# Chesapeake Bay and Water Resources Policy Committee

**Date: Friday, Nov. 21, 2008**
**Time: 10:00 a.m. – 12 noon ***
**Place: Room 1, Lobby Level**
**777 North Capitol Street, NE**
**Washington, DC 20002**

*District of Columbia
Bladensburg*
Bowie
College Park
Frederick
Frederick County
Gaithersburg
Greenbelt
Montgomery County
Prince George's County
Rockville
Takoma Park
Alexandria
Arlington County
Fairfax
Fairfax County
Falls Church
Loudoun County
Manassas
Manassas Park
Prince William County

*Adjunct member*

**Lunch will be available for committee members and alternates after the meeting.*

## Meeting Agenda

10:00 **1. Introductions and Announcements**..... Hon. Martin Nohe, Chair
Prince William County

10:10 **2. Approval of Meeting Summary for Sept. 19, 2008**..... Chair Nohe

**Recommended action:** Approve DRAFT Meeting Summary (*Att. 2*).

10:15 **3. Report from the LGAC, Executive Council Meeting**..... Hon. Tommy Wells
District of Columbia
Chair, LGAC

Mr. Wells, the new Chair of the Chesapeake Bay Program's Local Government Advisory Committee, will discuss his report to the Chesapeake Executive Council at the Council's annual meeting Nov. 20. He also will discuss the role of local government in the evolving structure of the Bay Program and his plans for the LGAC over the coming year.

**Recommended Action**: Receive report and provide input to Mr. Wells on local government issues with the Bay Program.

10:40 **4. Funding Opportunities at the Federal Level**..... Tim Williams, Water Environment Federation
..... Hilary Falk, Northeast-Midwest Institute

- Mr. Williams will brief committee members on the prospects for financial assistance for water and wastewater infrastructure repairs (*Att. 4*) under consideration by Congress as part of fiscal stimulus initiatives. (Note – COG staff will briefly outline proposed efforts to quantify infrastructure needs for the region's drinking and wastewater systems.)

- Ms. Falk will discuss the prospects for EPA's Chesapeake Bay Program budget in FY 2010 and other Bay-related initiatives at the federal level.

**Recommended action:** Regarding fiscal stimulus, direct staff to work with Water Resources Technical Committee to develop regional infrastructure information to support appropriate efforts in Congress. Regarding Bay funding, determine priorities for future committee action.

11:15 **5. Bay-wide TMDL Developments**..... Tanya Spano, COG staff

Ms. Spano will outline Bay Program efforts to establish a Bay-wide Total Maximum Daily Load regulation, including preliminary findings from new modeling results on what's needed to meet water quality standards. She will provide preliminary findings from the Water Resources Technical Committee (WRTC) on the potential policy implications for local governments should the upgraded models lead to revisions in nutrient and sediment allocation in the Potomac basin. She also will note the committee's concerns about the technical basis for nutrient load limits at the local level.

**Recommended Action:** Direct staff to work with WRTC members to develop a letter from the CBPC that would express the region's concerns about the use of the Bay Program's watershed model in setting local targets for nutrient reduction.

11:35 **6. Report on Bay Foundation Litigation**..... Ms. Spano

The Chesapeake Bay Foundation, along with seven other parties, filed notice on Oct. 29 of its intent to sue EPA over the agency's alleged failure to comply with the Chesapeake 2000 Agreement (*Att. 6*). Ms Spano will discuss what staff has learned about what CBF hopes to accomplish through this litigation and what its implications may be for local governments in the region.

**Recommended Action**: Receive briefing.

11:45 **7. Staff Updates** ..... various staff

- COG Board Policy State Policy Platform (*Att. 7a*)
- Comment on final report of COG's Climate Change Steering Committee (*Att. 7b*)
- Potomac Water Quality report
- Potomac Conservancy report on Potomac water quality (*Att. 7c*)

11:55 **8. New Business** ..... Members

12:00 **9. Adjourn**

*The next meeting is scheduled for Friday, Jan. 16, 2009, 10 a.m. – 12 noon.*

Enclosures/Handouts:

| | |
|---|---|
| Item 2 | DRAFT meeting summary of Sept. 19, 2008 |
| Item 4 | WEF letter of 10/28/08 to Hon. Nancy Pelosi and Hon. Harry Reid |
| Item 6 | CBF materials regarding notice of intent to sue EPA |
| Item 7a | COG Board Policy State Policy Platform for Maryland/District of Columbia |
| Item 7b | 9/31/08 letter from Chair Nohe conveying comments on Climate Change report |
| Item 7c | 2008 "State of the Nation's River" report from Potomac Conservancy and related material |

**CHESAPEAKE BAY and WATER RESOURCES POLICY COMMITTEE**
**777 North Capitol Street, N.E.**
**Washington, D.C. 20002**

**MINUTES OF MAY 16, 2008, MEETING**

**ATTENDANCE:**

**Members and alternates:**
Chair Martin Nohe, Prince William County
Vice Chair Hamid Karimi, District of Columbia
Penelope Gross, Fairfax County
Tim Lovain, City of Alexandria
Cathy Drzyzgula, City of Gaithersburg
Bruce Williams, City of Takoma Park
Meo Curtis, Montgomery County
Beverly Warfield, Prince George's County
David Ward, Loudoun County
Mohsin Siddique, District of Columbia WASA
J. L. Hearn, WSSC

**Staff:**
Stuart Freudberg, DEP Director
Steve Bieber,DEP
Tanya Spano, DEP
Heidi Bonnaffon, DEP
Karl Berger, DEP

**Visitors:**
Lisa Ochsenhirt, Aqualaw

**1. Introductions and Announcements**

Chair Martin Nohe called the meeting to order at 10:05 a.m. He noted that Tommy Wells, a District of Columbia Council member, was recently elected as the new chair of the Bay Program's Local Government Advisory Committee.

**2. Approval of Meeting Summary for May 16, 2008**

The committee approved the draft summary.

**3. Presentation of COG's Climate Change Report**

Mr. Freudberg outlined the draft report of COG's Climate Change Steering Committee, which was released in July after about a year-long effort by the committee. He presented some of the same evidence examined by the Steering Committee, which shows the rapid growth in global emissions of carbon dioxide and increases in temperatures. The evidence for climate change, he noted is unequivocal.

Mr. Freudberg noted that the warming global temperatures are reflected in increases in average water temperatures in the Chesapeake Bay, a trend that will make meeting water quality standards even more difficult, as higher temperatures tend to reduce the concentration of dissolved oxygen. Higher temperatures are also likely to lead to higher sea levels, which would increase the likelihood of flooding in low-lying areas of the Washington

area and throughout the Bay watershed, particularly on the Eastern Shore.

An inventory of greenhouse gas emissions from the metropolitan region indicates that electricity generation and transportation account for the majority of emissions, about 71 percent, according to Mr. Freudberg. Currently, the region accounts for about 74 million metric tons of carbon dioxide (or its equivalent) annually. Under a continuation of current trends, without reduction efforts, that total is expected to grow to about 106 million metric tons by 2050.

The Steering Committee produced 78 recommendations for action in the region grouped into seven areas. The committee also proposed ambitious reduction goals for the region, starting with a 10 percent reduction from "business as usual" levels by 2012 and reaching 85 percent below the 2005 emissions level by 2050. He said the technology does not yet exist to reach the 2050 goal while maintaining modern society, but "we do have some of the answers" for reaching the 2012 goal.

Mr. Freudberg noted that the COG Board is soliciting comments on the report though Sept. 30. It plans to take final action by its November meeting.

Discussion: Mr. Nohe said that at least some measures to control greenhouse gasses can have other benefits that make them more achievable. As an example, he cited current efforts to capture the methane released from the landfill in Prince William County, which is helping to drive economic development, he said. Mr. Freudberg noted that the climate change committee's recommendation to increase the tree canopy in the region also would have major benefits for water quality.

Mr. Freudberg said he wanted to alert the committee to how this issue might affect the organizational structure of COG's policy committees. He said it is likely the Board will create a new climate and energy policy committee, although there also has been discussion of moving the climate issue under a new overall environmental policy committee that also would have jurisdiction over water quality issues.

Ms. Gross said policy makers need to be careful about the interconnection of issues, otherwise their solutions to one problem might create another. As an example, she cited the creation of seawalls along the Anacostia River that were originally designed to prevent flooding and now make water quality restoration efforts more difficult. Mr. Siddique cited another example, saying that there appears to be a conflict between using rooftops to generate energy through solar panels and using them to mitigate stormwater impacts through vegetated roofs.

Ms Spano presented a brief set of comments on the report that were developed by the Water Resources Technical Committee and address issues relating to the use of energy and generation of emissions by the region's water and wastewater agencies.

Action item: The committee authorized staff to submit the WRTC comments on behalf of the committee.

**4. Report on Montgomery Stormwater Permit**

Ms. Curtis, from the Montgomery County Department of Environmental Protection, provided an update on the status of the county's state permit for stormwater management activities, the so-called NPDES MS4 permit – for National Pollutant Discharge Elimination System - Municipal Separate Storm Sewer System. Its original stormwater management permit was issued in 1996; the county is currently in discussion with the Maryland Department of the Environment on the third round of this permit and MDE recently issued a draft permit after extensive discussions with environmental groups. She noted that the new permit would cover all land in the county with the exceptions of the cities of Rockville, Gaithersburg and Takoma Park and lands under the control

of state or federal agencies.

During previous permit cycles, the county's stormwater management program made a number of accomplishments, according to Ms. Curtis. Among others, she cited the establishment of a separate funding mechanism, a county-wide "Water Quality Protection Charge," that helps to support the stormwater management program.

The new draft contains a number of new provisions, including turning a number of the commitments the county made under its voluntary participation in the Potomac Trash Treaty into program requirements and setting a goal of restoring up to 30 percent of the county's impervious surface area to the "maximum extent practicable." From the standpoint of Bay restoration, the permit "encourages the county to assist in the implementation of tributary strategies and it will require the county to develop implementation plans to address the contribution of stormwater to any applicable TMDLs – which would include a Bay-wide TMDL for nutrients expected to be issued in 2010.

In response to a question on costs submitted by staff, Ms. Curtis noted that the watershed restoration commitment to address the impact of impervious surface would require the county to double its current program efforts in this area, which have cost about $75 million over six years. The new trash and litter control provisions will require the county to increase its current expenditures in this area, which total about $4.4 million annually. There is also a likelihood that the county will have to augment current programs for street sweeping, stormdrain inlet maintenance and enforcement of illegal dumping ordinances, which currently cost about $2.64 million/year. Finally, she said, there will be significant, if still unknown, cost increases associated with developing and implementing watershed implementation plans in response to TMDLs. County staff is currently looking at the water quality protection charge and other funding mechanisms in response to these anticipated needs.

Discussion: In response to a question from Mr. Karimi about the scope of the watershed restoration requirement, Ms. Curtis said the county has been working on about 2,600 acres to meet the 10-percent restoration requirement in its current permit. She said meeting the proposed requirement would require the need to retrofit as much as an additional 5,200 acres.

