starting to have some stricter requirements on development, which I think most are understanding, you need to make a good faith effort to try to look at areas that you can improve that are already constructed, whether it is what we have done with cement streams or what we have done with some of the runoff from transportation, or existing construction. But clearly there is more potential in dealing with new construction than any place else.

Mr. Gannon, you raised a point I had not thought about. I usually think of wastewater treatment facility plants as the major problem on point source issues. I had not thought about the septic systems that are not connected to sewage, to public lines.

Is there much area of improvement that we could have here? Is there much seepage that could be contained where you are not connected to public sewage?

Mr. GANNON. Yes. I think that the secondary treatment that Maryland has imposed with the Bay Restoration Fund, there are four or five different companies that are offering secondary treatment. I think the secondary treatment that is happening is at least a step in the right direction, and I think that mandating secondary treating rather than just a gravity flow system, and this really is not my area of expertise, it is just more supposition based on our experience with dealing with these secondary treatment units.

But they have, I think they are a step in the right direction to bringing a better technology to something that is, you know, ages, ages old technology which is the use of a septic tank and a tile field, which essentially just lets waste settle and then is discharged into a tile field that eventually becomes groundwater at some point.

Senator CARDIN. The type of work that you are doing is—give me a little bit better understanding of what your surveys do.

Mr. GANNON. Well, we are just a third party independent laboratory that provides—part of the Bay Restoration Fund requirement was that the individual contractors contract a certified laboratory to provide them with data on the reduction between influent and the effluent, and somewhere in between, how their secondary treatment unit is doing its work.

So what we do is we do the analysis and things on the influent and the effluent, as well as the sampling. That is another key protocol of the Bay Restoration Fund, that they have to have an independent third party do the sampling. And that is where we come in.

Senator CARDIN. Thank you.

Mr. Wurtzel, one might wonder why a former CEO of a major company would be suggesting that perhaps we need more environmental regulation. I am not surprised to hear you say that. We have a lot of businesses that have been partnered with us on the Chesapeake Bay and looking for reasonable ways to deal with it.

But I would like to get your perspective as to whether you are subjecting yourself to criticism because of suggesting that we could use stronger regulation.

Mr. WURTZEL. I do not think that regulation—

Senator CARDIN. You need to put your microphone on.

Mr. WURTZEL. Regulation, in my opinion, is not a four-letter word. We are all on the highways every day, and we have regulations for traffic. And I think we all accept them because if you did not have regulation, we would be driving like bumper cars, and it would be chaos.

So as our society becomes more complicated, as we become more interdependent, we are going to have to—we need, in effect, more regulations. They have to be smart regulations. They have to be flexible regulations. Cap-and-trade, they have to be as market-based when possible as they can be. We require kids to go to school. We require you to have a driver's license. We require you to have your car inspected, all sorts of things.

Now that we see the interconnection, let us say, between agriculture and the Bay, between development and the Bay, between runoff from our roads and the Bay, the fact that there are adverse consequences downstream means you have to attack them upstream. And we have to do it in as smart a way as possible and in as compassionate a way and provide, where necessary, the resources for farmers or other people that are impacted to make the necessary changes.

But we cannot live in a complicated society, I believe, without regulations.

Senator CARDIN. I think that is well said. I alluded earlier that the success of the Chesapeake Bay Program from its inception was that it had strong private sector support, including from the business community.

Mr. WURTZEL. Right.

Senator CARDIN. From its inception. And the first regulations that were put in in Maryland were very much involved with the business community and they support us—

Mr. WURTZEL. Right.

Senator CARDIN [continuing]. In the original steps taken in Maryland and in Virginia. I think the way you said it, that they want sensible regulations, they want predictable regulations, achievable standards.

Mr. WURTZEL. Exactly.

Senator CARDIN. So that is our challenge.

Mr. Fults, both you and Mr. Wurtzel spoke in favor of the trading of nutrient levels. I just want to challenge you on one of the things that you said. You said that it has got to be fair, which we all agree about that. Of course, as we also mentioned earlier, we have to have limits so that there is a market for what we are trying to do.

And then you said, though, that we need to have some equality among the different areas, I think I heard you say that, and where they are used, etc. That seemed to me to say, a little bit, that you are going to interfere with the market. You are not going to let it be pure, from the point of view of the most valuable use of the offsets, because you will have some form of restrictions as to where the offsets can come from or where they can be used.

I just really want to challenge you to at least respond to me whether those types of restrictions are warranted as an interruption to the otherwise free market approach on the trading system.

