

# Virginia Water Central

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A view of the Cowpasture River, looking upstream from Route 633 in Alleghany County, Virginia, July 19, 2009.

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## Editor's Comment



### A Bijou in the Back Yard

By Alan Raflo

“As he sat on the grass and looked across the river, a dark hole in the bank opposite, just above the water’s edge, caught his eye, and dreamily he fell to considering what a nice snug dwelling-place it would make for an animal with few wants and fond of a bijou riverside residence, above flood-level and remote from noise and dust.”

With this passage at the start of his 1908 classic *The Wind in the Willows*,<sup>1</sup> Kenneth Grahame described the first impression Mole has upon seeing the riverbank home of Mole’s soon-to-be closest friend, Water Rat. The adventures of these two animal characters with human characteristics—along with Mr. Badger, Otter, Mr. Toad—take them beyond Water Rat’s river home to the Wild Wood, Toad Hall, and the Wide World. One day this summer at a favorite outdoor spot near my home in Blacksburg, I began to see that my view—shown below—recreated to a remarkable extent the setting of Mr. Grahame’s book. In the photo, the foreground slopes down to Toms Creek, lined by willows and sycamores; the creek’s no river, but muskrats, toads, moles, otters, weasels, and many other animals are known to inhabit the watershed. Behind that narrow channel lies the “wild wood” (in this case, Jefferson National Forest), and beyond the visible ridge and many more, “the wide world” awaits.



Like Mole, I was looking at a “bijou” scene! That French-derived word means “a jewel” or “small and elegant.” The bijou in this case is my own local watershed, full of its particular set of water flows, plants, animals, people, problems, and potential. Furthermore, as Water Rat says of his river home, I’m connected to that watershed by living “by it and with it and on it and in it.”

There’s no fantasy in those observations, even if talking animals did make them.



A muskrat in Loudoun County, March 2008



A toad in Augusta County, April 2008

<sup>1</sup> Alfred A. Knopf 1993 edition.

## FEATURE ARTICLE

### A Confluence of Policy Developments on Water Quality and Bay Restoration

*By Alan Rafla*

From May to August 2009, a series of policy developments occurred that may prove to be turning points in the long, complicated history of efforts to restore the habitat and water quality of the Chesapeake Bay.

On May 12, 2009, President Barack Obama issued an Executive Order on Chesapeake Bay Protection and Restoration," addressing the role of the federal government in efforts to restore habitat and water quality in the Bay. The Order's Preamble states that the federal government should lead efforts on a renewed commitment to protecting and restoring the Bay. The Order creates a new a Federal Leadership Committee, charged to "oversee the development and coordination of programs and activities, including data management and reporting, of agencies participating in protection and restoration of the Chesapeake Bay." By May 2010, the Committee is to develop an overall federal strategy for Bay restoration. Other main topics addressed in the Order include the U.S. Environmental Protection Agency's (EPA) use of the Clean Water Act for water-quality restoration; agricultural practices; reducing pollution from federal lands; climate change impacts; public access; monitoring and research to support decision making; and living resources protection.

On the same day, the Chesapeake Executive Council—executives from Virginia, Maryland, Pennsylvania, Delaware, New York, West Virginia, the District of Columbia, the Chesapeake Bay Commission, the U.S. EPA, and the U.S. Dept. of Agriculture—held their annual meeting at Mt. Vernon, Va., and announced a new restoration course that includes short-term goals, or "**milestones**," for reducing the amount of the two nutrients—**nitrogen and phosphorus**—reaching Bay waters. The milestones are intended to help the Bay partners make progress toward implementing the practices intended to reach Bay-restoration goals. The Executive Council set 2025 as the year by which ("no later than" which) all pollution-control measures necessary for a restored bay are to be in place.

Meanwhile, during summer 2009 Virginia was in the public comment phase for two regulatory processes that would play key roles in how the Commonwealth manages water quality and land uses that affect it. One regulation addresses use of poultry litter; the other is a broad revisions of stormwater-management rules. If finally approved, these regulations will affect not only Virginia's Bay-watershed area but also waters and land uses throughout the state.

Using public notices about these actions, this article provides summaries of these three areas of recent and ongoing water-quality policy activities.





## Part 1. Presidential Executive Order

Following is a summary of the Presidential Executive Order of May 12, 2009, as provided in an August 11, 2009, press release from the Chesapeake Bay Program. **Note that the Order calls for several departments to prepare by September 9, 2009, draft recommendations to accomplish several goals outlined in the Order.**

“On May 12, 2009, President Obama signed an Executive Order that recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation’s largest estuary and its watershed.

“The Chesapeake Bay Protection and Restoration Executive Order established a Federal Leadership Committee that will oversee the development and coordination of reporting, data management and other activities by agencies involved in Bay restoration. The committee will be chaired by the Administrator of the Environmental Protection Agency and include senior representatives from the departments of Agriculture, Commerce, Defense, Homeland Security, Interior, Transportation and others.

“These agencies will submit draft reports by September 9, 2009 that make recommendations to [do the following]:

Define the next generation of tools and actions to restore water quality in the Bay and describe the changes to be made to regulations, programs and policies to implement these actions.

Target resources to better protect the Bay and its rivers, particularly in agricultural conservation practices.

Strengthen storm water management practices for federal facilities and federal land within the Bay watershed and develop a best practices guide for reducing polluted runoff.

Assess the impacts of climate change on the Bay and develop a strategy for adapting programs and infrastructure to these impacts.

Expand public access to the Bay and its rivers from federal lands and conserve landscapes of the watershed.

Expand environmental research, monitoring and observation to strengthen scientific support for decision-making on Bay restoration issues.

Develop focused and coordinated habitat and research activities.

“In preparing the reports, federal agencies will consult with the governments of the seven Bay jurisdictions – Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia. By November 9, the Federal Leadership Committee will integrate these reports into a draft strategy for restoration and protection of the Chesapeake Bay. This draft strategy will be available for public comment and a final strategy will be completed by May 12, 2010.

“Beginning in 2010, the Federal Leadership Committee will publish an annual Chesapeake Bay Action Plan that describes how federal funding will be put toward Bay restoration in the upcoming year. It will be accompanied by an Annual Progress Report that reviews current environmental conditions and assesses implementation of the strategy. An independent evaluator will also periodically report on progress toward meeting the goals of the Executive Order.”

The complete text of the Executive Order is available online at the White House’s Web site at [www.whitehouse.gov/the\\_press\\_office/Executive-Order-Chesapeake-Bay-Protection-and-Restoration/](http://www.whitehouse.gov/the_press_office/Executive-Order-Chesapeake-Bay-Protection-and-Restoration/).

### Executive Order Web Site

On August 11, the Bay Program announced a new Web site designed to “increase government transparency and expand public participation in President Obama’s Executive Order on Chesapeake Bay Protection and Restoration.” The Web site address is <http://executiveorder.chesapeakebay.net>. According to the Bay Program’s press release about the Web site, the site is to “serve as the clearinghouse for all Executive Order information, including news, documents, and events from the various federal agencies working on new approaches to cleaning up the nation’s largest estuary. The public can also provide feedback on the website and use online tools to track Executive Order activities.”

For more information about the Web site or other Bay Program activities, visit the main Web site at [www.chesapeake.net](http://www.chesapeake.net) or contact Travis Loop, Director of Communications, at 410 Severn Avenue, Suite 100 Annapolis, MD 21403; (410) 267-5758; [tloop@chesapeakebay.net](mailto:tloop@chesapeakebay.net).

## Congress Also Gets Its Say on the Bay

On July 29, the Committee on Natural Resources in the U.S. House of Representatives reported out HR1053, sponsored by Rep. Robert Wittman (Va.-1<sup>st</sup>), which would require a budget document showing all federal money spent on Chesapeake Bay restoration, and would require the U.S. EPA to develop and implement an adaptive management process for federal Bay-restoration programs. As of September 3, the bill was still being considered by the House Transportation and Infrastructure Committee. For details of the bill and its legislative status, please see <http://thomas.loc.gov>. (*Daily Press*, 7/30/09)

On September 8, U.S. Sen. Benjamin Cardin (D-Md.) introduced the Chesapeake Bay Ecosystem Restoration Act of 2009. The bill would amend the federal Clean Water Act's Section 117, which governs the Chesapeake Bay Program. It would strengthen enforcement controls over pollution affecting the Bay, establish a regional nutrient-credit trading system (Virginia and Pennsylvania already have state nutrient-credit trading programs), provide new funds for pollution-control grants, and set a 2020 deadline for restoration efforts to be in place (five years earlier than the 2025 date set by the Chesapeake Bay Executive Council on May 12; see above on page 3). (Press release from office of Sen. Cardin, 9/9/09, available online at <http://cardin.senate.gov/news/record.cfm?id=317548>.)

## Part 2. Virginia's Chesapeake Bay "Milestones"

As noted above, on May 12 the Chesapeake Bay Executive Council met to review efforts by the six Bay-watershed states, plus the District of Columbia, in reaching the Bay-restoration goals set by previous inter-jurisdictional agreements (the last major one being the Chesapeake 2000 Agreement, which set goals for 2010). This section uses the Chesapeake Bay Program's document, "2011 Milestones for Reducing Nitrogen and Phosphorus," (online at [http://archive.chesapeakebay.net/pressrelease/EC\\_2009\\_allmilestones.pdf](http://archive.chesapeakebay.net/pressrelease/EC_2009_allmilestones.pdf), accessed 9/4/09), to summarize Virginia's role in the Bay nutrient situation, the watershed-wide milestones for 2011 established by the Executive Council in May, and the actions Virginia is expected to take (new or expanded) to reach its 2011 milestones. Table 1 below shows how each jurisdiction ranks in its percentage of the total Bay watershed area and the amounts of nitrogen and phosphorus delivered to the Bay in 2008; the table then shows the milestone decreases expected by 2011 for each jurisdiction. The box on the following page shows Virginia's actions needed to meet its 2011 milestones.

**Table 1. 2011 Nutrient-reduction Milestones for Chesapeake Bay Partners.**

Jurisdiction	% Total Bay Watershed Acreage	Nitrogen Delivered to Bay in 2008 (lbs. and % of total)	2011 Nitrogen-reduction Milestone (lbs./year decrease)	Phosphorus Delivered to Bay in 2008 (lbs. and % of total)	2011 Phosphorus-reduction Milestone (lbs./year decrease)
Virginia	33.9%	70.6 million (27.2%)	3.4 million	8.6 million (48.4%)	470,000
Delaware	1.1%	4.5 million (1.8%)	292,072	332,000 (1.9%)	0
Dist. of Columbia	0.1%	354,000 (1.4%)	159,000	96,670 (0.5%)	Goal achieved
Maryland	14.4%	54.8 million (21.2%)	3.75 million	3.8 million (21.2%)	193,000
New York	9.7%	16.5 million (6.4%)	875,000	832,572 (4.7%)	86,700
Pennsylvania	35.2%	102.4 million (39.6%)	7.3 million	3.5 million (19.7%)	300,000
West Virginia	5.6%	6.6 million (2.6%)	42,254	623,833 (3.5%)	3,364

## Virginia's 2011 Milestone Actions to Achieve Bay Nutrient Reductions.

### Actions in Place as of 2009

The Bay Program's document indicates that the following actions already underway or under review as proposed regulations in Virginia will reduce (by year 2011) the Commonwealth's annual nitrogen inputs to the Bay by 2.4 million pounds and the phosphorus inputs by 435,000 pounds.