Both Chair Nohe and Ms. Gross noted that their counties have established special mechanisms to address stormwater management costs. However, those mechanisms are likely to be inadequate to meet the needs of new regulatory requirements. Ms. Gross said that the county will have to hire 54 new inspectors to cover inspection of construction sites and existing facilities. New fees the state is proposing under the construction permitting program that it is delegating to the local level will not cover the county's personnel costs, she said.

**5. New Challenges for Local Stormwater Programs**

Ms. Ochsenhirt, an attorney for Aqualaw PLC who helps to represent local government associations in Maryland and Virginia that address stormwater issues, outlined the challenges that local governments are facing throughout the watershed. She noted that there are a number of regulatory developments at the state level currently driving this issue, including precedents being set by new MS4 permits in Montgomery County and in Norfolk, Va., as well as pending updates to state stormwater program regulations in the two states.

From a "big picture" perspective, she noted, this is a time of major change in the regulation of stormwater, with increased emphasis on trying to actually achieve water quality standards in local streams rather than merely requiring the application of best management practices. There is also emphasis on "distributing" control measures to the individual lot level, which poses a lot of challenges for municipalities in regard to inspection, maintenance and enforcement. Regardless of the details of the final regulations now being developed, she said, local governments should expect to bear higher costs for management activities and developers and home owners also

can expect to pay more as well.

Ms. Ochsenhirt noted that the draft permit for the city of Norfolk will serve as a template for stormwater permits in northern Virginia jurisdictions, just as the Montgomery permit is a template for other jurisdictions in that state. She also addressed program changes under pending updates to both Maryland and Virginia's state requirements for stormwater management.

Discussion: In regard to proposed new provisions in the Virginia Stormwater Management Program regarding criteria for single lot BMPs such as rain gardens and swales, Chair Nohe noted that people in a pilot development in Prince William County are already filling in these structures, which emphasizes the challenges that local governments will face.

Ms. Ochsenhirt briefly noted that legislative prospects for state funding assistance in this area are unlikely to go anywhere in the current climate.

**6. Update on Greater Washington 2050**

COG staff noted that the Greater Washington 2050 Coalition has yet to take action on any of the metrics for evaluating future scenarios, including the water quality ones proposed by the CBPC.

**7. Bay Program Updates**

This item was deferred.

**8. New Business**

None was offered.

**9. Adjourn**

The meeting was adjourned at 11:55 a.m.

Water Environment Federation®
*Preserving & Enhancing the Global Water Environment*



October 28, 2008

Honorable Nancy Pelosi
Speaker
U.S. House of Representatives
Washington, D.C. 20515

Honorable Harry Reid
Majority Leader
U.S. Senate
Washington, D.C. 20510

Dear Speaker Pelosi and Majority Leader Reid:

The Water Environment Federation is a not-for-profit technical and educational organization with more than 34,000 individual members and 81 affiliated Member Associations representing an additional 50,000 water quality professionals throughout the world. WEF and its member associations proudly work to achieve our mission of preserving and enhancing the global water environment.

On behalf of the Water Environment Federation, I am writing to strongly encourage you to move forward as quickly as possible with an economic stimulus package for our nation that includes funding for critical and sustainable water and wastewater infrastructure improvement projects.

We face an important opportunity to revive our nation's fragile economy. An infusion of capital into sustainable projects that provide jobs and economic growth while protecting public health and environmental quality is needed immediately. The recent economic downturn has made it extremely difficult for local governments across the country to fund badly-needed infrastructure projects such as those that provide wastewater treatment. Local governments with limited resources are faced with tremendous needs to upgrade, repair, or replace thousands of miles of sewer pipes, as well collection systems, treatment plants, and pump stations. The Government Accountability Office and the Water Infrastructure Network have estimated the water and wastewater infrastructure needs of the nation at between $300 billion and $500 billion over the next twenty years. The National Association of Clean Water Agencies, which represents the nation's publicly owned wastewater treatment agencies, has identified nearly $3 billion in ready-to-go infrastructure projects that could be funded immediately.

Investment in our nation's aging wastewater infrastructure not only protects public health and the environment, but each $1 billion invested in such projects

generates more than 47,000 jobs. We were pleased that the House recently approved economic stimulus legislation (H.R. 7110) that provides $6.5 billion for wastewater infrastructure projects through the Clean Water State Revolving Loan Fund and we urge this level of funding be considered in a new stimulus package.

We commend your efforts to act quickly and decisively on plans to address critical and sustainable infrastructure needs of our nation and revive our economy. Please contact us if we may be of assistance to you as you continue to address this issue. We would be pleased to meet with you or members of your staff to discuss infrastructure needs for wastewater in greater detail at your convenience.

Sincerely,

Rebecca F. West

Rebecca F. West
President
Water Environment Federation

cc: Honorable Barbara Boxer, Chair, Committee on Environment and Public Works, United States Senate
Honorable James Inhofe, Ranking Member, Committee on Environment and Public Works, United States Senate
Honorable James L. Oberstar, Chair, Committee on Transportation and Infrastructure, U.S. House of Representatives
Honorable John Mica, Ranking Member, Committee on Transportation and Infrastructure, U.S. House of Representatives
William Bertera, Executive Director, Water Environment Federation

# *Press Release*

from the
CHESAPEAKE BAY FOUNDATION

**Embargoed until 12:01 a.m. Oct. 29, 2008**
**For Information Contact**
**John Surrick 443-482-2045**

## CBF AND ALLIES BEGIN LEGAL ACTION TO FORCE EPA TO REDUCE POLLUTION

(ANNAPOLIS, MD) -- The Chesapeake Bay Foundation (CBF), the Virginia State Waterman's Association, the Maryland Watermen's Association, the Maryland Saltwater Sportfishermen's Association, former Maryland Governor Harry Hughes, retired Maryland Senator Bernie Fowler, former Virginia legislator and Natural Resources Secretary Tayloe Murphy, and former Washington D.C. Mayor Anthony Williams today notified the federal Environmental Protection Agency (EPA) that they intend to go to federal court to force EPA to require pollution reduction in the Chesapeake Bay. Today's notice letter is required for any citizen lawsuit against EPA to enforce the Clean Water Act.

"Over the last 25 years Chesapeake Bay restoration efforts have been littered with promises broken and commitments unfulfilled," said CBF President William C. Baker. "It is time that EPA either step up to the plate, or be held legally accountable for its failure to comply with the law and fulfill the commitment to reduce pollution sufficiently to have the Bay removed from the federal "dirty waters" list by 2010."

"When I signed the Chesapeake 2000 Agreement, I believed that the goal of removing the Bay and its tidal tributaries from the Clean Water Act impaired waters list by 2010 was a binding commitment of all the signatories including the United States," Anthony Williams said.

EPA has admitted that with current programs and policies in place, the goal will not be achieved. Officials are now discussing pushing the Bay clean-up goal back another 12 years.

"There have now been three agreements and three failures, and while government may be well intentioned, more delay is unacceptable," Bernie Fowler said. "It hurts my heart that we may be standing by at the deathwatch of this national treasure."

CBF and its allies are calling on the EPA Administrator to establish a deadline of 2010 to have programs and funding in place to achieve the pollution reduction goal, to achieve 80 percent of the goal by 2012, and to complete the task by 2015. In addition there must be serious consequences for missing those deadlines.

"If the signatories to the numerous Chesapeake Bay agreements, especially the 2000 agreement, are not held accountable for the commitments made in those agreements, the Bay will never be saved," Tayloe Murphy said. "Contracts are made to be performed, not ignored."

SAVE THE BAY

Bay scientists have determined that in 2008 the Bay suffered the fourth worst “dead zone” since 1985. Pollution is also a major factor in the decline of the Chesapeake Bay’s crab population, which is near historic lows. As a result, Maryland and Virginia have had to severely limit the commercial crab harvest, putting many watermen out of work.

“The continuing degradation of the Chesapeake Bay and its tributaries has reached the point that it is imperative that dramatic measures be taken to improve water quality,” said Virginia Watermen’s Association President Ken Smith. “Over the last 35 years, the number of working watermen in Virginia has dropped from 8,000 to less than 3,000. Pollution is robbing us of our livelihood, our way of life, and the ability of our children to carry on a proud tradition.”

It’s not just watermen who are affected. When the broader impact on restaurants, crab processors, wholesalers, grocers, and watermen is all added up, the decline of crabs in the Bay meant a cumulative loss to Maryland and Virginia of more than 4,400 jobs between 1998 and 2006 (the most recent year for which this economic data is available). That doesn’t include 2007 and 2008, both poor years for crab harvests.

“Economic health and the health of the environment go hand in hand,” said former Maryland Governor Harry Hughes. “What is needed now is a sense of urgency, not more delay.”

The legal action targets the EPA because it is the lead agency in enforcement of the Clean Water Act. It is being taken now to offer the EPA one last opportunity to take responsibility for the water quality commitments made in the Chesapeake 2000 Agreement. If EPA fails to respond, the issue will be front and center for the next administration.

“We are doing this because we’re backed into a corner. We’ve all been preaching to clean the bay up, with no results,” Larry Simns said. “We’re at a crucial point here, unless we do something now we’re going to lose the Bay completely.”

###

CHESAPEAKE BAY FOUNDATION
*Saving a National Treasure*

24 October 2008

# C2K Q&A

Answers to your questions on CBF's decision to file a 60 day notice of intent to sue the EPA.

1) Q *When and where is this decision being announced?*
   A In newspapers on Wednesday, Oct. 29. And during a press conference at 10:30 a.m. that morning at the CBF's Merrill Center, 6 Herndon Ave. in Annapolis.

2) Q *Why take legal action now, a few days before the election?*
   A We want Bay cleanup to be front and center for the next administration. By filing the notice before the election, we make it clear that we are politically neutral. It does not matter who wins the presidency – we plan to hold the next administration accountable for keeping the federal government's promises, made repeatedly since 1983, to clean up the Bay. The EPA has admitted that it would not meet the 2000 promise to clean up the Bay by 2010. Now that the EPA and its partners are talking about pushing the deadline back to 2020, this action is necessary.

3) Q *You say that the United States has made promises to clean up the Bay, what are they?*
   A In 1983, the EPA, on behalf of the United States, signed an agreement with the states of Maryland and Virginia and the District of Columbia recognizing that they needed to act to clean up the Bay. The governments signed another agreement in 1987 that required for a 40 percent reduction in nutrient pollution to the Bay by 2000. That agreement was reaffirmed in 1992. However, when it became apparent that the 2000 deadline would not be met, the United States and the other governments signed a third agreement. The Chesapeake 2000 Agreement set a goal of improving water quality in the Bay sufficiently to get it off the Clean Water Act dirty waters list by 2010. Among other steps, the 2000 agreement requires a 40 percent reduction in nutrient pollution. As early as 2006, EPA admitted the terms of the 2000 agreement would not be met by the 2010 deadline. It now says that goal will likely not be met until 2020 or later.

4) Q *The nation is in a financial crisis. Is this the right time to ask for help from the government?*
   A The federal government has already missed two deadlines for cleaning up the Bay. Now the EPA and its partners are discussing moving back the deadline again. It seems there is never a good time to clean up the Bay. When the government makes a promise, it must keep its commitment. Further, saving the Bay is not just about spending public money. Investments in cleanup can help the economy, by stimulating the creation of new jobs through oyster restoration work, planting of forested buffer strips along streams on farms, building of manure sheds and other pollution control efforts. And a clean Bay will boost

the region's tourism industry and sport fishing, and provide more income for watermen. Delay will only increase the cost of Bay restoration.