Mr. FULTS. Well, sir, the challenge was in discussion of the Federal funding. We are a private, market-based approach of which we require no Federal funding, and we request no Federal funding in the resolution of our offsets. So my discussion was based on, as you all fund the Bay programs, that you do it equitably.

I believe as you create a private market, if you take a watershed approach, or actually I am in favor of a baseline-based approach where there is an equivalent currency for an offset, that we might be able to allow private market achievements to begin to make the difference beyond baseline.

Virginia has taken a first step model where we have allowed the creation of offsets beyond a baseline component, and I think that is important. It is up to you to decide how you spend your Federal money, but the challenge is that we are not asking for Federal money, our solutions are real and active today.

Senator CARDIN. And we would put into this reauthorization the fairness as to how the moneys are going to be used. So as long as we use the entire watershed, you think that the trade model used for nutrients could be throughout the whole watershed without requirements as to where those offsets come from?

Mr. FULTS. We do believe that it is a bigger outlook. It is a picture taken from in the sky, that you do trade by a watershed-based approach, that over time both the grassroots movements, the clean environments of the builders and the efforts of a private market will create a substantial change.

Our retirements are permanent, and one of the things I learned in the last 3 years is that there is a very strong bi-partisan support of our objectives, and there is a very strong support from the various grassroots foundations through the home builders. I think that it provides them with that last bit that he was talking about, that it is just unachievable. And you said it yourself—this goal has to be achievable. So it provides one component in the suite of—

Senator CARDIN. So you would not have a concern, necessarily, as long as, again, it is all set up in a fair manner, we have achievable goals, I am assuming that. So one of Mr. Mitchell's friends, or Mr. Mitchell, was involved in some sort of development and needed some offsets for the work they are doing in Maryland, looking for

an opportunity, perhaps in Pennsylvania, for those offsets, that is part of what you see as a proper offset system?

Mr. FULTS. I think it is most accountable on a watershed by watershed basis, but I believe, at the end of the discussion, each State should have accountability to the overall Bay.

Senator CARDIN. That is very helpful.

Again, I want to thank all four of you for your testimony. This is not the last time we are going to be talking to you about these issues. This is a process in evolution. We hope that, shortly, we are going to be able to circulate a reauthorization bill for comment, and we are hoping, again, to be able to get reauthorization legislation through the Congress before the end of the year. That is our goal, and that is our objective.

And with that in mind, this is the second hearing, and I think we filled in some more of the answers to our questions as we try to achieve what we have been asked to do by our partners, and that is for the Federal Government's role to be more than just providing tools but also providing a way that we have a better chance of achieving the objectives that we have set out among the different partners participating.

With that, we are going to try to achieve that by circulating a draft. And we thank you all for participating in the process.

Mr. WURTZEL. And we thank you, Senator, for your leadership on this effort.

Senator CARDIN. Thank you.

The subcommittee will stand adjourned.

[Whereupon, at 4:22 p.m. the subcommittee was adjourned.]

[An additional statement submitted for the record follows:]

STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA

The Chesapeake Bay Program is a regional partnership that was started in 1983. Bay Program partners include the States in the watershed, the Chesapeake Bay Commission, a tri-State legislative body; the Federal Government, represented by EPA; and participating citizen advisory groups. The Chesapeake Bay watershed stretches across more than 64,000 square miles, encompassing parts of six States we have represented here today—Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia and the District of Columbia. The watershed includes more than 100,000 streams and rivers that eventually flow into the Bay.

I am glad that Senator Cardin is holding this important hearing today. States, local governments and private citizens are the primary caretakers for their water resources. They have the knowledge and expertise to understand how best to deal with environmental concerns, almost always better than a Washington bureaucrat, far removed from the stream or tributary. I am very glad that we have all the States in the Bay watershed here today, and I encourage them to tell us what they are doing and where they have been successful.

I know firsthand that voluntary environmental programs are very successful. Since 2003, the Oklahoma Conservation Commission has invested in conservation practices in Oklahoma's top priority watersheds. These State conservation and education programs have documented a 69 percent decrease in phosphorous and nitrogen in a tributary to the Illinois River. This wasn't achieved through a top down, EPA driven program, but through partnership with the State and local land users to ensure sustainable results through locally led, voluntary solutions. My State's experience is that heavy handed regulations that ignore economic realities and property rights do not work.

As we look toward re-authorizing the Chesapeake Bay Program, it is important to hear from all stakeholders about the parts of the program that work and the parts of the program that could be improved. Taking care of a resource like the Chesapeake Bay requires the buy in of all interested stakeholders, from businesses, to fishermen, to land users and developers upstream. A top down, heavy handed

Federal approach will not lead to the kind of real changes that are necessary to ensure the health of the Bay.