- \$61 million for agricultural-conservation practices.<sup>2</sup>
- Nutrient-removal requirements at wastewater-treatment plants in the Bay watershed and \$1.08 billion in grants and loans for plant improvements to help meet those requirements.
- Agreements with poultry companies to achieve a 30-percent reduction in phosphorus contained in poultry litter.
- Efforts to increase landowner participation in the Conservation Reserve and Enhancement Program (CREP).<sup>3</sup>
- Efforts to increase compliance with erosion and sediment control regulations.
- Development of new stormwater-control regulations and revision of poultry waste-management regulations to address off-site nutrient management. (For more on these proposed regulations, please see

### Additional Actions Needed

The Bay Program's document indicates that the following actions will reduce Virginia's nitrogen inputs by 995,000 pounds/year by 2011 and the phosphorus inputs by 35,000 pounds per year.

#### Additional Agricultural Actions

Cover Crops	119,000 acres/year
Small Grain Commodities (harvestable)	38,000 acres/year
Agricultural Nutrient Management	258,000 new acres
Conservation Tillage (Nat. Res. Cons. Service)	47,500 acres/year
Continuous No-Till (State Cost-Share)	81,000 acres
Animal Waste Management Systems (AWMS)	241 systems
Runoff Control AWMS	32 systems
Off-stream Watering with Fencing	89,500 acres
Forest Buffers	10,000 acres
Grass Buffers	2,000 acres
Wetland Restoration	36 acres
Retirement of Highly Erodible Land	19,000 acres
Reforestation	12,500 acres
Agricultural Stream Restoration	13,000 linear feet

#### Additional Urban/Suburban Actions

Stormwater Management	
Best Management Practices (BMPs)	49,000 acres
Erosion and Sediment Control	61,000 acres
Additional Urban Nutrient Management	133,000 acres
Septic System BMPs	806 systems

#### Additional Wastewater Actions

233,000 Pounds Nitrogen Reduced  
126,000 Pounds Phosphorus Reduced

The Chesapeake Bay Program's May 12 press release about the Executive Council meeting is available online at [www.chesapeakebay.net/press\\_ec2009.aspx](http://www.chesapeakebay.net/press_ec2009.aspx). (You can contact the Bay Program office at 800-YOUR-BAY.) At that Web site are fact sheets listing for each Bay partner the 2011 milestones and necessary actions to reach them.

<sup>2</sup> The Bay Program's 2011 Milestones document state's that "Virginia's five priority agricultural conservation practices have been, and will continue to be, a focus for additional nutrient pollution reductions." Those practices are the following: nutrient-management planning; cover crops; conservation tillage; riparian buffers; and livestock exclusion (from streams).

<sup>3</sup> Information about the CREP program in Virginia is available online at [www.dcr.virginia.gov/soil\\_and\\_water/crep.shtml](http://www.dcr.virginia.gov/soil_and_water/crep.shtml), or from your local Virginia Department of Conservation and Recreation office or Soil and Water Conservation District office.

Other background items are also available there, such as [President Obama's May 12 Executive Order](#) on an increased federal role in the Bay restoration process. For more information about Virginia's 2011 milestones, contact Jeff Corbin at (804) 786-0044 or [jeff.corbin@governor.virginia.gov](mailto:jeff.corbin@governor.virginia.gov). For a summary of the Executive Council meeting and the milestones for other Bay partners, *Water Central* recommends the June 2009 issue of *Bay Journal*, available online at [www.bayjournal.com/article.cfm?article=3604](http://www.bayjournal.com/article.cfm?article=3604) (or contact the Bay Journal at 717-428-2819).



Recent policy developments are sure to be part of the conversation at the **Chesapeake Watershed Forum**, Oct. 9-11, Shepherdstown, West Virginia. The forum is organized by the Alliance for the Chesapeake Bay. For more information, contact Lou Etgen at (410) 377-6270 or [letgen@acb-online.org](mailto:letgen@acb-online.org), or visit [www.acb-online.org/ChesForum2009.cfm](http://www.acb-online.org/ChesForum2009.cfm).

### Part 3. Potential Stormwater Impacts on Water Quality are the Focus of Two Significant Regulatory Proposals in Virginia

After decades of improvements in treating sewage and other piped wastewater since passage of the federal Clean Water Act in 1972, **stormwater** has become the “most common cause of water pollution,” according to the U.S. Environmental Protection Agency’s (EPA) Stormwater Outreach Web page ([cfpub1.epa.gov/npdes/stormwatermonth.cfm](http://cfpub1.epa.gov/npdes/stormwatermonth.cfm), 9/19/06). Stormwater is the runoff of rain and other precipitation from streets, lawns, farms, and construction and industrial sites; this runoff transports fertilizers, soil, pesticides, oil, and many other substances to streams, rivers, lakes, and coastal waters. In developed areas, the amount of **impervious surfaces** (roofs, asphalt, and concrete) directly affects the severity of stormwater problems, but stormwater impacts and management also are water-quality issues and challenges in rural or agricultural areas (as depicted in the cartoon to on the next page, from the September 2006 issue of *Virginia Water Central*).

Stormwater impacts are the focus of two significant regulations that were open for public comment in summer 2009 (**the public comment period for both proposals ended August 21, 2009**). One regulation would impose new requirements on users of poultry waste that is transferred off the site where the litter was generated. The second regulation would add new post-construction requirements for managing stormwater on developed sites and for a fee system to support the state’s stormwater-management program. The following sections provide basic information about the two regulatory proposals.





## Virginia Pollution Abatement (VPA) Permit Regulation for Poultry Waste Management (9 VAC 25-630)

The State Water Control Board (SWCB) is considering amendments to the Virginia Pollution Abatement (VPA) General Permit Regulation on managing poultry waste. The proposed amendments affect poultry waste transferred off-site and used for land application by another entity other than the poultry grower. These provisions establish end-user requirements for record keeping, storage, timing and rates, and buffers. The proposed regulation was published in the 6/22/09 issue of the *Virginia Register of Regulations*, pages 3867-3883. Public hearings were held 7/29/09, 8/4/09, and 8/6/09; the public comment period ended 8/21/09. Online information, including the text of proposed changes and the regulatory schedule, is available through the Virginia Regulatory Town Hall Web site, at <http://www.townhall.state.va.us/L/viewaction.cfm?actionid=2525&display=stages>. The Virginia Department of Environmental Quality (DEQ) contact for more information or submitting comments is Betsy K. Bowles, P.O. Box 1105, Richmond, VA 23218; (804) 698-4059; [bkbowles@deq.virginia.gov](mailto:bkbowles@deq.virginia.gov).

According to Ms. Bowles (e-mail correspondence on 8/17/09), the tentative schedule for actions after the end of the comment period is as follows. The DEQ will review the comments received and make changes to the proposal if necessary. The DEQ plans to present the final proposed language to the SWCB at either the October 2009 or the December 2009 SWCB meeting. Upon SWCB approval, the final regulation would be published in the *Virginia Register of Regulations* and would become effective at least 30 days after publication.

Following is the **summary of the proposed regulation**, from the Agency Statement of 3/18/09, accessed at <http://www.townhall.state.va.us/L/viewstage.cfm?stageid=5172&display=documents>, 7/27/09.

“The State Water Control Board is considering amending the existing Virginia Pollution Abatement (VPA) Permit Regulation for Poultry Waste Management in order to establish requirements for end-users of poultry waste to ensure that poultry waste is being used in a manner in which state waters are being protected and nutrients losses are being reduced and that these reductions can be measured. The proposed amendments include provisions regarding transferred off-site poultry waste used for land application by another entity other than the poultry grower. These provisions will establish end-user requirements such as [the following]: land application record keeping, poultry waste storage, land application timing and rates, [and] land application buffer requirements. These provisions will also include the option of coverage under a general permit for a poultry waste end-user or poultry waste broker if non-compliance with the requirements of the proposed technical regulations found in 9VAC25-630-60, 9VAC25-630-70 and 9VAC25-630-80 is determined.

“Concerns have been expressed by the public, legislature, and executive branch that additional safeguards are necessary to ensure that poultry waste that leaves the site and control of the permitted confined poultry-feeding



operations for land application are managed, applied, and stored in a manner that is protective of water quality.

“Currently, the VPA General Permit Regulations for Poultry Waste Management (9VAC25-630-10 et seq.) require that poultry waste applied on lands owned by the permitted owner/operator of a confined poultry-feeding operation be done so in accordance with a nutrient management plan written by a planner certified by the Virginia Department of Conservation and Recreation (DCR). Permitted operations are inspected annually to ensure that poultry waste is stored, applied, and otherwise managed according to the regulations.

“However, under the current regulations, poultry waste that is transferred off-site is only required to be accompanied by waste-analysis information and a fact sheet (developed by the Department of Environmental Quality [DEQ] and the DCR) that provides the recipient with general provisions regarding the storage, management and application of the poultry waste. The end-user must acknowledge receipt of the fact sheet by signing a separate ‘Poultry Waste Transfer Records’ sheet. Maintenance of records, including the date and amount of the transfer, zip code of the location receiving the off-site poultry waste and nearest stream or waterbody, is the requirement of the owner/operator of the confined poultry-feeding operation (or third-part broker if one was involved in the transaction). Records must be made available to DEQ personnel upon inspection of the confined poultry feeding operation. For off-site application of poultry waste, the present regulation does not require records of 1) the amount of waste received by a single farm, 2) whether or not the poultry waste will be applied in accordance with a nutrient management plan, 3) soil test levels on receiving fields, 4) timing of applications, or 5) a description of receiving crops.”

For more information generally about Virginia’s water-quality permit programs, please see the Department of Environmental Quality’s main water-quality site at [www.deq.virginia.gov/water/homepage.html](http://www.deq.virginia.gov/water/homepage.html), or the page for the Virginia Pollution Abatement Permit Program at <http://www.deq.virginia.gov/vpa/homepage.html>.

## Stormwater Management Regulations (4 VAC 50-60)

The Virginia Soil and Water Conservation Board is considering amendments to the Virginia Stormwater Management Program Permit Regulations. A key state legislative measure related to this regulatory action is HB1177 from the 2004 Virginia General Assembly<sup>4</sup>, which called for reorganizing Virginia’s stormwater-management programs under the Department of Conservation and Recreation, transferred oversight to the Soil and Water Conservation Board, set the framework for local stormwater-management programs, and gave authority for the Board to establish a statewide stormwater permit fee to set statewide stormwater-management standards.

The proposed amendments address criteria for water quality and quantity, criteria and procedures for local stormwater-management programs, and the administration and schedule of fees. The proposed regulation amendments were published in the 6/22/09 issue of the *Virginia Register of Regulations*, pages 3793-3849. Public hearings were held 6/30/09, 7/1/09, 7/7/09, 7/9/09, and 7/14/09; the public comment period ended 8/21/09. Online information, including the text of proposed changes and the regulatory schedule, is available through the Virginia Regulatory Town Hall Web site, at <http://www.townhall.state.va.us/L/viewaction.cfm?actionid=1915&display=stages>. The Virginia Department of Conservation and Recreation contact for more information is David C. Dowling, 203 Governor Street, Suite 302, Richmond, VA 23219; (804) 786-2291; david.dowling@dcr.virginia.gov.