5) Q *Why take action against the EPA? Why not sue the states?*

A Under the federal Clean Water Act, some of our claims can only be aimed at the EPA. This is because Congress gave the EPA the lead responsibility for making sure that our nation's waters – including the Bay – are clean enough for fishing and swimming. While the states have roles to play, it is the EPA's job to lead. And the EPA has not done its job.

6) Q *What do we hope to achieve through this action?*

A We want the federal government to enforce the federal Clean Water Act and keep the promises it made in the Chesapeake 2000 Agreement. That means it must do everything it can to reduce nutrient pollution into the Bay. The cleanup must be aggressive enough to get the Bay off the EPA's dirty waters list. Among other steps, we want the EPA to develop a tough and enforceable limit on pollution into the estuary, called a Total Maximum Daily Load (TMDL). This regulatory cap should be in place by 2010 – and it must have real consequences for violations. CBF is calling for 80 percent of the pollution reductions by 2012 with 100 percent by 2015. We also want the development and implementation of necessary legislative, regulatory, and funding programs consistent with the goals of the Chesapeake 2000 Agreement. Finally, we want help for the watermen.

7) Q *What is a TMDL?*

A A TMDL (or Total Maximum Daily Load) is a regulatory limit or cap on the total amount of pollutants that are allowed to enter a body of water. The federal Clean Water Act requires the creation of these limits for streams, rivers, lakes and estuaries that have been impaired by pollution.

8) Q *Why a 60-day notice? Why not just sue?*

A The law requires a 60 day notice before a lawsuit of this type is filed under the federal Clean Water Act. We hope the EPA will avoid a lawsuit by quickly developing an enforceable and timely plan to achieve the goals of the Chesapeake 2000 Agreement, including no more than 175 million pounds of nitrogen pollution annually entering the Bay.

9) Q *Are we taking this action alone?*

A No, we have several partners, including the Virginia State Waterman's Association, the Maryland Watermen's Association, the Maryland Saltwater Sportfishermen's Association, former Maryland Governor Harry Hughes, former Virginia Secretary of Natural Resources W. Tayloe Murphy Jr., former Washington DC Mayor Anthony Williams, and environmental advocate and former Maryland state senator Bernie Fowler.

# Metropolitan Washington Council of Governments
## 2009 State Policy Platform
## Maryland/District of Columbia

## Anacostia Watershed Restoration

### Policy Statement

COG supports legislation that would ensure adequate funding levels to meet the restoration goals for the Anacostia Watershed, including programs to restore biological integrity and reduce pollution levels.

### Strategic Plan Relationship

COG promotes sound management and stewardship of all the environmental resources of the National Capital Region, through analysis, monitoring, policy development, planning, advocacy, support for regional agreements, and promotion of best practices.

### COG History

The cooperative efforts to restore the Anacostia watershed date back to a regional agreement signed in 1987. Another agreement, signed in 2001, set specific targets to be met in 2010. Since the 1987 agreement, COG has provided technical and administrative support to this regional effort. In 2006, the COG Board adopted Resolution (R28-06) which formally established the Anacostia Restoration Partnership, bringing together federal, state and local agencies and other key stakeholders in the restoration of the Anacostia watershed.

## Energy and Climate Change

### Policy Statement

COG endorses strategies that address the region's diversity of energy sources, help manage its energy demand, mitigate the effects of energy disruptions, and enhance overall environmental quality. The region will benefit most from policies and practices that significantly increase the energy and fuel efficiency of vehicles, appliances, and buildings. These strategies include aggressive initiatives for increased energy efficiency, promoting awareness of energy users in both pubic and private sectors, and support for the adoption and implementation of green building standards. The *National Capital Region Climate Change Report* contains a range of policy positions for creating incentives to implement energy efficiency and financing of greenhouse gas emission reduction measures.

### Strategic Plan Relationship

COG promotes and supports implementation of technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy sources for the National Capital Region.

### COG History

COG has a history of supporting a clean and sustainable environment through efforts such as the Green Building Program, Energy Star, Alternative Fuels Clean Cities Partnership, Clean Air Partners, Wise Water Use Program, and others. In 2007 COG approved the creation of a Climate Change initiative and establishing a Climate Change Steering Committee. The Committee has released the *National Capital Region Climate Report* that includes significant greenhouse gas reduction goals for the region and a series of recommendations to help area leaders and citizens meet the targets.

## Chesapeake Bay and Potomac River

### Policy Statement

COG supports legislation that would ensure adequate funding levels for waste water and storm water management to meet the clean-up goals and targets for the Chesapeake Bay and Potomac River – including programs to reduce nutrient and sediment pollution. COG also recommends adequate funding for agricultural conservation practices in rural areas, given the significant share of agricultural nutrient loads to the bay.

### Strategic Plan Relationship

COG promotes sound management and stewardship of all the environmental resources of the National Capital Region, through analysis, monitoring, policy development, planning, advocacy, support for regional agreements, and the promotion of best practices.

### COG History

COG Board action in support of Chesapeake Bay restoration dates back to 1986 and is grounded (R25-97) a resolution establishing four policy principles to guide regional involvement in this area. In pursuit of the equity principle, COG has advocated for funding from federal and state sources. The Board established the Chesapeake Bay Policy Committee in 1998 to track developments and make recommendations to the Board on regional Bay policies. The CBPC has brought recommendations on various state and federal fiscal initiatives to the Board in recent years.

## Growth

### Policy Statement

COG supports legislation that would promote balanced, sustainable growth and livable communities and enable both the state and local governments the ability to coordinate land use, transportation and environmental decisions.

### Strategic Plan Relationship

COG promotes balanced, sustainable growth and livable communities.

### COG History

In 1996, COG prepared the first regional Composite Map of Adopted Land Use Plans to assist local government coordination on land use planning. A Cooperative Forecasting Program was established to develop neighborhood, jurisdictional and regional long-range growth forecasts based upon local plans and common regional assumptions concerning population, housing and the economy. Using the Cooperative Forecasts, COG developed Regional Activity Centers and Clusters maps as a tool to guide the linkage between land use and transportation.

## Housing

### Policy Statement

COG supports legislation that would minimize the disruption and impact of home foreclosures on its residents. Legislation should also recognize the critical need for affordable and work force housing for both government employees and the general public.

### Strategic Plan Relationship

COG promotes creative initiatives to increase the supply and equitable distribution of affordable housing units in the NCR.

### COG History

Since the 1970's COG has supported regional "fair share" goals for affordable housing units. In 1991, COG established the Washington Area Housing Partnership (WAHP) advocate for the need for affordable housing. This year, COG convened a regional summit to address housing foreclosure, commissioned research to document the extent of the issues, and provided small grants to community organizations that are assisting homeowners.

## Homeland Security

### Policy Statement

COG supports legislation that would define local government first responders, mobilized during a state declared emergency, as state employees under EMAC. COG further supports legislation that maintains current levels of state funding and ensure that federal funding received for homeland security and emergency preparedness flows through to local governments to offset costs.

### Strategic Plan Relationship

COG promotes regional emergency response coordination planning, training, exercises, education, and communication for the NCR through convening and facilitating the efforts of local governments and other regional stakeholders. COG provides professional, technical, and secretariat support to 21 local jurisdictions, MD, VA, DC, private, and nonprofit organizations to improve homeland security preparedness, response, and recovery capabilities in the National Capital Region.

### COG History

COG has a distinguished history of working with key officials in MD, VA, and DC to improve emergency preparedness, response, and recovery capabilities in the National Capital Region. In September 2002, COG adopted the Regional Emergency Coordination Plan (RECP) and established the Regional Incident Communication and Coordination System (RICCS). Urban Area Security Initiative (UASI) funds provided to COG by the Senior Policy Group and the Chief Administrative Officers since 2003 continue to contribute to enhanced regional preparedness.

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

*Local governments working together for a better metropolitan region*

September 30, 2008

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*Arlington County*
*Fairfax*
*Fairfax County*
*Falls Church*
*Loudoun County*
*Manassas*
*Manassas Park*
*Prince William County*

**Adjunct member*

Ms. Nancy Floreen
Councilmember, Chair
Montgomery County
Climate Change Steering Committee

Dear Madam Chair:

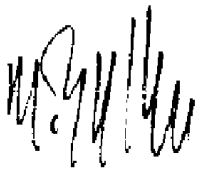
I am writing to provide comments from the Chesapeake Bay and Water Resources Policy Committee (CBPC) on COG's *National Capital Region Climate Change Report (Review Draft, July 9, 2008)*. These comments were developed with the input of the Water Resources Technical Committee (WRTC), which provides technical support and recommendations to the CBPC on water quality, wastewater, and stormwater issues.

We commend the Climate Change Steering Committee for its efforts to address this critical topic and to develop recommendations for the region.

Our comments (see attachment) are organized according to the key charges made to the Steering Committee (noted in boldface type in the attachment). In each case, they first provide context and then specific recommendations either for inclusion in the report or to help guide future actions to reduce greenhouse gasses.

Thank you for this opportunity to provide our comments on the draft climate change report. We look forward to working with you over the next few years to address this important issue.

Sincerely,



Martin E. Nohe, Chair
Chesapeake Bay and Water Resources Policy Committee

Cc: Members, Chesapeake Bay and Water Resources Policy Committee
Members, Water Resources Technical Committee

Attachment: CBPC Comments

**Chesapeake Bay Policy Committee Comments (9/30/08) on**
***National Capital Region Climate Change Report (Review Draft, July 9, 2008)***
**Attachment**

- **Prepare regional inventory of greenhouse gases** (GHGs)
  - Improve the robustness of the current inventory and better quantify future reductions from wastewater and drinking water treatment plants in the region (which are large energy users).

**CBPC Recommendation:**

Make a formal request to wastewater and drinking water (WW/DW) treatment agencies/organizations in the region to provide data and participate in the inventory of current as well as future energy demands and planned offsets.

- **Identify best practices and policies**
  - Expand the range of best practices and policies to include those being developed by the region's WW/DW plants.

**CBPC Recommendation:**

Work with the region's WW/DW agencies/organizations as well as national organizations to develop standard protocols for calculating GHGs for WW/DW plants, as well as to quantify potential reductions/offsets from these facilities.

- **Examine climate change impacts**
  - Evaluate potential impacts to stormwater BMP effectiveness due to changes in precipitation versus design/performance assumptions, and on wastewater influent flows.

**CBPC Recommendation:**

Work with the region's stormwater management programs, other regional organizations, and WW/DW plants to quantify the potential impacts of these precipitation changes and to identify what mitigation or adaptation actions might be needed. COG should host regional workshops on this topic.

- **Recommend regional greenhouse gas reduction goal(s)**
  - Utilize the above information and identify the potential for GHG reductions from WW/DW plants to meet the approved goals.

**CBPC Recommendation:**

Work with the region's WW/DW facilities to identify potential reductions and/or offsets; and incorporate "life cycle" analysis to evaluate "net" environmental impacts.

- **Recommend governance structure for climate change initiative**
  - There is a need to define roles/responsibilities of local DW/WW plants to achieving the regional goals when the plants are managed by separate authorities rather than local governments.

**CBPC Recommendation:**

The Steering Committee should articulate a role for these authorities as part of this regional effort.

- **Propose advocacy positions**
  - There is proposed national legislation that would convert GHG reduction goals to regulations for WW/DW plants. There are other potential legislative and/or regulatory requirements that could negatively impact the regions' stormwater management programs. The net result of some of these initiatives would make it more

difficult for the facilities and programs to work towards achieving the region's goals by constraining their ability to meet competing environmental objectives.

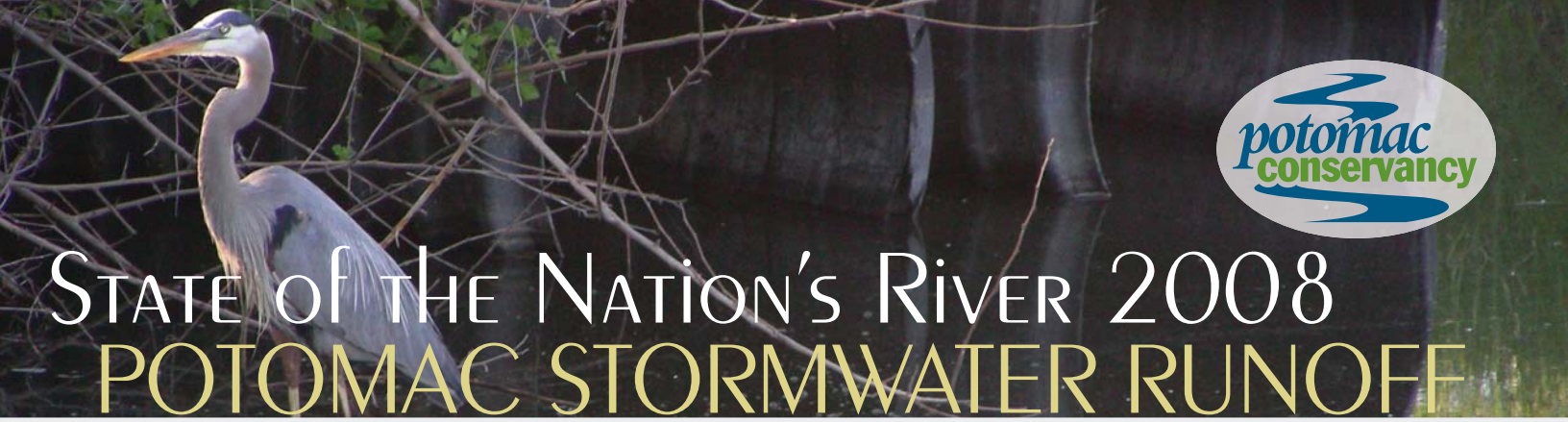
**CBPC Recommendation:**

The CBPC will solicit input from the WRTC and respond to proposed legislation and/or regulatory initiatives; as appropriate, it will provide comments or recommendations to the COG Board regarding such initiatives.

- **Prepare report to COG Board**
  - There is a need to better quantify the specific plans and efforts by WW/DW facilities to address GHG emissions and related efforts in the Climate Change report; as well as a need to acknowledge that local governments as well as WW/DW plants will need to balance all of these increased requirements with limited staff and financial resources. There is also a need to acknowledge the potential policy implications of competing environmental goals (e.g., competition for roof space on buildings to install green roofs to reduce stormwater runoff versus installing solar panels to reduce/offset GHG emissions).

**CBPC Recommendation:**

COG staff should work with the WRTC as well as local WW/DW authorities to develop specific language to address these points and the other recommendations for inclusion in the final report.



# State of the Nation's River 2008
# POTOMAC STORMWATER RUNOFF

## Potomac River Watershed Is a "Hard" Place to Live

Runoff from development is the fastest growing source of pollution in the Potomac River watershed. Our continued love affair with asphalt, concrete, and turf grass has created a "hard" urban landscape that cannot effectively absorb rainfall. What network meteorologists call rainstorms and what water managers call wet weather events wreak havoc on local waterways. Regardless of the name, the sudden influx of hot, dirty, and disease-laden runoff creates an aquatic version of "scorched earth."

Polluted stormwater runoff was cited in the Conservancy's 2007 *State of the Nation's River* report as one of the key issues troubling the Potomac River watershed. This year's report shows the consequences of allowing runoff to flow unchecked—and often untreated—into our local rivers and streams.

A survey commissioned by Potomac Conservancy shows that more than two thirds of DC metro area residents feel that stormwater runoff is an important issue for Potomac River water quality, and were concerned that untreated sewage went into our rivers and streams during heavy rainfalls. The respondents, however, were at a loss to recommend constructive solutions.

The Conservancy advocates workable solutions to the runoff problem. Indeed, these "low impact development" solutions are already being implemented, but only on a very limited scale. What is needed is more awareness of the problem, and government action to make low impact development the rule rather than the exception.

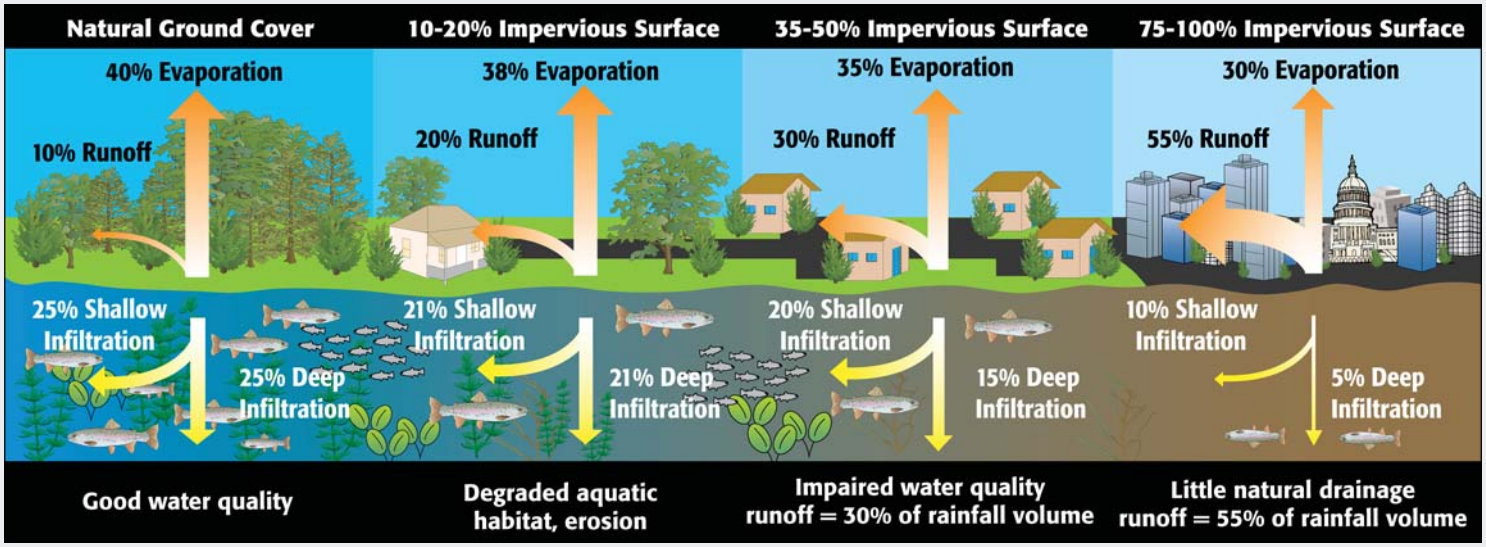
## Stormwater Runoff Treats Our Streams Like Sewers

Runoff from rainfall is not a manmade creation. Rainfall is a critical and beneficial part of the natural (hydrologic) cycle that replenishes groundwater and nurtures plant and animal life. In a balanced system, the land holds rainwater and allows it to slowly filter into streams, rivers, and lakes. Even in a natural system some rainfall runs off the land, but this is a slow and controlled process in which only a small percentage of precipitation becomes runoff.

Unfortunately, increased land development in recent decades has thrown a wrench in the earth's natural filtering mechanisms. Traditional development sets up a concrete-lined system of tributaries that bypasses the earth's natural systems and dumps directly into rivers and streams. Stormwater superhighways like roads and gutters provide straight, impermeable paths for water to travel, picking up speed, volume, pollution, and pathogens along the way. During rainfalls, stormwater outfalls release millions of gallons of stormwater laden with trash, oil, pesticides, chemicals, nutrients, and other pollutants.

The result? Waterways that function more as sewers than as natural streams. For example, fecal coliform, a bacteria found in excrement and that causes serious gastrointestinal ailments, is found in much higher levels in streams near where stormdrains empty. *In fact, stormwater pollution is a primary reason that the District of Columbia has banned swimming in all its rivers and streams, including the Potomac.*

Figure 1. Effects of Diminishing Natural Ground Cover on Water Quality




*Source: EPA. Symbols courtesy of the Integration and Application Network (ian.umces.edu/symbols/), University of Maryland Center for Environmental Science.*

*As impermeable surfaces increase, natural ground cover and surfaces decrease, which causes more runoff and degraded stream health. Scientists estimate that when it rains, a natural surface absorbs about 90% of the precipitation; the remaining 10% is converted into runoff. However, when a surface contains 75-100% impervious cover about 55% of precipitation is converted into runoff.*

# Strange Brew: Stormwater and Sewage Increase Stream Bacteria Levels

What we call stormwater is not just runoff from our roofs and pavements. One particularly ominous addition to the stormwater mixture is the overflow from combined stormwater sewer systems. Although the antiquated combined sewer system helps prevent the backup of sewage waste into homes and streets, it places the overflow into neighboring waterways. By combining stormwater (80-85%) with raw sewage (15-20%), combined sewers can emit dangerous pathogens, chemicals, nutrients, and other pollutants into the watershed. In Georgetown, in the District of Columbia, an overflow can occur when as little as one-tenth of an inch of rainfall is added to the Potomac River. The overflow event can last for more than 4 hours. *Along the Anacostia shoreline, 17 discharge locations result in 2 to 3 billion gallons of sewage overflow into the river each year.*

With population and development on the rise, the volume of sewage and stormwater is also increasing. *According to the Environmental Protection Agency (EPA), discharges from both separate and combined stormwater sewers are the leading cause of impairment and pollution for the Potomac. About 70% of the impairment and pollution of the Potomac River in Washington, DC, is caused by overflow from these combined sewer outlets.*

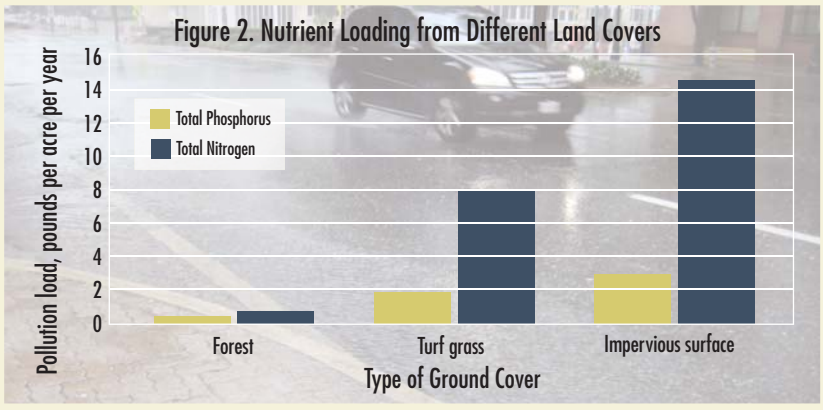
# Our Hardened Landscape Cannot Absorb Pollutants

The true culprits of the stormwater runoff problem are the hardened surfaces—known as impervious surfaces—that cannot effectively absorb or infiltrate rainfall. As development in the Potomac River watershed increases each year, so does the amount of impervious cover. In fact, the paving of our land often outpaces the rate of development by a factor of 5.