According to Mr. Dowling (e-mail correspondence on 8/17/09), the tentative schedule for actions after the end of the comment period is as follows. At its regularly scheduled meeting on September 17, the Virginia Soil and Water Conservation Board will consider key potential revisions to the stormwater regulations and will seek public comment on those, but no action will be taken by the Board at that meeting. Then on October 6th, at a special meeting the Board will consider and take action on the final regulations; public comment will also be held at that meeting. The process after this depends on the action taken by the Board.

Following is a **summary of the proposed changes** to Parts I, II, and III of the Virginia Stormwater Management Program Permit Regulations to address **water quality and quantity and local stormwater management program criteria**. The quoted information is from the Agency Statement of 3/29/09, accessed at <http://www.townhall.state.va.us/L/viewstage.cfm?stageid=5070&display=documents>, 7/27/09.

“This proposed regulatory action amends the technical criteria applicable to stormwater discharges from construction activities, establishes minimum criteria for locality-administered stormwater management programs (qualifying local programs) and Department of Conservation and Recreation (Department) administered local

<sup>4</sup> The text of this HB 1177 is available online at <http://leg1.state.va.us/cgi-bin/legp504.exe?041+sum+HB1177>.

stormwater management programs, as well as authorization procedures and review procedures for qualifying local programs, and amends the definitions section applicable to all of the Virginia Stormwater Management Program (VSMP) regulations.

“With regard to technical criteria applicable to stormwater discharges from construction activities, revised water quality and water quantity requirements are proposed to be included in Part II of the regulations. These requirements will be further discussed later in this document; in summary, however, water quality requirements include a 0.28 lbs/acre/year phosphorus standard for new development, a requirement that total phosphorus loads be reduced to an amount at least 20% below the pre-development phosphorus load on prior developed lands, and a requirement that control measures be installed on a site to meet any applicable wasteload allocation. Water-quantity requirements include both channel-protection and flood-protection criteria.

“This action would also establish the minimum criteria and ordinance requirements (where applicable) for a Virginia Soil and Water Conservation Board (Board) authorized qualifying local program (Part IIIA) or for a Board-authorized/Department-administered local stormwater management program (Part IIIB) which include, but are not limited to [the following]: administration, plan review, issuance of coverage under the General Virginia Stormwater Management Program (VSMP) Permit for Discharges of Stormwater from Construction Activities, inspection, enforcement, reporting, and recordkeeping. Part IIID establishes the procedures the Board will utilize in authorizing a locality to administer a qualifying local program. Part IIIC establishes the criteria the Department will utilize in reviewing a locality’s administration of a qualifying local program.

“Finally, this proposed action would make changes to definitions in Part I, which is applicable to the full body of the VSMP regulations. Unnecessary definitions are proposed to be deleted, needed definitions are proposed to be added, and many existing definitions are proposed to be updated.”

Following is a **summary of the proposed changes** to the regulations covering the **statewide permit fee** schedule supporting the Stormwater Management Program and the administration and implementation of these fees. The quoted information is from the Agency Statement of 4/9/09, accessed at <http://www.townhall.state.va.us/L/viewstage.cfm?stageid=5106&display=documents>, 7/27/09.

“This proposed regulatory action establishes a statewide fee schedule for stormwater management and state agency projects and establishes the fee assessment and the collection and distribution systems for those fees. Permit fees are established for: Municipal Separate Storm Sewer Systems (new coverage); Municipal Separate Storm Sewer Systems (major modifications); Construction activity general permit coverage; Construction activity individual permits; Construction activity modifications or transfers; and MS4 and Construction activity annual permit maintenance fees.

“This action is closely tied to the proposed Part I, II, and III action as the fees generated are necessary to fund the local stormwater management programs established through that concurrent regulatory action. The fees have been established...using estimates of the time determined to be necessary for different sized projects, for a local stormwater-management program to conduct plan review, inspections [including stormwater pollution prevention plan (SWPPP) review and re-inspections], enforcement, provide technical assistance, and issue permit coverage, and for the Department of Conservation and Recreation to provide oversight of the Commonwealth’s stormwater management program.

“The necessary proposed permit fee levels were arrived at through discussions of a subcommittee of the Technical Advisory Committee and discussions with the overall TAC and through corroboration of the costs of conducting the various components of program implementation with Department of Conservation and Recreation stormwater field staff and with local government program personnel.”

For more information about stormwater management in Virginia, please see the Department of Conservation’s Web site at [http://www.dcr.virginia.gov/soil\\_and\\_water/stormwat.shtml](http://www.dcr.virginia.gov/soil_and_water/stormwat.shtml).

### **Here’s a Chance to Learn More about Virginia’s Stormwater Regulations (and see the beautiful Shenandoah Valley at the same time!)**

On April 26, 2010, at James Madison University’s Festival Conference Center, Harrisonburg, Shenandoah Valley Pure Water Forum will hold **“Water and the Developing Landscape: Stormwater Regulations, Explanations & Opportunities.”** For more information, contact Nesha McRae at (540) 332-9238 or [nesha.mcrae@dcr.virginia.gov](mailto:nesha.mcrae@dcr.virginia.gov), or Bruce Lundeen at (540) 434-3392 or [lundeebe@CISAT.JMU.EDU](mailto:lundeebe@CISAT.JMU.EDU).

## FOR THE RECORD

### Waterways Condition Reports

#### “How’s the Health of that Waterway?”—Condition Reports Give Some Answers

It’s a common question: “How IS the river? The river in question might be any of the major ones in Virginia or it might be a smaller one that provides your drinking water, outdoor recreation spots, beautiful views, shellfish, or other valuable service. Answering the “How is it” part of the question is the challenge many organizations take on when they decide to produce a **condition report**, or a “**report card**,” on their waterway of interest.

One of the most well-known condition reports in Virginia is the annual “State of the Bay” report produced by the Chesapeake Bay Foundation. First produced in 1998, the State of the Bay report compiles information on various habitat and environmental aspects, gives each aspect an assessment (currently a number score as well as a letter grade, based on the familiar A-F scale), and combines the aspects assessments to give the Bay an overall assessment. Various organizations, including government agencies and watershed associations, have adopted this basic model for reports on individual waterways, particularly for many Bay tributaries. Such regular condition reports help organizations inform citizens and policy makers and advocate for policies or actions. News media often refer to condition reports when discussing water-quality or habitat developments in the Bay or other waterways.

Summer 2009 brought a substantial amount of news in Virginia about policies addressing the health of the Chesapeake Bay, stormwater management, impaired waters, and other water-quality or aquatic-habitat issue. To give readers some help in finding information about the waterways that such policies will affect, this edition of “For the Record” provides a list (compiled in September 2009) of condition reports in Virginia waterways, the Chesapeake Bay, and Maryland tributaries to the Bay. Within each group, report titles (most recent found) are listed alphabetically by the name of the waterway; Virginia waterways are also grouped by major watershed. Each entry shows the report title and year of most recent report, sponsoring organization, a link to the report online (if available), and contact information for the organization.

*Water Central* recognizes that other water-quality reports or datasets may be missing from this list. If you know of a resource not listed, please provide information about the resource to Alan Raflo at araflo@vt.edu, or phone (540) 231-5463.

While this article focuses on reports on specific waterways, one additional fundamental water-quality reference to note is the **biennial, statewide water-quality and impaired-waters reports** that the federal Clean Water Act requires from each state. In Virginia, the Department of Environmental Quality (DEQ) produces these reports. The most recent one is the *2008 305(b)/303(d) Water Quality Assessment Integrated Report*, final version as of December 22, 2008. That report is available online at [www.deq.virginia.gov/wqa/ir2008.html](http://www.deq.virginia.gov/wqa/ir2008.html). Analogous departments in other states should have their respective reports available at their Web sites.

For information about the many water-monitoring groups in Virginia, here are three resources. First, the **Virginia DEQ’s Citizen Monitoring program** compiles information on water-monitoring efforts by volunteer groups statewide. The “2008 Summary of Community Involvement” (acknowledged by DEQ as not including *all* citizen groups active in Virginia) is available online at [www.deq.virginia.gov/cmonitor/activities.html](http://www.deq.virginia.gov/cmonitor/activities.html); the DEQ coordinator for citizen monitoring is Stuart Torbeck, (804) 698-4461 or Charles.Torbeck@deq.virginia.gov. Second, the **Virginia Water Monitoring Council (VWMC)** provides coordination among monitoring efforts in the state. At the VWMC Web site at [www.vwrc.vt.edu/vwmc/data.asp](http://www.vwrc.vt.edu/vwmc/data.asp), you can find inventories of monitoring locations and data parameters





and links to online sources of monitoring data; contact the VWMC at the Virginia Water Resources Research Center, 210 Cheatham Hall (0444), Blacksburg, VA 24061; (540) 231-4159; janewalk@vt.edu. Third, the **Virginia Citizens for Water Quality** Web site, at [www.virginiacwq.org/watersheds.htm](http://www.virginiacwq.org/watersheds.htm), lists links to monitoring organizations within each of the state's major watersheds; contact this organization at P.O. Box 8297, Richmond, VA 23226; (804) 615-5036.

## Virginia Lakes, Streams, and Rivers

**Arlington County Stream Monitoring Report 2007.** (Five Arlington County streams, all in the Potomac River watershed). Arlington County Department of Environmental Services, 2100 Clarendon Boulevard, Arlington, VA 22201; (703) 228-3610; awinquist@arlingtonva.us. Report online at [www.arlingtonva.us/departments/EnvironmentalServices/epo/EnvironmentalServicesEpoVolunteerPrograms.aspx](http://www.arlingtonva.us/departments/EnvironmentalServices/epo/EnvironmentalServicesEpoVolunteerPrograms.aspx).

**Claytor Lake Volunteer Monitoring Program Results 2008.** (Claytor Lake is an impoundment of the New River.) Friends of Claytor Lake, P. O. Box 815, Pulaski, VA 24301; (540) 674-0166; foelinfo@verizon.net. Report online at [www.focl.org/programs.html](http://www.focl.org/programs.html).

**State of the Elizabeth River 2008.** (The Elizabeth is a Chesapeake Bay tributary in Chesapeake, Norfolk, and Portsmouth.) Elizabeth River Project, 475 Water Street, Suite 103A, Portsmouth, VA 23704; (757) 399-7487; jrieger@elizabethriver.org. Report online at [http://www.elizabethriver.org/About\\_River-WAP-and-State-of-River-landingpages.aspx](http://www.elizabethriver.org/About_River-WAP-and-State-of-River-landingpages.aspx).

**State of the James River 2007.** James River Association, 9 South 12th Street, 4th Floor, Richmond, VA 23219; (804) 788-8811; info@jamesriverassociation.org. Report online at [www.jamesriverassociation.org/what-we-do/publications](http://www.jamesriverassociation.org/what-we-do/publications).

**State of the Lynnhaven River 2008.** (The Lynnhaven is a Chesapeake Bay tributary in Virginia Beach). Lynnhaven River Now, 1608 Pleasure House Road, Suite 108, Virginia Beach, VA 23455; (757) 962-5398; labity@lynnhavenrivernow.com. Report online at [www.lynnhavenrivernow.org/files/pages/State\\_of\\_the\\_River\\_Report\\_2008\\_-\\_Final1.doc](http://www.lynnhavenrivernow.org/files/pages/State_of_the_River_Report_2008_-_Final1.doc).