As impermeable surfaces increase, forest cover decreases. Over a 30-year period, the tree canopy in the District of Columbia has declined by 16% and the stormwater runoff has increased by 34%. This rapid loss of natural cover can be found throughout the watershed. *Between 1986 and 1999, Maryland averaged more than 6,000 acres of forest loss per year. This loss is significant because forests are capable of capturing up to 6 times more rain than grass alone and 20 times more rain than impervious surfaces, such as parking lots.*

Negative effects to water quality and to fish and other aquatic species have been documented in the Bay with as little as 10% development. *In urban areas like the many metropolitan centers in the Potomac watershed, impervious ground cover can make up 45% (or more!) of land cover.*

Can runoff really wreak this much havoc? It can and does. *As impervious cover and the related stormwater volumes increase, studies show a correlated decline in water quality. Health risks related to stormwater range from boosted bacterial concentrations to unsafe quantities of toxins to fish kills from darkened, oxygen-depleted water.*




*Source: Schueler, T. Controlling Urban Runoff: a Practical Manual for Planning and Designing Urban Best Management Practices. Metropolitan Washington Council of Governments, Washington, DC, 1987.*

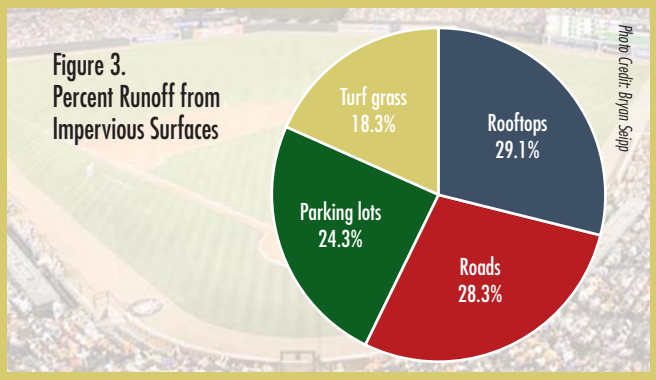
## Arsenic, Bacteria, Chemicals: The ABCs of What's in our Stormwater

Stormwater has the ability to carry with it a multitude of pathogens and pollutants that can be harmful to humans. In the United States, the majority of the cases of waterborne illnesses—those caused by *Cryptosporidium*, *Giardia*, *Shigellosis*, and *Escherichia coli*—are associated with heavy rain storms. All these waterborne pathogens can cause gastrointestinal illnesses and hospitalization. Pesticides were detected in 95% of urban streams and fish tissue in Maryland, which resulted in a public health advisory against eating bottom-dwelling fish in the District of Columbia. There is also a ban against swimming in the Potomac and Anacostia Rivers and Rock Creek.

In addition to pesticides and pathogens, stormwater also includes toxic mineral and chemicals such as arsenic, and other chemicals that may cause cancer, lymphoma, and neurological damage. A list of substances found in stormwater is available at www.potomac.org.

## Grass Isn't Always Greener

There are three types of impervious cover. Two are obvious: rooftops and transport-related surfaces such as roads, sidewalks, and parking lots. The third type is known as impaired urban soil, or turf grass, which includes suburban mainstays such as lawns, golf courses, and baseball diamonds. When new homes are built, several feet of topsoil are often removed when development sites are graded. This naturally porous soil is then replaced with lesser grade soils and covered with sod. *Areas with soils that infiltrate water well should be identified and preserved during construction, and used to help control post-construction runoff.*




*Source: Adapted from Tilley, JS, Slonecker, ET. Quantifying the Components of Impervious Surfaces: Open-File Report 2006-1008, U.S. Geological Survey, 2006.*

## Learning the Hard Way: Current Development Practices are Unsustainable

The Chesapeake Bay Program estimates that while the population of Bay watershed grew at a rate of 8% during the 1990s, the amount of paved surfaces increased by 41% during the same period. This 5x multiplier points to overbuilding, inefficient land development, and a host of other problems with the way we are building and preserving our remaining open spaces.

According to a 1994 study, more than a quarter of the Potomac River watershed has already been "hardened: that is, paved, roofed or turfed over." Natural plantings, topsoil, and elevations are bulldozed clear and flat in most construction projects, replanted later with small trees and sod.

## Key to this Report

**Trend**

▲ Increasing ◀▶ No significant change ▼ Decreasing

**Impact/Effect**

Positive Neutral Negative

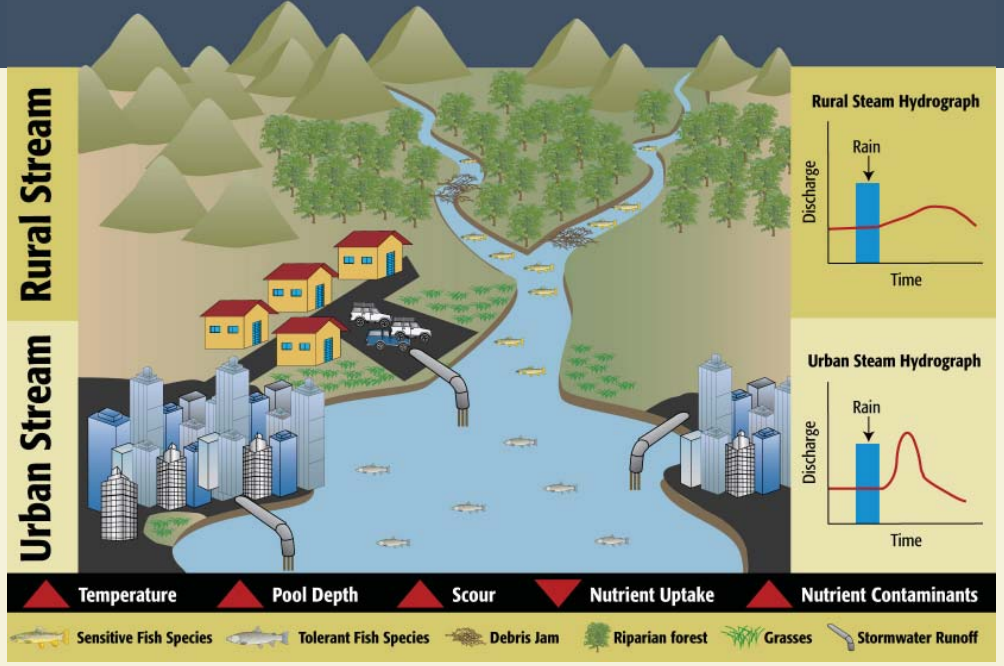



**Figure 4. Symptoms of a Sick Stream: Urban Stream Syndrome**

*The degradation of streams draining developed land is known as "urban stream syndrome." The streams consistently feature the combined effects of increased percentages of impervious surfaces and more runoff from those surfaces into piped stormwater drainage systems. Symptoms of urban stream syndrome include increased flash floods; elevated concentrations of nutrients and contaminants; altered stream morphology, including incised channels that cuts off vegetation from its water source and increased sedimentation from eroded streambanks; and reduced diversity, with an influx of more tolerant species to counter the loss of more sensitive species. Aquatic habitat is affected. The trend arrows indicate the negative changes in urban stream characteristics, including increased temperature, pool depth, scour, and contamination by nutrients such as phosphorous and nitrogen, and a decrease in uptake of those same nutrients. As seen in the hydrographs at far right, urban streams tend to be more "flashy," that is, more frequent, larger flows than their rural counterparts.*

*Source: This figure is adapted with permission from Cushman, SF. Fish Movement, Habitat Selection, and Stream Habitat Complexity in Small Urban Streams. Ph.D. Dissertation, University of Maryland, College Park, MD, 2006. Symbols courtesy of the Integration and Application Network (ian.umces.edu/symbols/), University of Maryland Center for Environmental Science.*

# Anatomy of a Storm: Fast Flowing Water Scours and Degrades Streams

Heavy rainfall enters stormdrains and races through pipes to stream outfalls, where the water tears into the stream, leaving in its wake carved out streambanks, piles of soil, and deposits of litter. Innovations such as gutters, sidewalks, and curbs have increased the volume, velocity, and temperature of water as it is transported downstream from the urban landscape.

## Volume

In our urban areas, large quantities of stormwater pour off impervious surfaces and rush into surrounding bodies of water. Increased stormwater volume can destabilize streams by creating wider channels through erosion. When this occurs, pool habitats are lost, streamside vegetation is destroyed, and woody debris becomes less common, all of which removes the living space for aquatic species that reside in these calmer, deeper waters. Stormwater volume increase causes stream scour events that alter the shape and depth of the stream. *Research shows that a reduction in stormwater volume also reduces the amount of polluting nutrients flowing into streams.*

The figure below shows streamflow data collected by the US Geological Survey, which reflects peak flow for all storms over the duration of their 2000 study. Accotink Creek is characterized by heavy development, while Aquia Creek is located in a largely wooded and undeveloped area. As shown, peak flow is nearly ten times higher for Accotink Creek than Aquia Creek. *The increase in peak flow can augment sediment load and add to the acceleration of erosion.*

## Velocity

The increased velocity of stormwater can also cause an increase in channel width, which can lead to a loss of the natural features of a stream, such as riffles and pools. The high-speed waters wash away critical vegetation and spawning habitat, and sediment and chemical contaminants enter the stream. Sediment is a major pollutant in the Potomac River watershed. It also a significant source of sediment, which is a major pollutant in the Potomac River watershed. The erosion caused by fast-moving stormwater deepens, or incises, stream channels and the water table drops below the level of roots and vegetation. This disconnect from roots to water causes a hydrological drought that stresses streamside trees and plants.

## Temperature

Pavements and parking lots conduct and retain more heat than natural surfaces. After a rainfall, heated water runs off these surfaces into stream waters, creating a temperature increase, which is harmful to aquatic life. Urban streams have been known to have a higher summertime temperature—10-15 degrees Celsius higher—due to the water washing over the heated surfaces. The "heat island effect" is an increase in ambient temperature, especially in urban areas with high amount of paved and other impervious surfaces. Streams that have increased in temperature 10-12 degrees have less streamside shade vegetation, which alters the surrounding ecosystem. *Stream temperature has been known to increase by .25 degrees Celsius with every 1% of imperviousness.*

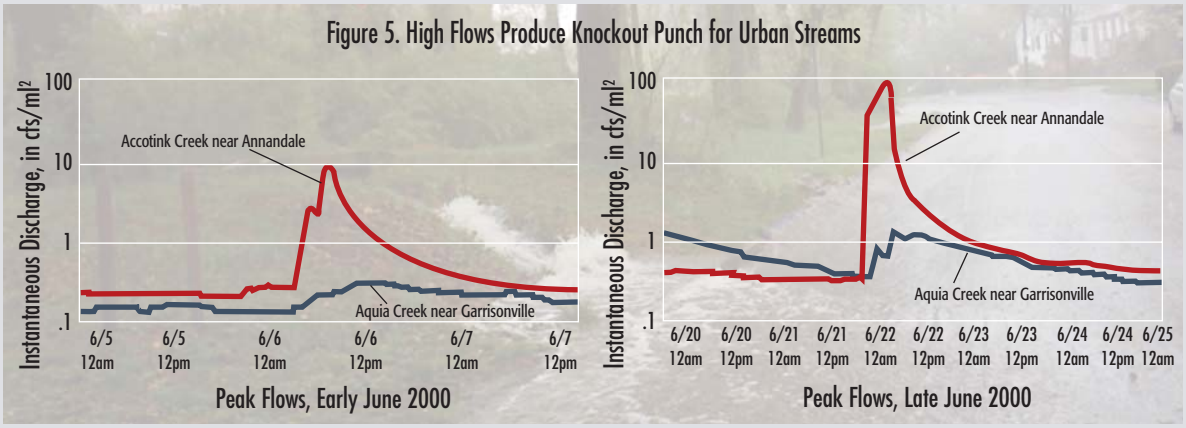



**Figure 5. High Flows Produce Knockout Punch for Urban Streams**

*Urban development causes increased flow that scours streambeds and blows out streambanks. This graph shows the spike in water flow in a developed, urban stream (Accotink Creek, near Annandale, Virginia; in red) when compared to the effect of the same storm on a stream in a relatively undeveloped area (Aquia Creek, near Garrisonville, Virginia; in blue).*

*Source: Miller, CV, et al. Water Quality in the Upper Anacostia River, Maryland: Continuous and Discrete Monitoring with Simulations to Estimate Concentrations and Yields, 2003-05. US Geological Survey, 2007.*

## Weak Rules Fail to Prevent Stormwater Pollution

The Clean Water Act was not originally interpreted as regulating stormwater runoff, and its structure is not well-suited to addressing pollution like stormwater that comes from many diverse points (rather than out of a factory pipe). However, in 1987 Congress recognized the growing threat urban runoff presented to our nation's water quality, and added a new section to the Clean Water Act that requires urbanized areas to get a federal permit to discharge stormwater. These permits, issued by the state on behalf of EPA, are known as MS4 (municipal separated storm sewer system) permits. Today most urban stormwater runoff is regulated under the Clean Water Act, and urban areas are required to follow the rules set in their MS4 permits to reduce stormwater pollution.

So why does stormwater pollution continue to grow, while other federally-regulated pollution—like that from factories and sewage treatment plants—shrinks? *Simply stated, the stormwater permits issued by EPA and the states fail to impose meaningful limits on stormwater pollution.*

While most industrial and other "point source" polluters are faced with strict limits on the amount of pollution they can release, permits for urban stormwater only require pollution reduction "to the maximum extent practicable." Historically, that has meant that the regulated jurisdiction develops its own stormwater management plan, implements certain best management practices, and monitors its own progress. Such planning, best management practices, and self-monitoring are used in lieu of specific pollution reduction requirements. In short, stormwater permit compliance generally requires some minimum actions but no measurable, enforceable, or even independently verified results. As a consequence, local governments can be in full compliance with their stormwater permit even while stormwater pollution continues to grow unabated.

## Practical Natural Solutions: Low Impact Development

Traditional stormwater management focuses almost entirely on capturing and piping stormwater off-site as quickly as possible. This creates the "fast, hot, and dirty" stormwater runoff that is the fastest-growing source of pollution in the Potomac. In contrast, low impact development seeks to mimic the water-absorbing capabilities of a natural, undeveloped site even after that site is developed. It aims to prevent stormwater pollution by reducing or eliminating the overall amount of stormwater runoff entering our streams, and if runoff does reach the streams, to ensure that it enters slowly and is cleansed of most or all its pollutants beforehand.

Low impact development begins with conserving the natural runoff-absorbing assets of a site. Site design techniques include directing development away from sensitive environmental areas, preserving native vegetation and soils, maintaining existing drainage courses, and minimizing the extent of impervious areas. Stormwater that cannot be prevented is treated on-site, using natural filtration systems that capture, treat, and slow the release of stormwater. Common methods include rain gardens, green roofs, and porous pavements.

*Low impact development median absorbs stormwater runoff from Adelphi Road in Prince George's County, Maryland.*

Photo Credit: NOAA

## Next Steps: Creating Runoff Accountability for a Runaway Problem

As we noted last year, the Potomac watershed is expected to add more than 1 million people to its population over the next 20 years. We are already building roads, parking lots, and rooftops at an incredible rate, and the needs of our growing population mean the pressure to pave the Potomac will only increase. So how do we keep the future from looking like the past, when pavement grew five times as fast as our population and water quality declined in virtually every urban and suburban stream in the watershed?

We need to grow smarter, minimizing impervious surfaces. We also need to ensure that when we do grow and build, development treads lightly on the land and water.

To make meaningful progress in reducing stormwater pollution in the Potomac, we must:

- Enforce the Clean Water Act by issuing MS4 and other stormwater permits that are enforceable, with numeric pollution limits that have a reasonable expiration date, and are linked to, and hopefully exceed, federal water quality standards.
- Issue regulations that limit stormwater runoff from new development sites to pre-development levels to protect water supplies and maintain a healthy ecosystem.
- Make low impact development standard practice for all development (streets, houses, commercial buildings, schools, etc.).
- Ensure local governments have the technical capacity they need to accurately review and assess stormwater plans, and to ensure runoff limits are meaningfully implemented and enforced as development occurs.

Effective stormwater solutions have been in limited use for at least a decade, but we have failed to implement them on a widespread basis. Changing this pattern of inaction will require government to create strong rules limiting polluted stormwater runoff. It will also require public support, to give our county and state leaders the political will necessary to make and enforce those rules.


## Acknowledgements

We thank Chesapeake Bay Trust and Danaher Corporation for their support of this report, and research fellow Bridget Chapin and intern Jennifer Marienau for gathering data for this report.



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*Since 1993, Potomac Conservancy has protected the health, beauty, and enjoyment of the Potomac and its tributaries.*

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# Potomac Agenda—Immediate Actions for the Coming Year

- **Governor Kaine and Virginia's Soil and Water Conservation Board should approve the state's proposed new stormwater regulations.**
  - In last year's Potomac Agenda we asked Joseph Maroon, Director of Virginia's Department of Conservation and Recreation, to finalize his department's proposed stormwater regulations. He has now done so, and the final decision is up to the Soil and Water Conservation Board and the Governor.
  - The proposed regulations represent a gigantic leap forward for Virginia's stormwater management program, and if approved, would place Virginia firmly in the national stormwater management vanguard.

- **The incoming U.S. EPA Administrator and the states should require that all new or re-issued MS4 stormwater permits be at least as strong, and preferably stronger, than the new Montgomery County, MD and Washington D.C. permits.**
  - Municipal stormwater (MS4) permits have historically been weak and unenforceable, and have failed to prevent stormwater pollution.
  - Permits recently issued to Montgomery County, MD and Washington, DC., while not perfect, are a vast improvement. They contain enforceable standards and are linked to TMDLs – the Clean Water Act's "pollution diet," which all permits should be designed to meet.
  - Multiple MS4 permits are up for renewal or issuance in the near future—EPA must take advantage of this opportunity to make those permits the backbone of an effective and enforceable stormwater program.
  - Accountable agencies and key personnel
    - **VA:** Department of Conservation and Recreation: Joseph Maroon, Director
    - **MD:** Maryland Department of the Environment: Shari Wilson, Secretary of the Environment
    - **DC:** DC's program is administered directly by EPA Region III
    - **WV:** West Virginia Department of Environmental Protection: Cabinet Secretary Randy C. Huffman

- **Grantmakers should actively seek to fund technical assistance and low impact development capacity building projects for local governments.**
  - A major barrier to comprehensive implementation of low impact development practices is a lack of technical capacity at the local government level. Local reviewing and permitting agencies need additional training to become effective promoters of, not barriers to, low impact development.
  - A focused campaign by grantmakers to create practical training and capacity-building programs for local governments would go a long way towards making low impact development standard practice.

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potomac conservancy

# State of the Nation's River
# POTOMAC WATERSHED 2007

## Watershed Stressed from Poor Land Use, Rates a D+

Development, when not done in a sustainable fashion, causes many of the ills that face the Potomac watershed today: loss of forest and tree cover, increased paved surfaces, and replacement of traditional family farms by industrial agriculture. *The destruction of streamside and in-stream habitats and the fragmentation of our remaining wooded landscapes lead the list of consequences of unchecked development in the watershed.*

The landscapes and waters of the Potomac watershed are the foundation of much of the region's beauty and quality of life. This report provides an overview and assessment of the condition of the nation's river and offers solutions on how to meet the needs of our populace while maintaining vigorous and healthy lands and waters.

Although this report draws from the past, it charts a course toward a future where the river is fishable and swimmable 365 days per year. At this point, we are not close to that goal. Having a river that can be safe for human contact and that provides a home for healthy fish that are safe to consume will be achieved through action on land that supports and sustains healthy waters. Taking the actions outlined in this report will help guide us toward that goal.

## Our Growing Challenge

A growing population stresses and alters the natural state of its land. In the last three decades, many areas in the watershed have seen their population more than double. Currently, much of the watershed is forested (55% in 2001), with agriculture occupying the second largest area (28%), and developed areas the third largest (9.7%). However, the amount of developed land in the watershed has doubled since 1970, with related losses of agricultural and forested land.

By far, the most densely populated area is the Middle Potomac, including Washington, DC, which is home to 3.72 million (or ~70%) of the watershed's population. Fast-growing or rapidly urbanizing areas include the sub-watersheds of the Monocacy and Lower Potomac (*see chart below*). Development in fast-growing sub-watersheds, particularly the City of Frederick, Maryland, and in Prince William, Virginia, and Charles County, Maryland, has a major impact on water quality.

And there is no end in sight. In the next 20 years, the population of the Potomac watershed is expected to grow 10% each decade, adding 1 million inhabitants to reach a population of 6.25 million.

## The Watershed

Winding its way from its origins at Fairfax Stone, West Virginia, the Potomac River travels through varied landscapes until it reaches the Chesapeake Bay at Point Lookout, Maryland. The land plays an important role in watershed and river system health, and the physical, chemical, and biological viability of the river system. For more information on the watershed, go to www.potomac.org.