**State of the Nation's River 2008 (Potomac River).** Potomac Conservancy, 8601 Georgia Avenue, Suite 612, Silver Spring, MD 20910; (301) 608-1188; info@potomac.org. The Potomac Conservancy's Shenandoah Resource Center is at 19 West Cork Street, Suite 201, Winchester, VA 22601; (540) 667-3606. Report online at [www.potomac.org/site/state-of-the-nations-river-2008/](http://www.potomac.org/site/state-of-the-nations-river-2008/).

**Biological Health of Rivanna Basin Streams 2005-2007.** (The Rivanna River is a James River Tributary.) Streamwatch, P. O. Box 181, Ivy, VA 22945; (434) 923-8642. Report online at <http://streamwatch.org/reports>.

**The Status of Water Quality in the Rivers and Tributaries of the Shenandoah River Watershed (2007).** Friends of the Shenandoah River, 1460 University Drive/ Gregory Hall, Winchester, VA 22601; (540) 665-1286; friendsofshenandoahriver@gmail.com. Report online at <http://www.fosr.org/>.

## Chesapeake Bay

### Overall Bay Conditions

**Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008.**

Chesapeake Bay Program, 410 Severn Avenue, Suite 109, Annapolis, MD 21403; (800) YOUR-BAY. Reports online at <http://www.chesapeakebay.net/indicatorshome.aspx?menuitem=14871> (previous years' reports are also here).

**Chesapeake Bay Report Card 2008.** University of Maryland Center for Environmental Science (along with National Oceanic and Atmospheric Administration Chesapeake Bay Office), P.O. Box 775, Cambridge, MD 21613; (410) 228-9250. Report online at <http://www.eco-check.org/reportcard/chesapeake/2008/>.

**State of the Bay 2008.** Chesapeake Bay Foundation, 6 Herndon Avenue, Annapolis, MD 21403; (410) 268-8816; (Virginia Office) 1108 East Main Street, Suite 1600, Richmond, VA 23219-3539; (804) 780-1392. Report online at [www.cbf.org/Document.Doc?id=170](http://www.cbf.org/Document.Doc?id=170).

### Specific Aspects of the Bay

**Bay-wide Blue Crab Winter Dredge Survey 2009.** Virginia Institute of Marine Science (VIMS) and Maryland Department of Natural Resources; Virginia contact is Rom Lipcius, VIMS, P.O. Box 1346, Gloucester Point, VA 23062-1346; (804) 684-7330; rom@vims.edu. Survey results online at [www.vims.edu/research/units/programs/bc\\_winter\\_dredge/index.php](http://www.vims.edu/research/units/programs/bc_winter_dredge/index.php).

- Juvenile Abundance Surveys for Blue Crab, Striped Bass, and other fish.** VIMS, P.O. Box 1346, Gloucester Point, VA 23062-1346; project manager is Troy Tuckey at 684-7328 or tuckey@vims.edu. Online information starts at <http://www.fisheries.vims.edu/rawlseine/vimspage.htm>.
- Multispecies Monitoring and Assessment Program** (fish and Blue Crab surveys). VIMS Fisheries Science, P.O. Box 1346, Gloucester Point, VA 23062-1346; (804) 684-7322. Online information starts at <http://www.fisheries.vims.edu/chesmmap/CmapTrawlDataTech.htm>.
- Oyster Population Estimates.** Collaborative effort among VIMS, Virginia Marine Resources Commission, Maryland Department of the Natural Resources, and the University of Maryland. VIMS contact information: Fisheries Sciences/Molluscan Ecology Program, P.O. Box 1346, Gloucester Point, VA 23062-1346; rmann@vims.edu. Online information starts at <http://web.vims.edu/mollusc/cbope/overview.htm>.
- 2007 Distribution of Submerged Aquatic Vegetation in Chesapeake Bay and Coastal Bays.** (Preliminary results are available from 2008 and 2009). VIMS, P. O. Box 1346, Gloucester Point, VA 23062-1346; (804) 684-7000; savadmin@vims.edu. Report online at <http://web.vims.edu/bio/sav/index.html>.

## Chesapeake Bay Tributaries in Other States

- Chester River Report Card 2008.** (The Chester River is in Queen Anne's County, Md.). Chester River Association, 100 North Cross Street, Suite 1, Chestertown, MD 21620; info@chesterriverassociation.org. Report online at [www.chesterriverassociation.org](http://www.chesterriverassociation.org).
- Magothy River Index 2008.** (The Magothy River is in Anne Arundel County, Md.) Magothy River Association, P.O. Box 550, Severna Park, MD 21146; (410) 647-8772. Report online at [www.magothyriver.org/our-river/the-magothy-river-index/](http://www.magothyriver.org/our-river/the-magothy-river-index/).
- Monocacy River Report 2009.** (The Monocacy River is a Potomac River tributary in Maryland) Monocacy Scenic River Advisory Board/Frederick County Government, 12 East Church Street Frederick, MD 21701; (301) 600-9000. Report at [www.co.frederick.md.us/index.aspx?NID=194](http://www.co.frederick.md.us/index.aspx?NID=194).
- Nanticoke River Index 2007.** (The Nanticoke begins in Delaware and flows through Maryland's lower Eastern Shore.) Nanticoke Watershed Alliance, P.O. Box 111, Vienna, MD 21869; (410) 430-3273 or (410) 873-3045; ebjames@nanticokeriver.org. Report online at [www.nanticokeriver.org/Creekwatcher.html](http://www.nanticokeriver.org/Creekwatcher.html).
- Patuxent River Report Card 2008.** (The Patuxent River flows through Prince Georges, Calvert, and St. Marys counties on Maryland's western Bay shore.) Patuxent Riverkeeper, 18600 Queen Anne Road, Upper Marlboro, MD 20774; (301) 249.8200. Report online at [www.paxriverkeeper.org/category/downloads/report-cards-downloads](http://www.paxriverkeeper.org/category/downloads/report-cards-downloads).
- South River Scorecard 2009.** (The South River is in Anne Arundel County, Md.) South River Federation, 2830 Solomons Island Road, Suite B, Edgewater MD 21037; (410) 224-3802; info@southriverfederation.net. Report online at <http://southriverfederation.net/index.php/river-health/asc>
- Susquehanna River Basin Water Quality Assessment Report 2008.** Susquehanna River Basin Commission, 1721 N. Front Street, Harrisburg, PA 17102; (717) 238-0423; srbc@srbc.net. Report online at [www.srbc.net/pubinfo/techdocs/publication\\_255/techreport255.htm](http://www.srbc.net/pubinfo/techdocs/publication_255/techreport255.htm).
- West and Rhode Rivers Report Card 2009.** (The West and Rhode rivers are in Anne Arundel County, Md.) West/Rhode Riverkeeper, Suite 6, 4800 Atwell Rd., Shady Side, MD 20764; (410) 867-7171. Report online at [www.westrhoderiverkeeper.org/water\\_quality.php](http://www.westrhoderiverkeeper.org/water_quality.php)
- Wicomico Creekwatchers Water Quality Report 2008.** (Various locations in the Wicomico River watershed in Maryland's lower eastern shore.) Chesapeake Bay Foundation, 6 Herndon Avenue, Annapolis, MD 21403; (410) 268-8816. Report online at [www.cbf.org/Page.aspx?pid=524](http://www.cbf.org/Page.aspx?pid=524).

## For More Information

- Interstate Commission for the Potomac River Basin. 2009. "Bay, Potomac, Taken to Woodshed—More Grades for Waterways." *Potomac Basin Reporter*, March/April 2009, available online at [www.potomacriver.org/cms/reporterpdf/2009/v652.pdf](http://www.potomacriver.org/cms/reporterpdf/2009/v652.pdf).
- Lutz, Lara. 2008. "Ecological Reports Cards Getting Good Marks for Attracting Public's Attention." *Bay Journal*, July-August 2008, available online at [www.bayjournal.com/article.cfm?article=3372](http://www.bayjournal.com/article.cfm?article=3372).

## VIRGINIA WATER STATUS REPORT

This section of *Water Central* presents recent and historical data on Virginia's precipitation, groundwater levels, stream flow, and occurrence of drought conditions. All Web sites mentioned were functional on 9/8/09.

### Precipitation in Virginia, September 2008-August 2009

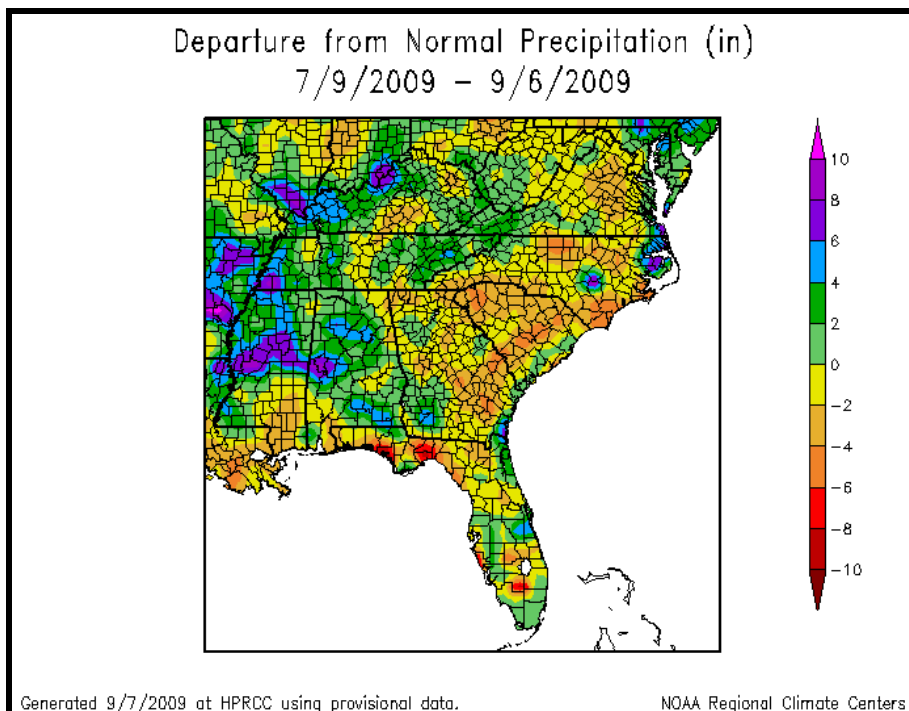
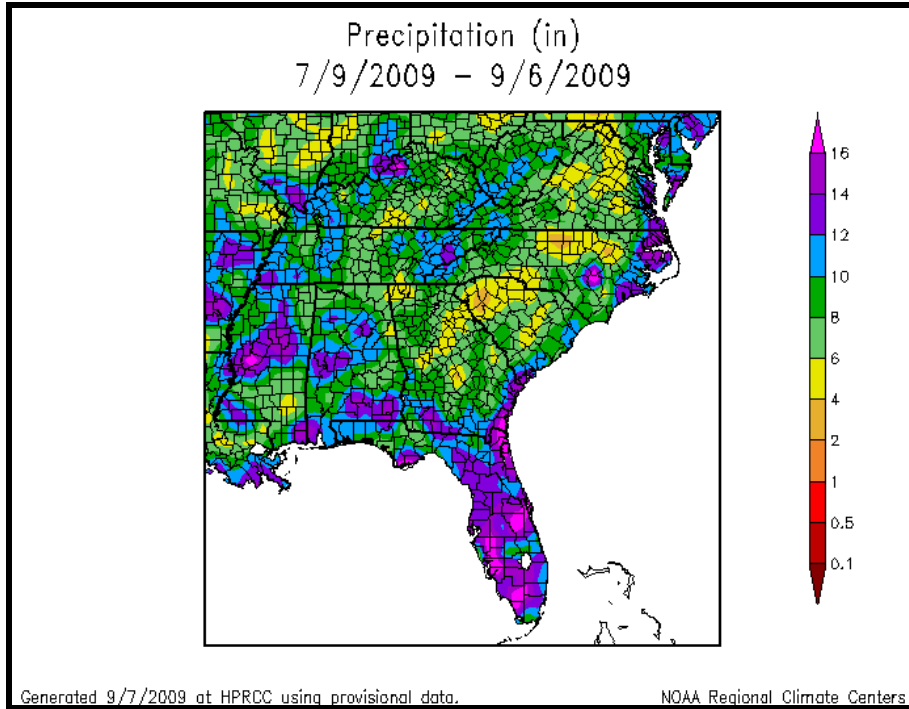
The chart below shows precipitation (in inches) over the last 12 months at nine National Weather Service (NWS) observation sites in or near Virginia. The upper number for each entry is the **total precipitation** for the respective site and month (with yearly total at the bottom of the chart), including the equivalent amount of water contained in any snowfall or other frozen precipitation. These values were found at the "Climate" sections of NWS Web sites, as follows: [www.weather.gov/climate/index.php?wfo=mrx](http://www.weather.gov/climate/index.php?wfo=mrx) for the Tri-cities Airport in Tennessee, about 20 miles from Bristol, Va.; [www.weather.gov/climate/index.php?wfo=rnk](http://www.weather.gov/climate/index.php?wfo=rnk), for Blacksburg, Danville, Lynchburg, and Roanoke; [www.weather.gov/climate/index.php?wfo=lwx](http://www.weather.gov/climate/index.php?wfo=lwx), for Washington-Dulles; and <http://mi.nws.noaa.gov/climate/index.php?wfo=akq>, for Norfolk and Richmond. The lower number in each entry (in parenthesis) is the **average precipitation** for the locality and month (again, with the average yearly total at the bottom of the chart), over the period 1971—2000, according to the National Climatic Data Center, *Climatology of the United States No. 81* (available online at <http://cdo.ncdc.noaa.gov/climatenormals/clim81/VAnorm.pdf>). RL and RH mean record low or high, respectively, for that month. The amounts listed here are classified by the Weather Service as **provisional data** and are subject to revision; the National Climatic Data Center maintains any edited and *certified* data that are available.