**Geological Regions:** Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont, Coastal Plain

**River Miles Main Stem:** 383; Main stem plus major tributaries: 12,878

**Major Tributaries:** North Branch, Savage, South Branch, Cacapon, Shenandoah, Antietam Creek, Monocacy

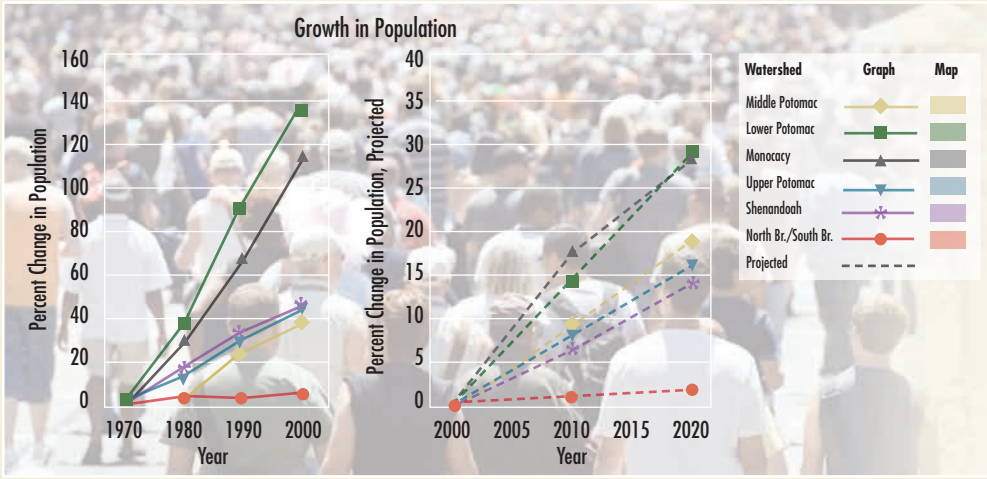
**Major Sub-watersheds:** North/South Branch, Monocacy, Shenandoah, Upper, Middle and Lower Potomac

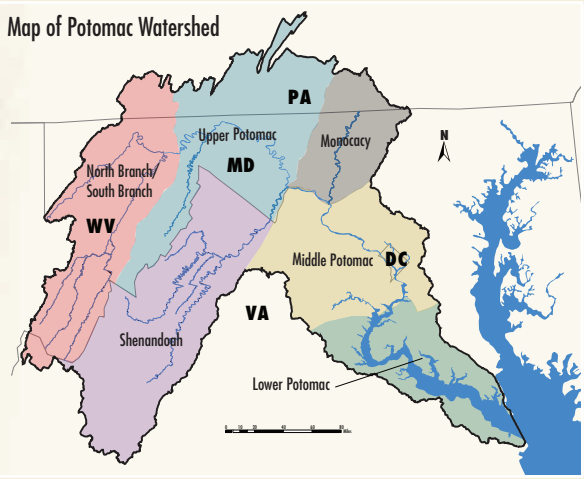
**Water Use:** 488 million gallons per day (ICPRB, 2000). The Potomac River supplies almost 90% of the drinking water to the DC metro area.

**Land Mass:** 14,670 square miles

**Land Use:** 55% forested, 28% agriculture, 5% water and wetlands, 9.7% developed, 3% other

**Population:** 5.24 million in watershed; 357 persons per square mile




*Source: Chesapeake Bay Program*

*Masthead and watershed photos: Ed Neville*

## Key to this Report

**Trend**

▲ Increasing

◀▶ No significant change

▼ Decreasing

**Impact/Effect**

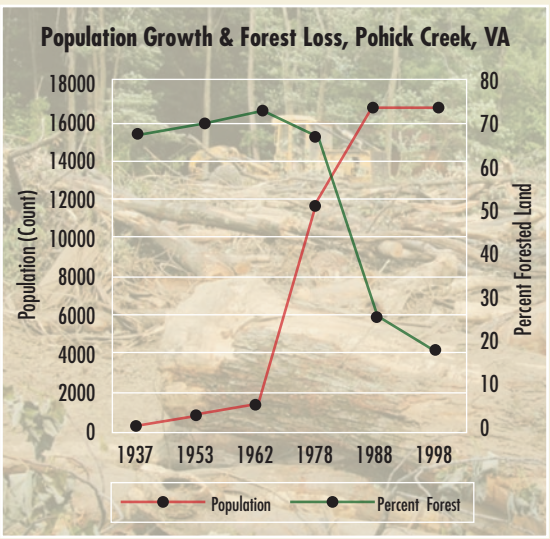
Positive

Neutral

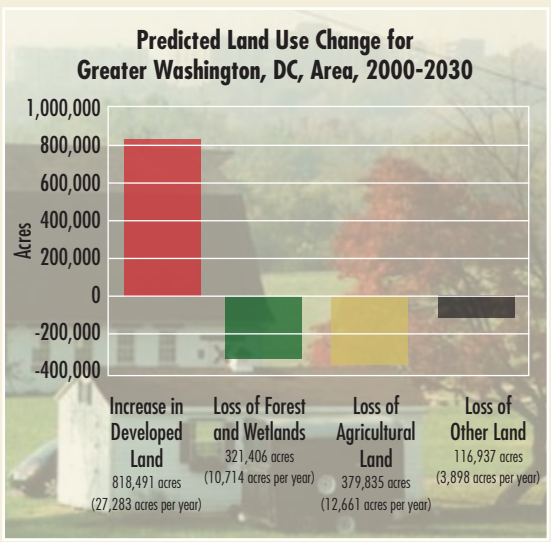
Negative

# Land Use

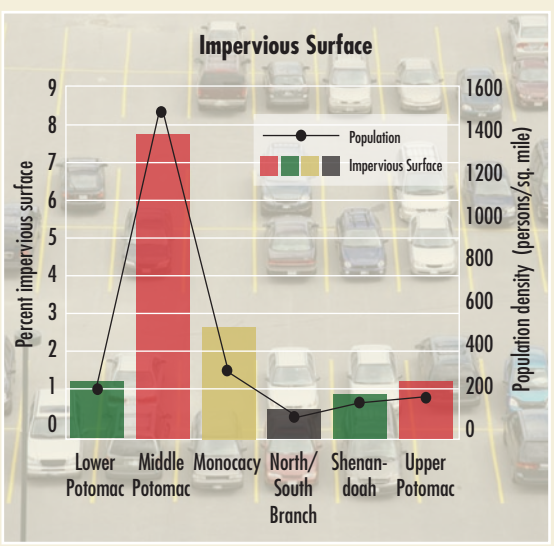
*Problems on land eventually translate into problems in the river. Whether it is soil from construction sites, farm runoff carrying pesticides and nutrients, or rainwater running off steaming asphalt parking lots, our rivers face numerous challenges.*




Source: Mid-Atlantic Regional Earth Sciences Applications Center, College Park, MD




Source: Mid-Atlantic Regional Earth Sciences Applications Center, College Park, MD




Source: Chesapeake Bay Program

## Forest Cover Decreases

Tree canopy is important to the health of the watershed, and is particularly vulnerable to the stresses of development. Sadly, the Potomac watershed is losing forests as they are converted to urban uses. An example of how population growth fuels forest loss is shown in the Pohick Creek watershed in Fairfax County, Virginia (*top*). Fairfax County, Virginia, lost almost 26% of its forest area between 1986 and 1999. If current trends continue between 2000 and 2030, models predict that developed land in the greater Washington, DC, area will increase by 80%, while farm, forest, and wetlands will decline 17.5% (*middle*).

Riparian—or streamside—buffers promote bank stability, control water temperature, and limit the entrance of sediment, pollutants, and nutrients into streams. *From 1990 to 1997, developing suburban Maryland counties experienced the greatest loss of forest in the buffer zone, greater than that in either urban or rural counties. This pattern is particularly disturbing because forest buffers are so difficult to reclaim, once lost.*

## Paved Surfaces Increase

As the Potomac watershed develops, its land area is converted to paved, or impervious surfaces like roads and rooftops. These hard surfaces prevent rain from soaking into the ground and instead deliver the water at increased velocity and temperature, along with accumulated pollutants, into nearby streams. Impervious areas also affect stream habitats by decreasing natural infiltration, changing natural hydrology, and increasing erosion rates within stream channels, which smothers aquatic life. As shown in a recent study in Montgomery County, Maryland, the more impervious surface, the poorer the health of stream life; and the more tree cover, the better the health of stream life.

Percent impervious area and population density are highly correlated, with the Middle Potomac sub-watershed containing both the greatest percent impervious area and the greatest population density (*bottom*). According to the Council of Governments, impervious cover in the Washington, DC, area grew from 12.2% to 17.8% from 1986 to 2000. Consider that it took more than 200 years to cover the forests and fields with the 12.2%, and in 14 years we have watched percentage of impervious surface increase by almost 50%.

For every 8% increase in population, a wasteful 41% increase in impervious surface is generated. *Although we cannot do much to control the increase in population in the coming years, we can attempt to minimize the increase in impervious area by developing wisely and efficiently.*

## Sewer Overflows Continue

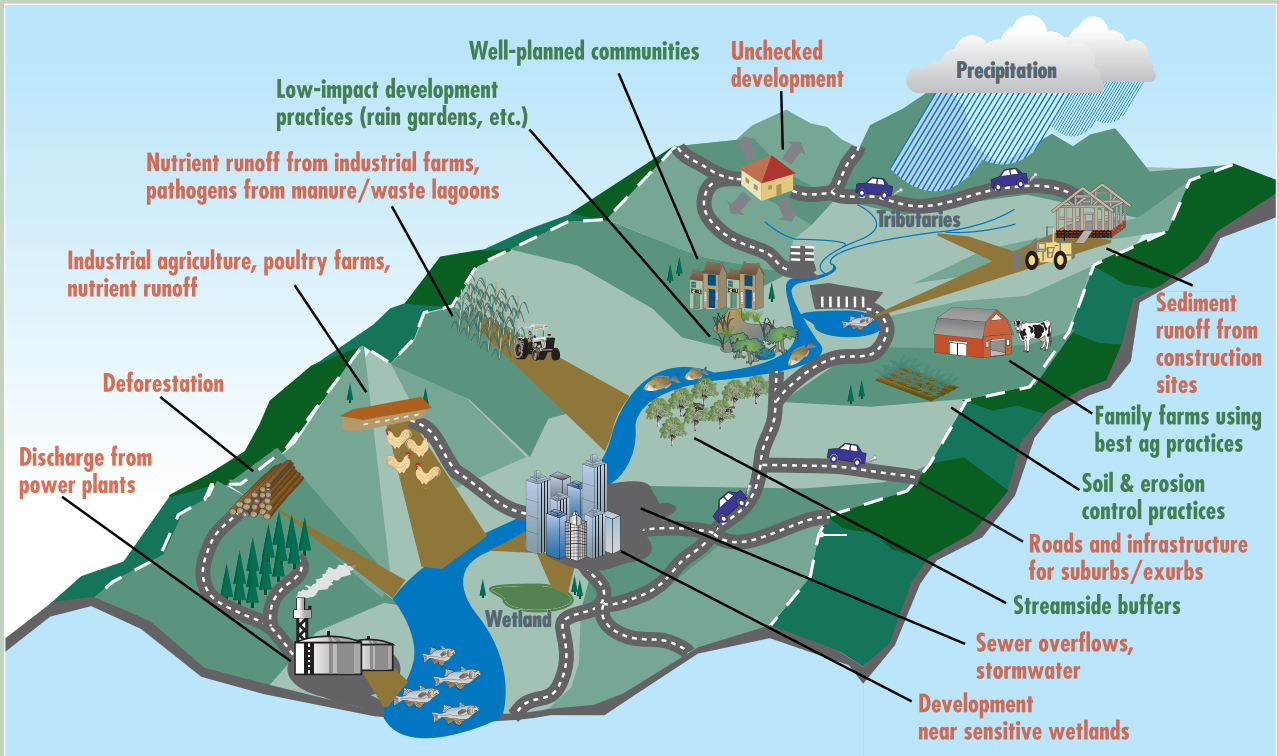
Stormwater is one of the major pollution sources for all of the urban areas in the Potomac watershed. The larger population centers in the Potomac watershed, including Washington, DC, are served by combined sewers—pipes that carry both stormwater runoff and sewage. Although combined sewers function well in dry weather, heavy rains overwhelm the system. When this happens, the excess flow, which is a mixture of stormwater and raw sewage, is discharged to the receiving water body. These discharges can harm human health by increasing bacteria levels, and can damage ecosystem health by lowering dissolved oxygen.