	<b>Bristol (Tri-Cities, Tenn., Airport)</b>	<b>Blacks- burg (Va. Tech Airport)</b>	<b>Danville (Airport)</b>	<b>Lynchburg (Regional Airport)</b>	<b>Norfolk (Internat. Airport)</b>	<b>Richmond (Byrd Intern. Airport)</b>	<b>Roanoke (Woodrum Airport)</b>	<b>Wash.- Dulles Airport</b>
Sep. 2008	2.53 (3.08)	1.99 (3.39)	6.67 (4.08)	2.28 (3.88)	9.41 (4.06)	5.94 (3.98)	2.20 (3.85)	7.18 (3.82)
Oct. 2008	1.01 (2.30)	1.04 (3.19)	0.94 (3.71)	2.09 (3.39)	1.47 (3.47)	1.32 (3.60)	1.87 (3.15)	1.31 (3.37)
Nov. 2008	2.09 (3.08)	1.95 (2.96)	3.54 (3.07)	3.94 (3.18)	5.32 (2.98)	3.51 (3.06)	1.92 (3.21)	2.01 (3.31)
Dec. 2008	4.41 (3.39)	3.43 (2.87)	3.81 (3.16)	3.48 (3.23)	3.83 (3.03)	4.07 (3.12)	2.25 (2.86)	2.63 (3.07)
Jan. 2009	5.67 (3.52)	3.60 (3.37)	3.01 (4.03)	3.13 (3.54)	1.82 (3.93)	1.49 (3.55)	2.72 (3.23)	2.64 (3.05)
Feb. 2009	2.24 (3.40)	1.96 (3.02)	0.97 (3.41)	1.14 (3.10)	1.26 (3.34)	0.74 (2.98)	1.22 (3.08)	0.35 (2.77)
March 2009	2.21 (3.91)	4.58 (3.83)	4.37 (4.25)	3.23 (3.83)	5.28 (4.08)	4.26 (4.09)	3.47 (3.84)	2.41 (3.55)
April 2009	2.72 (3.23)	2.98 (3.83)	2.45 (3.83)	2.87 (3.46)	2.28 (3.38)	2.56 (3.18)	3.20 (3.61)	4.11 (3.22)
May 2009	4.58 (4.32)	9.54 (4.39)	6.56 (3.96)	7.04 (4.11)	4.77 (3.74)	3.71 (3.96)	6.87 (4.24)	<b>10.26 RH</b> (4.22)
June 2009	3.57 (3.89)	4.06 (3.93)	4.83 (3.50)	3.71 (3.79)	5.81 (3.77)	4.32 (3.54)	4.54 (3.68)	6.69 (4.07)
July 2009	8.51 (4.21)	6.44 (4.17)	3.57 (4.44)	3.09 (4.39)	2.47 (5.17)	3.99 (4.67)	5.84 (4.00)	2.18 (3.57)
Aug. 2009	1.52 (3.00)	3.25 (3.68)	3.35 (3.54)	2.37 (3.41)	13.22 (4.79)	4.04 (4.18)	4.43 (3.74)	2.75 (3.78)
<b>Period Total</b>	41.06 (41.33)	44.82 (42.63)	44.07 (44.98)	38.37 (43.31)	56.94 (45.74)	39.95 (43.91)	40.53 (42.49)	44.52 (41.80)



**Precipitation, continued**

For a more visual presentation over a wider area, please see the two graphs below from the National Oceanic and Atmospheric Administration’s (NOAA) Southeast Regional Climate Center, located at the University of North Carolina in Chapel Hill. The graphs show the total precipitation (in inches; top graph) over the past two months (7/9/09 to 9/6/09) and the departure from normal (in inches above or below normal; bottom graph) over that period. Note that the values represented by a given color differ between the two graphs. *These data are provisional.* These graphs were taken from [http://www.sercc.com/climateinfo/precip\\_maps](http://www.sercc.com/climateinfo/precip_maps) on 9/8/09.



More Virginia climate information and data are available from the University of Virginia Climatology Office, online at <http://climate.virginia.edu>. To contact the office in Charlottesville, phone (434) 924-0548 or send e-mail to [climate@virginia.edu](mailto:climate@virginia.edu).

## Groundwater Levels at Selected Virginia Wells, September 2009

As of September 8, 2009, the Virginia Active Water Level Network—maintained by the U.S. Geological Survey (USGS) and available online at <http://groundwaterwatch.usgs.gov/StateMaps/VA.html>—provided access to groundwater levels at 496 wells in 65 Virginia counties and cities. At 88 of these observation wells in 38 localities, *real-time data* (updated every 5 to 60 minutes) were being recorded. The table below shows the September 7, 2009, daily average level from real-time wells in 19 localities. These readings are *provisional* (i.e., subject to revision). All measurements are in **feet below the land surface**, rounded to the nearest 0.1 foot; **a smaller value means wetter conditions, while a larger value means drier conditions**. The table also shows levels reported in the past two issues of *Water Central*, plus the median September level, the deepest (driest) level, and the shallowest (wettest) level (all for each well's period of record). Historical information on groundwater is also available from the USGS' annual reports of groundwater; annual reports for Water Years (October through September) 2002 to 2008 are available online at <http://wdr.water.usgs.gov/>; for previous years, check your local library.

Well (Local #)	9/7/09 Level	7/5/09 Level	4/8/09 Level	September Median	Record Deepest (Driest)	Record Shallowest (Wettest)	Period of Record
Accomack (66M 19 SOW 110S)	8.7	9.2	8.8	10.1	11.3 (Nov. 1981)	7.4 (Nov. 2006)	Since Sep. 1978
Buckingham (41H 3)	24.0	22.0	24.0	22.8	36.7 (Jan. 2002)	7.4 (Apr. 1973)	Since Mar. 1971
Clarke (46W 175)	38.2	35.8	39.9	39.6	45.7 (Sep. 2002)	23.5 (Sep. 2003)	Since Mar. 1987
Fairfax (52V 2D)	15.8	13.0 (7/4/09)	12.9	15.8	24.9 (Dec. 1998)	6.5 (Mar. 1984)	Since Oct. 1976
Frederick (46X 110)	40.8	37.4	43.6	40.0	47.9 (Jun. 2006)	18.2 (Sep. 2004)	Since Nov. 2002
Hanover (53K 19 SOW 080)	20.7	19.3	15.8	20.5	22.9 (Aug. 1984)	5.1 (Aug. 2004)	Since Jan. 1978
Loudoun (49Y 1 SOW 022)	60.2	58.9	58.0	60.2	66.5 (Oct. 2008)	48.0 (June 1972)	Since Nov. 1963
Montgomery (27F 2 SOW 019)	4.4	2.3	3.6	5.7	7.3 (Dec. 1969)	< 0.0 (Mar. 1993)	Jul. 1953, then since Apr. 1969
Northampton (63H 6 SOW 103A)	8.1	7.5	7.1	7.1	10.0 (Oct. 2002)	0.8 (Aug. 2004)	Since Sep. 1977
Orange (45P 1 SOW 030)	27.7	21.9	25.5	29.5	39.0 (Aug. 2002)	11.8 (Apr. 1973)	Since Feb. 1965
Prince William (49V 1)	10.9	9.3	7.8	10.5	13.1 (Sep. 1991)	6.6 (May 2008)	Since Nov. 1968
Roanoke City (31G 1 SOW 008)	18.9	18.9	18.8	18.2	19.3 (Jun. 1987)	12.4 (Feb. 1986)	Since Aug. 1966
Rockbridge (35K 1 SOW 063)	26.4	23.5	23.6	26.1	30.4 (Sep. 2002)	14.3 (Apr. 1987)	Feb. 1964, then since Jun. 1972
Rockingham (41Q 1)	74.7	67.8	79.7	72.1	99.0 (Oct. 2002)	57.7 (Feb. 1998)	Since Aug. 1970
Suffolk (58B 13)	10.3	7.9	6.2	10.8	13.4 (Jan. 1981)	2.0 (Sep. 1999)	Since Mar. 1975
Surry (57E 13 SOW 094C)	9.6	8.0	7.4	9.6	11.2 (Dec. 1981)	3.9 (May 1980)	Since Jul. 1978
Virginia Beach (62B 1 SOW 098A)	4.7	4.2	2.4	5.2	12.0 (Sep. 1980)	0.9 (Aug. 2004)	Since Jun. 1979
Westmoreland (55P 9)	9.0	3.4	0.3	8.0	12.8 (Dec. 1988)	< 0.0 (May 2008)	Since Jul. 1977
York (59F 74 SOW 184C)	9.6	9.7	5.7	Not available	14.1 (Jan. 2002)	0.9 (Nov. 2006)	Since Jun. 1990

## Stream Flow in Virginia, July-September 2009

The graphs on this page, from the U.S. Geological Survey's (USGS) "WaterWatch—Current Water Resources Conditions" Web site (<http://water.usgs.gov/waterwatch/?m=real&r=va&w=real%2Cplot>, 9/8/09), compare recent Virginia stream flow to historical records.

The data in the graphs come from 105 sites that have at least 30 years of records. Each graph uses a "stream flow index," which measures how a site's average stream flow *over 24 hours* (the **average daily stream flow**) compares to the historical average stream flow *for that same site and date*. The graphs show a further average: the stream flow index averaged *over all monitoring stations*.

**Index values** (1-7 on the vertical axis in the graphs) mean the following:

Values indicating dry conditions:

1 = average daily flow is record low for that date;

2 = average daily flow is in the lowest 10 percent of historical values for that date;

3 = average daily flow is in the lowest 25 percent of historical values for that date, but exceeds the lowest 10 percent.

Value indicating "normal" flow:

4 = average daily flow exceeds the lowest 25 percent of historical values for that date, but is less than the highest 25 percent of values.

Values indicating wet conditions:

5 = average daily flow exceeds 75 of historical values for the date, but is lower than the highest 10 percent of values.

6 = average daily flow exceeds 90 percent of historical values for that date;

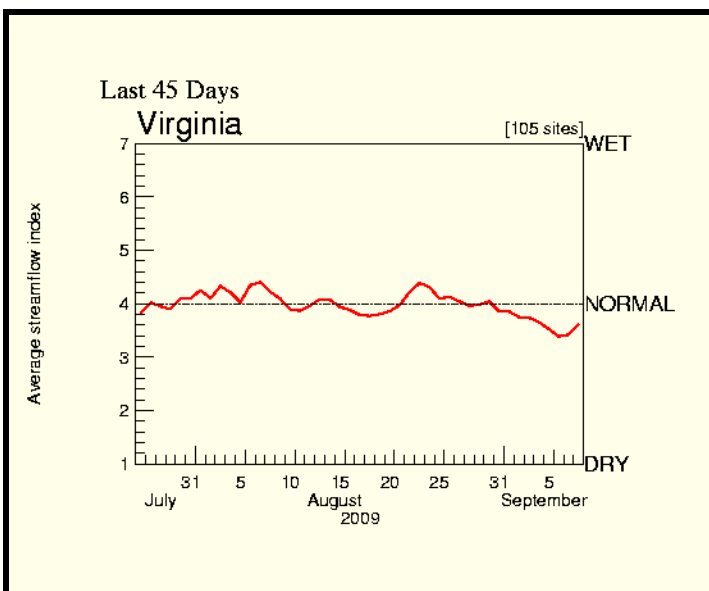
7 = average daily flow for the graphed date is record high for that date.

**Gaps in the data:** Data are not plotted for days when less than two-thirds of the sites report data (due to equipment or weather problems), because a statewide average on those days may misrepresent actual conditions.

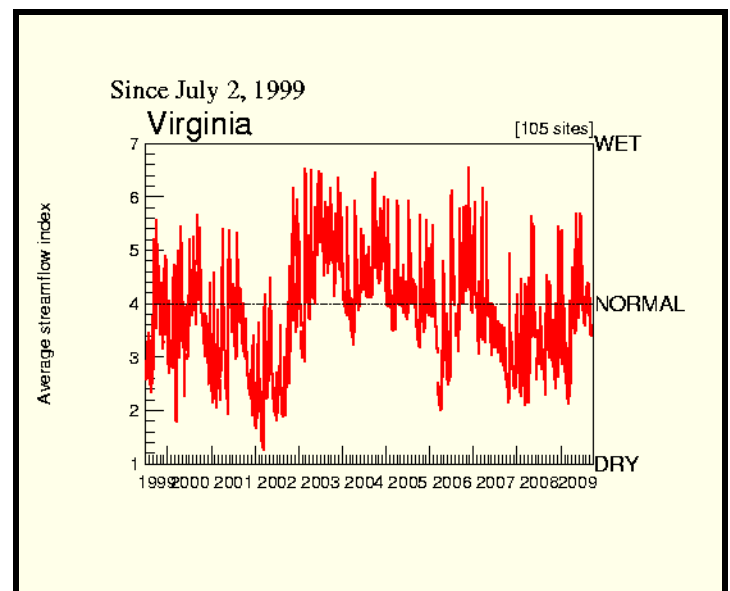
A USGS **map of current stream flow conditions** (with links providing access to details for each measuring station) compared to historical flows is available online at <http://water.usgs.gov/waterwatch/?m=real&r=va>. This Web site also has maps that show average flows over the previous 7-, 14-, and 28-day periods.

### Average Daily Stream Flow Index, Compared to the Historical Average for the Date

For July 25-September 8, 2009



For July 1999—September 2009





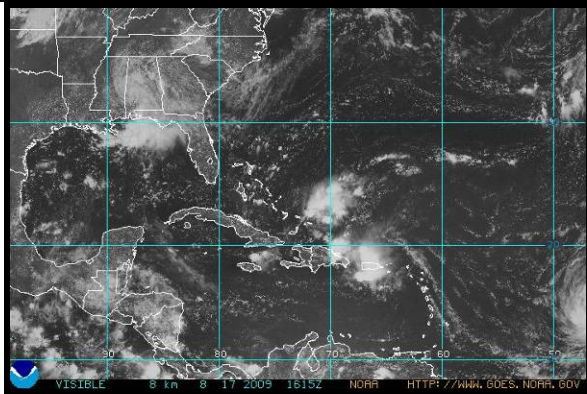
## Tropical Storm Review

Prior to August, no tropical storms had been observed in the North Atlantic, Caribbean Sea, or Gulf of Mexico during the 2009 tropical storm season (June 1-November 30), although one tropical depression had been observed in late May. According to the National Hurricane Center's (NHC) Tropical Weather Summary (Atlantic) for July 2009, this was a "slow start" to the season. Since 1944, there have been only 13 years in which no tropical storm were observed by the end of July (this occurred most recently in 2004).

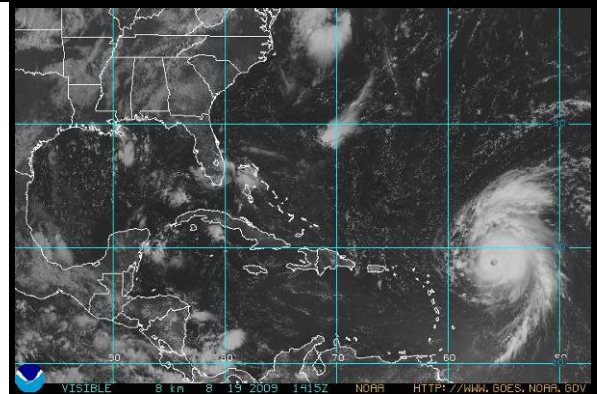
In August, however, activity increased as Tropical Storm Ana, Hurricane Bill, Tropical Storm Claudette, and Tropical Storm Danny all reached or came near to either the Gulf Coast (Ana and Claudette) or the Atlantic Coast (Bill and Danny) between August 16 and 30. The NHC's Tropical Weather Summary for August 2009 reports that the long-term average for that month is about four tropical storms, including two hurricanes and one major hurricane.

In early September, Tropical Storm Erika formed but had no significant impact on the Atlantic coastline. As of September 8, Tropical Storm Fred had formed and was located over the far eastern Atlantic Ocean.

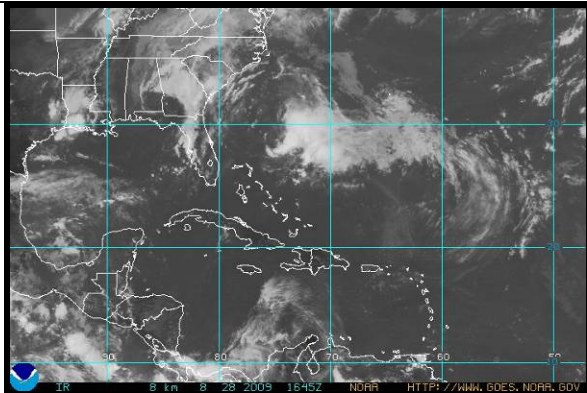
The photos below show views of Tropical Depressions Ana and Claudette (both had previously been categorized as tropical storms), Hurricane Bill (in two photos), Tropical Storm Danny, and Tropical Storm Erika. The photos were taken from <http://www.goes.noaa.gov/browsh2.html> on the days indicated. The NHC's main Web page is [www.nhc.noaa.gov/index.shtml](http://www.nhc.noaa.gov/index.shtml); information on current storms and reports for each month of the season are available at that page.



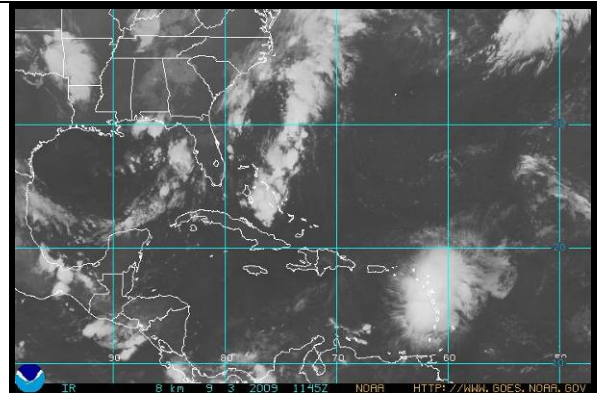
Tropical Depression Ana (over Puerto Rico and the Dominican Republic), Hurricane Bill (just in the picture at lower right), and Tropical Depression Claudette (over the Gulf Coast),  
8/17/09, 12:15 p.m. EDT.



Hurricane Bill, east of the Caribbean Sea,  
8/19/09, 10:15 a.m. EDT.

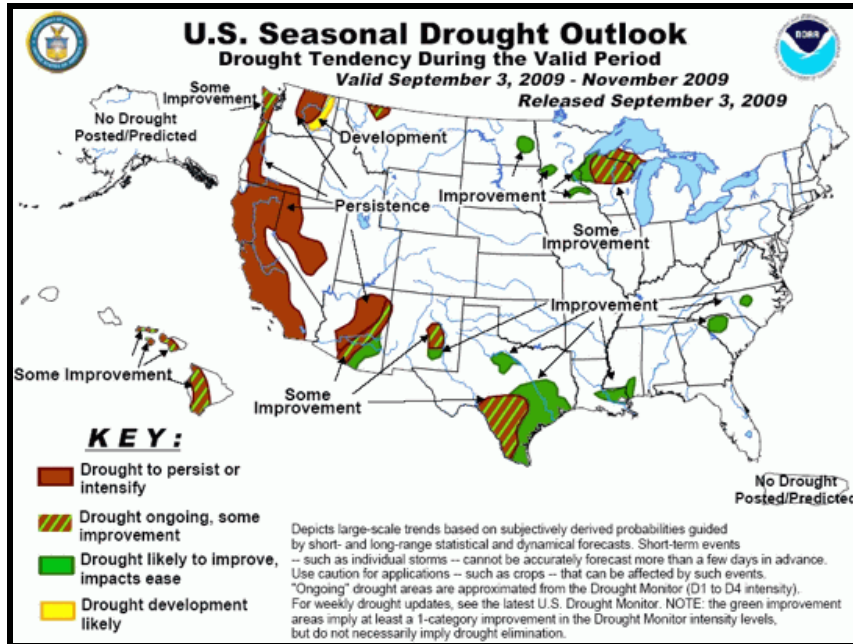


Tropical Storm Danny, east of Florida and Georgia,  
8/28/09, 12:45 p.m. EDT.