The combined sewer system in Washington, DC—operated by the Water and Sewer Authority—includes 53 combined sewer overflow (CSO) outfalls in the Potomac watershed: 10 of which discharge to the main stem, 15 to the Anacostia River, and 28 to Rock Creek and its tributaries. To reduce CSOs and improve water quality, WASA is developing a long-term control plan that will increase and improve capacity over the next 40 years. If fully implemented and funded, the plan would add storage tunnels to capture overflows, and is predicted to reduce CSOs by 98% in the Anacostia River, and 96% overall.

Low-impact development (LID) techniques such as porous pavement and vegetated rooftops offer effective and cost-efficient treatment of stormwater at its source, in a way that mimics natural hydrological processes. The use of LID techniques in our urban and suburban areas will be required to help address stormwater issues. For more information on LID, go to www.potomac.org.

## Watershed Model

This model shows some of the many positive (green) and negative (red) factors that affect water quality in the Potomac and its tributaries.




*Source: www.epa.gov/OWOW/win/what.html, adapted from The Source Water Protection Primer (Pollution Probe, 2004. www.pollutionprobe.org/Publications/Primers.htm)*

*Symbols courtesy of the Integration and Application Network (ian.umces.edu/symbols/), University of Maryland Center for Environmental Science.*

## Urban Stream Syndrome

### Middle & Lower Potomac–Washington, DC, area

***Stormwater pollution, increased flooding and loss of sensitive species***

Many of the streams that flow into the Middle and Lower Potomac display characteristics of "urban stream syndrome." As described by Walsh et al., many urbanizing watersheds "suffer" from increased flash floods; elevated concentrations of nutrients and contaminants; altered stream morphology, including incised channels that cut off vegetation from its water source and sedimentation from eroded streambanks; and reduced diversity, with an influx of more tolerant species to counter the loss of more sensitive species.

Many of the ills of the Potomac watershed can be traced to the consequences of using urban streams as wastewater conduits. The streams are clogged by sediment from poor land development practices and inundated with pollutants carried down from the hard paved surfaces of our streets, roofs, and parking lots. Although a strong forest buffer lessens the effects of runoff, the solution is to use more porous, penetrable surfaces.

Walsh et al, *J. N. Am. Benthol. Soc.*, 2005, 24(3):706–723.

## Playing "Chicken" with Rural Water Quality

### South Branch, Shenandoah

***Nutrient pollution from industrial farming, loss of forest cover, lack of buffer***

Production of beef cattle, chickens, and turkeys has increased in the Potomac watershed, with dramatic increases in chicken and turkey farming in the Potomac headwaters in West Virginia and Rockingham County, Virginia. The increase in poultry production translates into an increase in manure, and a corresponding increase in fecal bacteria, phosphorous, and nitrogen. In addition, poultry waste also contains significant quantities of estrogens, testosterone, progesterone, and trace metals.

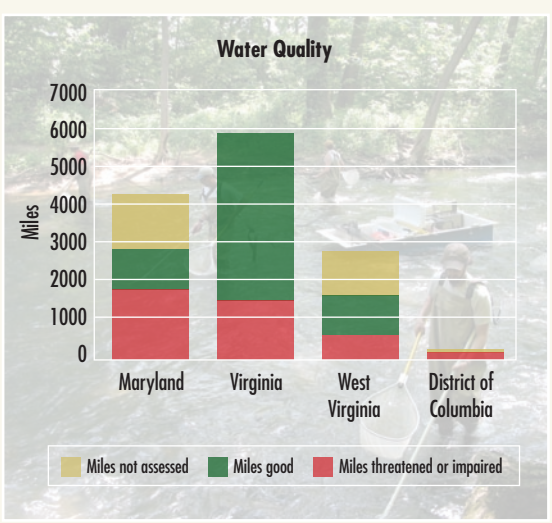
While the Shenandoah Valley dominates agricultural activity in Virginia, the Shenandoah River watershed is lacking in forested buffers compared to other watersheds in the state. The lack of forested buffers allows greater loads of nutrients and other contaminants from farms and developed areas to enter the waterways. Of the "impaired" stream miles in Virginia, 39% are in the Shenandoah Valley. Additionally, the Valley has seen a decrease in forest cover of more than 16,000 acres between 1992 and 2002, ending a 75-year increase in forest cover.

Because agriculture in the Shenandoah Valley extends into the headwaters, and because the region is the worst in Virginia for the percentage of streams having little or no streamside forests, many of the streams in the region rank high for pollution from runoff. Wider use of forest buffers is critical to protecting water quality.

## National Water Quality Inventory

The Clean Water Act requires the national water quality inventory. First, each state defines the "designated use" of each stream, river, lake, and estuary within its jurisdiction. Designated uses include aquatic life support, fish consumption, shellfish harvesting, swimming, and provision of drinking water, and a water body may be assigned more than one use. States then develop a different set of water quality standards for each designated use designed to protect that use.

The results of the 2002 National Water Quality Inventory are a useful tool for painting a picture of the overall health of the surface waters in a given state. For example, according to the most recent inventory, in 2002, of the approximately 10,000 stream miles assessed in the watershed, more than 3,800 miles were deemed "threatened" or "impaired."




*Source: EPA*

*Photo: Woody Bousquet*

## Pollution from Stormwater Exceeds Caps

**Sediment.** Excessive sediment in our waters can limit the growth of submerged aquatic vegetation (SAV), and affect the populations of all the fish, shellfish, and birds that depend on SAV as a source of food or shelter. The Potomac River delivers the largest amount of sediment to the Chesapeake Bay each year. The good news is that USGS's flow-adjusted calculations suggest that sediment concentrations have decreased in the Potomac between 1985 and 2005.

The Chesapeake Bay Program has set sediment load caps for each of the sub-watersheds of the Bay watershed. The cap for the Potomac watershed is 1494 million tons per year. The load has exceeded this cap in at least 13 of the 25 years between 1981 and 2005.

Overall, the USGS model shows a large reduction in sediment load in the last 20 years, with reductions in agricultural loads more than compensating for the increase in urban loads. The changes in sediment loads mirror changes in land use, with agricultural land uses decreasing by about 350,000 acres, and urban land uses increasing by about 300,000 acres.

**Nutrients.** Excessive nutrients in the Chesapeake Bay can both limit the growth of SAV (which many other organisms depend on for food and shelter) and cause low oxygen conditions, creating dead zones in the Bay. Of all the major rivers in the Chesapeake Bay watershed, the Potomac also has the highest level of nitrogen, and the third highest level of phosphorus.

**Nitrogen.** Although the nitrogen load has exceeded its cap (35.78 million pounds per year) in at least 16 of the 25 years between 1981 and 2005, the model shows a large reduction in nitrogen load in the last 20 years. The reductions in point sources and agricultural loads more than compensate for slight increases in urban and septic system loads.

**Phosphorus.** The phosphorus load has exceeded its cap (3.48 million pounds per year) in at least 10 of the 25 years between 1981 and 2005. There has been a large reduction in phosphorus load in the last 20 years, with reductions in point sources and agricultural loads more than compensating for the increase in the urban load.

*Although there have been reductions in nutrient and sediment pollution, these pollutants still exceed their caps and levels are not decreasing enough to significantly improve water quality.*

### Fish Kills/Intersex Fish

**Shenandoah and the South Branch**

In the past 5 years, massive fish kills have afflicted two tributaries of the Potomac River: the Shenandoah and the South Branch.

The Shenandoah experienced fish kills every year since 2004. The fish kills tend to begin in March or April of each year, and last for several months. The fish kills primarily affect smallmouth bass, redbreast sunfish, and rock bass. Though the kills appear to occur at low rates, they span so many miles and so many months that they may have a significant effect on the fish population. In 2004, a fish kill in the North Fork killed 80% of smallmouth bass and redbreast sunfish, while in 2005 a fish kill in the South Fork killed 80% of the same species in that river. Anglers have observed a change in the populations of these species. The only good news is that the kills seem to be affecting mostly adult fish and are not having a significant impact on spawning, so that the population has a chance of recovering in future years.

Scientists are still struggling to determine the cause of the recent fish kills—and also the cause of the intersex fish that were discovered during the fish kills. Possible causes include pollution from agriculture and wastewater treatment plants (among other sources), disease, parasites, spawning stress (including increasing water temperatures as a consequence of development), sediment chemistry, and population dynamics.

## Watershed Rates a D+, River Health has Reached a Plateau

*Hot, polluted runoff from our parking lots, roads, and roofs; soil erosion from construction sites; toxins and pathogens from industrial farms; and untreated, unhealthy stormwater overwhelm and alter the Potomac River system.*

The health of the river has reached a plateau, after improvements in the wake of the Clean Water Act. In the ensuing three decades, the growing pains of a burgeoning population have been felt throughout the region because of land conversion and development, and poor land use practices that lead to pollution runoff from agricultural and developed areas.

We grade the river at D+, with notable disturbing trends of loss of forest cover and inefficient increases in paved surfaces amidst improvements in nutrient runoff and CSO prevention. We offer some solutions:

- Protect existing forest land and replant strategic areas, such as buffers and greenways.
- Mandate use of low-impact development (LID) techniques in new and rebuilt construction.
- Require states to fully fund cost-share programs and best practice implementation and hold agricultural interests responsible for mitigating impacts.
- Update the Clean Water Act to respond to new sources of pollution such as phthalates from plastics and endocrine disruptors from personal care and pharmaceutical products.

Legislators must endorse strong legislation; municipalities and governments, particularly at the county level, must actively implement and enforce the solutions.

On a positive note, efforts to reform how communities deal with stormwater have taken hold in the watershed. For example, Montgomery County, Maryland, has a revised "road code" and stronger forest protection measures on the table. Protection of forests and traditional agricultural lands from development are also gaining strength, but still need more support from local elected officials and citizens.

In the past, and even now, we have treated our waterways as waste- and stormwater conduits. Water is not a waste product, but a resource. As individuals and communities who care about the health of our lands and waters, we must urge our elected officials to enact strong stormwater and land use policies that include LID techniques. Water-wise development must be embraced as we enter an age of scarce water resources, increased development, and more stress on our river systems.

The steps we take—or fail to take—today will have a profound impact on the future of the river. We ask you to contact elected officials to learn what they are doing to support LID and other best management practices; learn more about progressive water policies in your region; and urge elected officials to support these policies.


## Acknowledgements

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potomac conservancy

*Since 1993, Potomac Conservancy has protected the health, beauty, and enjoyment of the Potomac and its tributaries.*

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