Tropical Storm Erika, east of Puerto Rico,  
9/3/09, 7:45 a.m. EDT.

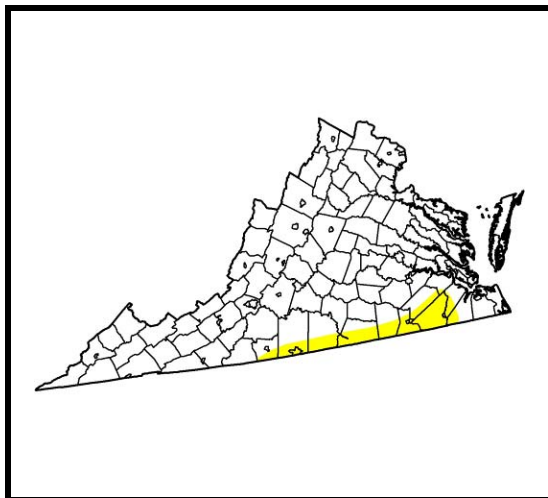
# Drought Update



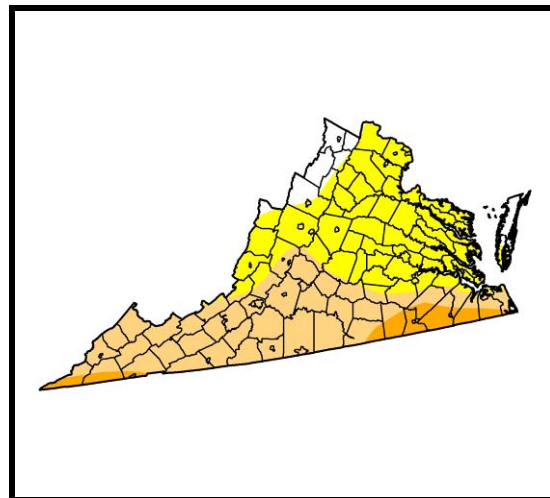
The national drought outlook for September-November 2009, according to the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center Web site, [www.cpc.ncep.noaa.gov/products/expert\\_assessment/seasonal\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html), accessed 9/8/09.

## From the U.S. Drought Monitor: Virginia Conditions Now and One Year Ago

The U.S. Drought Monitor, available online at [www.drought.unl.edu/dm/monitor.html](http://www.drought.unl.edu/dm/monitor.html), is a weekly nationwide drought assessment by federal agencies and state climatological centers. The following graphs show Drought Monitor assessments of Virginia conditions on September 1, 2009, compared to September 2, 2008. Note that as of late early September 2009, Virginia had only a small area of abnormal dryness, compared to drought over almost the whole state in early September 2008.



September 1, 2009



September 2, 2008

= D0 Abnormally Dry
  = D1 Moderate Drought
  = D2 Severe Drought
  = D3 Extreme Drought
  = D4 Exceptional Drought

**Source:** Images taken from archive of U.S. Drought Monitor, [www.drought.unl.edu/dm/archive.html](http://www.drought.unl.edu/dm/archive.html), 9/8/09. Authors: Brad Rippey, U.S. Dept. Agriculture, for 9/1/09; J. Lawrimore and L. Love-Brotak, NOAA, for 9/2/08.



The Drought Monitor also gives *percentages* of the country, of regions, and of individual states classified in the drought categories. The following table shows how much of the country and of Virginia received different Drought Monitor ratings in recent months and one year ago. Note that in May Virginia became almost drought free (with only 0.3% of the state rated as abnormally dry); this was the first time since December 2006 that the Drought Monitor had indicated Virginia as essentially drought free.

Drought Monitor Report Date	Percentage of area rated “abnormally dry” (D0) or worse	Percentage of area rated “severe drought” (D2) or worse
9/1/09	US = 29%; VA = 7%	US = 5%; VA = 0%
6/30/09	US = 31%; VA = 9%	US = 5%; VA = 0%
5/26/09	US = 28%; VA = 0.3%	US = 5%; VA = 0%
4/28/09	US = 39%; VA = 85%	US = 7%; VA = 0%
9/2/08	US = 44%; VA = 94%	US = 7%; VA = 7%

**From the Virginia Drought Monitoring Task Force**

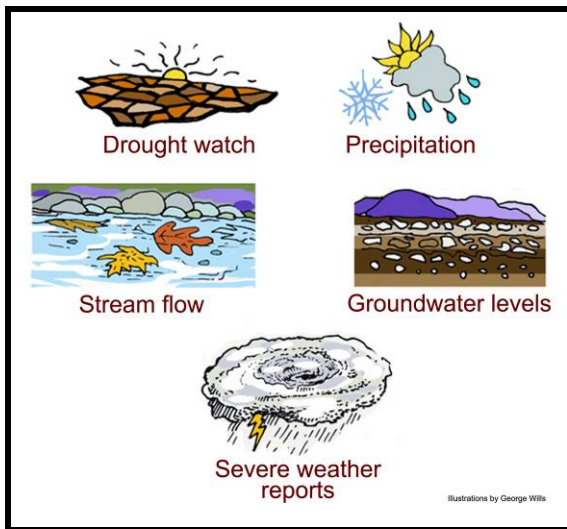
As of September 8, 2009, the most recent report from the Virginia Drought Monitoring Task Force was issued August 19, 2009. This report, along with all reports since February 2002, are available online at [www.deq.virginia.gov/waterresources/drought.php](http://www.deq.virginia.gov/waterresources/drought.php).

**Other Useful Sources of Information Online**

- Virginia Forestry Department list of burn bans: <http://www.dof.virginia.gov/fire/burn-bans.shtml>.
- Virginia Department of Environmental Quality water-conservation tips: [www.deq.virginia.gov/waterresources/waterconservation.html](http://www.deq.virginia.gov/waterresources/waterconservation.html).

**Don't Forget the Water Center's Online Water Status Page!**

The Water Center's online “Water Status Information” area has links to current and historical information on drought, groundwater, precipitation, stream flow, and severe weather. Look for the image below, at [www.vwrrc.vt.edu/water\\_status.html](http://www.vwrrc.vt.edu/water_status.html).



Gaging station on the North Fork Shenandoah River near Mt. Jackson (Shenandoah County), June 2007.



## IN AND OUT OF THE NEWS

### Newsworthy Items You May Have Missed

The items in this section are based on information in the source(s) indicated in parentheses at the end of each item. Most of this issue's items were reported between July 3 and September 3, 2009. Except as otherwise noted, all localities mentioned are in Virginia and all dates are in 2009. All Web sites listed were functional as of September 11, 2009. Frequently used abbreviations: CWA = DCR = Virginia Department of Conservation and Recreation; DEQ = Virginia Department of Environmental Quality; EPA = U.S. Environmental Protection Agency; SWCB = Virginia State Water Control Board; VIMS = Virginia Institute of Marine Science; VMRC = Virginia Marine Resources Commission.

## In Virginia

### Aquatic Systems' Status, Water Quality, and Restoration

#### Chesapeake Bay-related Items

•The Chesapeake Bay Program is using computer models to determine new **potential targets for reducing the amounts of nitrogen and phosphorus (nutrients) reaching the Bay** from specific areas within the watershed. The nutrient-reduction targets will be based on predicted improvements that the reductions would cause in the Bay's dissolved oxygen (a key factor affecting aquatic life). Among the tasks for the computer modelers is to account for differences in dissolved oxygen impacts among nutrients originating in different tributaries and different areas within tributaries, because of the degree of chemical and biochemical processing of nutrients as they flow toward the Bay. Bay jurisdictions will review the proposed targets and revise them as necessary in order for state water-quality standards to be met. Once completed, the nutrient-reduction targets are to be incorporated into a Total Maximum Daily Load (TMDL) plan for the Bay. The TMDL is to be completed by the end of 2010 and will influence water-quality decisions and funding for years. (*Bay Journal*, Jul.-Aug. 2009)

•On July 28, the Virginia Marine Resources Commission (VMRC) approved a **program for buying back crabbing licenses from watermen** as a way to reduce harvest pressure on the Blue Crab population. Virginia has about 2,000 licensed watermen with about 1,000 actively engaged in Blue Crab harvesting. The buy-back will function as a reverse auction, with watermen offering a bid for selling their license; watermen have until November 1 to make a bid. The state will use \$6.7 million in federal fishery disaster funds that it received from the U.S. Commerce Department. Maryland also began a crabbing-license buy-back program in summer 2009; by the bid deadline of July 31, the state had received only 494 bids, while it had hoped to buy back 2,000 licenses. On August 17, the Maryland Department of Natural Resources announced that it would not accept any of these 494 bids and instead would offer a flat amount of \$2,260 per license. (*Associated Press in Richmond Times-Dispatch*, 7/29/09; *Annapolis Capital*, 8/10/09; and *Associated Press in Washington Examiner*, 8/18/09)

•In the July 31 edition of *Science*, Virginia Institute of Marine Science (VIMS) researchers David Schulte, Russell Burke, and Rom Lipcius reported that sampling in 2007 and 2009 found **increased populations of native oysters on high-relief reefs** (one to two feet high) that had been constructed in 2004 in nine sanctuary areas in the **Great Wicomico River**. The scientists found that oyster density on the high-relief reefs was five times as great as that on low-relief reefs. Higher reefs evidently allow oysters to be above sediments that can interfere with their water-filtering habit. (*Science* online edition, 7/30/09)

•In summer 2009, federal stimulus funds allowed the U.S. Fish and Wildlife Service to double the size of its **teenage Youth Conservation Corps (YCC) working at the Eastern Shore of Virginia National Wildlife Refuge**. One of the YCC's projects was to plant over 550 native plants, part of two demonstration projects to show native plantings' value to water quality and habitat. (*Eastern Shore News*, 8/12/09)

#### Other Aquatic Systems Status and Restoration Items

•Here are two "snapshots" from the many **Total Maximum Daily Load (TMDL) studies or implementation plans** in progress around Virginia:

••In a July 27 public meeting on the progress of the TMDL implementation plan on **Catoctin Creek in Loudoun County** (Potomac River watershed), state and federal officials reported that 48 agricultural Best Management Practices (BMPs) so far have been installed and another 22 BMPs are scheduled to be installed by the end of 2009. The BMPs include fencing livestock from the stream, providing alternative water supplies to livestock, and using cover crops in winter to reduce erosion. Catoctin Creek's TMDL is based on the creek not meeting standards for bacteria and aquatic life. (*Loudoun Times-Mirror*, 8/5/09)

••The TMDL study for impairment of the **Roanoke River** by PCBs (polychlorinated biphenyls) asserts that the main area generating contamination is between the Memorial Avenue and Walnut Avenue bridges in the city of Roanoke. But the 357-page draft TMDL study, which was the subject of a public hearing on July 29, does not identify any specific *sources* of the contamination. The study also indicates that the overall level of PCBs apparently is not increasing. The PCB-impaired part of the river also includes sections in the city of Salem and the counties of Bedford, Montgomery, and Roanoke. (*Roanoke Times*, 7/29/09)

•In July, the Natural Resources Defense Council (NRDC) released its 2009 **Guide to Water Quality at Vacation Beaches**, covering conditions in 2008. The report identifies beach closings, advisories, and pollution sources by state. Nationally, the number of closings and advisories exceeded 20,000, the fourth-highest total in the 19 years of NRDC reports. In Virginia, one percent of monitoring samples exceeded bacterial standards, compared to two percent each year from 2004 to 2007. The highest rate of samples exceeding standards occurred at Fairview Beach in King George County (shown at right in a June 2009 photo). Virginia posted beach advisories on 29 days in 2008, compared to 50 days in 2007, 43 days in 2006, and 42 days in 2005; seven Virginia beaches posted advisories in 2008. The NRDC report is online at [www.nrdc.org/water/oceans/ttw/titinx.asp](http://www.nrdc.org/water/oceans/ttw/titinx.asp). (*Virginian-Pilot*, 7/30/09. For more on beach water-quality monitoring in Virginia, please see "Resources for Recreational Water Quality," p.3 in the June 2009 *Water Central*.)



•In July, Foster Fuels, Inc., of Brookneal (Campbell County) reached a settlement with the Virginia Department of Environmental Quality (DEQ) to pay \$20,420 for damage from a **spill of about 7,100 gallons of fuel oil** from a tanker truck wreck in **Giles County** in February 2008. Clean-up activities recovered about 4,500 gallons but about 2,600 gallons were not recovered and reached Big Walker Creek (a New River tributary) and properties downstream. (*Roanoke Times*, 7/30/09 and 8/30/09)

## Boats and Ships

•On August 20, U.S. Commerce Secretary Gary Locke announced that the National Oceanic and Atmospheric Administration will provide **\$8.4 million in 2009 federal stimulus funds to Virginia for updating nautical charts** in 125 square nautical miles in the southern Chesapeake Bay (between Tangier Island and Stingray Point) and 219 square nautical miles off of Virginia's Eastern Shore coast, near Assateague Island. The projects are part of a \$40-million effort to revise nautical charts for about 2,000 nautical square miles nationwide. (*Daily Press*, 8/20/09)

In another federal stimulus item: In August, the U.S. Maritime Administration announced federal stimulus grants worth **\$98 million for 70 projects nationwide to help small shipyards**. Five shipyards in Newport News, Norfolk, and Portsmouth received a total of \$7.8 million. The Maritime Administration received over 500 applications (totaling over \$1.2 billion) for this funding. (*Virginian-Pilot*, 8/28/09. For more on federal stimulus funds and water in Virginia, please see the June 2009 *Water Central*, p.22.)

•In August, the Tangier Town Council voted not to support efforts to establish a year-round **ferry service between Tangier Island and the Eastern Shore town of Onancock**. Tangier Island residents had expressed concern that the availability of a year-round ferry might lead Accomack County eventually to close Tangier's public school. A committee formed in 2008 to pursue ferry service will now concentrate on solidifying summer ferry service that supports tourism to the island. (*Eastern Shore News*, 9/2/09)

•On July 2, the Albemarle County Board of Supervisors approved an arrangement to keep the **historic Hatton Ferry on the James River** near Scottsville in operation at least through October 2009. The ferry—begun in the 1870s and now one of the last poled ferries in operation in the United States—has been funded at \$21,000 per year by the Virginia Department of Transportation (VDOT), but in May VDOT

announced that the ferry's funding was one of several items cut by the agency in order to reduce \$2.6 billion from its budget over six years. The Albemarle board agreed to give VDOT \$9,300 to fund the ferry from July to October. The board is hoping to be reimbursed from private funds raised by the Albemarle Charlottesville Historical Society and others. More information on the ferry is available at the Historical Society's Web page at <http://www.hattonferry.org/>. (*Charlottesville Daily Progress*, 7/2/09)

- With the removal in July and August of the former submarine-rescue vessel *Ortolan*, the former transport ship *Gage* (which received honors for its World War II service), the former cargo ship *Resolute*, the former rescue ship *Escape* (which participated in the Mercury space-flight program in the 1960s), and the former destroyer tender *Cape Cod*, **the James River Reserve Fleet (the "Ghost Fleet")** is down to fewer than 30 obsolete Navy vessels. Since 2001, when the pace of removals increased, the U.S. Maritime Administration has removed 84 vessels for salvage or for use as artificial reefs. The vessels pose an environmental risk because of waste oils or other materials. At an August meeting convened by U.S. Rep. Robert Wittman (Va.-1<sup>st</sup>), a Maritime Administration official said that the timing for removal of the remaining ships was hard to predict. Recent reductions in the price of steel have increased the net cost of removing ships. On the other hand, a lawsuit over another reserve fleet in California has sped up disposal of Virginia ships and those at a third reserve fleet, in Texas. (*Virginian-Pilot*, 7/20/09, 8/7/09, and 8/25/09)

- On July 20, the U.S. Navy released an environmental impact statement (EIS) on its proposed **dredging of a five-mile section of the Elizabeth River** between Norfolk and Portsmouth. The dredging is intended to ensure clearance for aircraft carriers traveling from the Lamberts Point Deepmining Station to the Norfolk Naval Shipyard. The \$43-million project would start in 2010 and take 12 to 18 months. The project requires permits from the Virginia DEQ and the VMRC. The EIS is available at [www.norfolkredgingeis.com/FEISDocuments.aspx](http://www.norfolkredgingeis.com/FEISDocuments.aspx). (*Virginian-Pilot*, 7/21/09)

- In July, Gov. Kaine announced that the **Virginia Port Authority** has received almost \$1 million in federal stimulus funds to promote the **"Green Operator" program** (begun in 2007), which provides financial assistance for retrofitting trucks to reduce emissions. Another Port environmental initiative highlighted during the governor's July visit was a new stormwater-cleansing system. (*Virginian-Pilot*, 7/23/09)

## Energy

- In August at a meeting of the Virginia Manufacturing Development Commission, State Sen. Frank Wagner of Virginia Beach said that he plans to introduce a **bill in the 2010 General Assembly to create the Virginia Offshore Wind Development Commission**, a state agency to coordinate public and private offshore wind-energy projects and to help develop the transmission lines necessary to connect offshore wind-generated energy to the electrical grid. At the same meeting, the wind business development director for the Areva company—a worldwide company headquartered in France and with an office in Lynchburg, and known for manufacturing nuclear-power equipment—stated that the company is interested in building wind turbines in Virginia. In 2007, Areva bought a German wind-energy design and construction company and is now making turbines for use in the North Sea off the German coast. (*Lynchburg News & Advance*, 9/1/09)

And in another wind-energy item: New Wind Development began **construction began in August on Virginia's first commercial wind-energy project, in Highland County**. The project, which has generated much controversy in the county, received a Virginia State Corporation Commission permit in December 2007. (WLSL-TV [Roanoke], 8/18/09)

- In August, Osage Bio Energy of Glen Allen and Perdue AgriBusiness announced that Perdue would work with farmers in the region to provide the 28 million bushels of barley needed annually to produce 65 million gallons of **ethanol at the Appomattox Bio Energy plant**. Osage is constructing the plant in Hopewell. (*Richmond Times-Dispatch*, 8/6/09. For a previous *Water Central* item on the Osage plant: Sep. 2008, p.7.)

- In August, the Virginia Tech Center for Coal and Energy Research, Dominion Virginia Power, and the Southern States Energy Board along with other partners announced plans for a **\$580-million carbon capture and sequestration demonstration project at Dominion's coal-fired power plant under construction in Wise County**. As envisioned, the project would remove up to 1,500 tons daily of carbon dioxide from coal burning and store (sequester) it in underground salt formations or unmined coal seams. The partners have applied to the U.S. Department of Energy's National Energy Technology Laboratory for 2009 federal stimulus funds for up to half the cost of the project. If this funding is approved, project planning could begin by 2010, followed by construction starting in 2013. For information on carbon capture



and sequestration, visit the U.S. Department of Energy's "Carbon Sequestration" Web page at [www.fossil.energy.gov/programs/sequestration/](http://www.fossil.energy.gov/programs/sequestration/). (*Richmond Times-Dispatch*, 8/26/09)

In another matter concerning the Dominion plant under construction in Wise County: In a decision released August 11, Circuit Judge Margaret P. Spencer ruled that the Virginia Air Pollution Control Board was in error in 2008 when it approved the **mercury-emissions aspect of the air permits for the plant**. Seven aspects of two air permits were challenged in court by the Southern Environmental Law Center on behalf of the Southern Appalachian Mountain Stewards, Appalachian Voices, the Chesapeake Climate Action Network, and the Sierra Club. Only the mercury challenge was accepted by Judge Spencer, who ruled illegal a provision that allowed Dominion to have higher emissions if the company could not meet the permit's limit (4.45 pounds of mercury per year). On September 2, the Virginia DEQ issued a new air permit that removes the provision allowing mercury emissions above the permit limit. (*Richmond Times-Dispatch*, 8/12/09 and 9/3/09. For previous *Water Central* items on the Wise plant: June 2009, p.25; April 2009, p.27.)

•In another item related to **energy production and mercury**: On August 19, the U.S. Geological Survey (USGS) released ***Mercury in Fish, Bed Sediment, and Water from Streams Across the United States, 1998–2005***, a study from the National Water Quality Assessment (NAWQA) program. The study sampled fish from 291 streams and found some level of mercury in every fish sampled. About 25 percent of the fish sampled had mercury levels above those recommended for average amounts of fish consumption by humans, and over two-thirds had mercury amounts exceeding the level identified by the U.S. EPA as a concern for mammals that eat fish. The report states that atmospheric deposits of mercury are the main source in most of the streams studied, with coal-fired power plants being the main source of atmospheric mercury. But the report also noted that gold and mercury mining may affect 59 of the study streams. The areas studied included parts of Virginia in the Potomac River basin, Delmarva Peninsula, and Albemarle-Pamlico basin. The report is available online at <http://water.usgs.gov/nawqa/mercury/>. (USGS Press Release, 8/19/09)

For **more on mercury in Virginia**, see the DEQ's *Virginia Mercury Study*, October 2008, available online at [www.deq.state.va.us/regulations/reports.html](http://www.deq.state.va.us/regulations/reports.html). Please also see "Basic Facts about Mercury" in the "Water Quality and You" section of this *Water Central*.

•In June, researchers at **James Madison University formed a Virginia version of the 25x'25 Alliance**, an effort (currently with groups in 14 states) to push for individual states to produce **25 percent of their energy from renewable sources by the year 2025**. The JMU group's first meeting brought together faculty from various universities along with representatives from local governments, non-profits, businesses, and some state agencies. (*Harrisonburg Daily News-Record*, 7/21/09)

## Groundwater

•In July, Dominion Virginia Power filed a motion in Chesapeake Circuit Court to dismiss a lawsuit filed in March by residents living near Chesapeake's Battlefield Golf Club over **alleged impacts to groundwater from coal-combustion by-products (fly ash)** from Dominion's Deep Creek Power Plant. The fly ash was used to build the golf course in 2002. In its filing, Dominion asserts that it was not responsible for the material once it gave the material to developers. The City plans to spend up to \$6 million provided by Dominion to extend city water lines to residences in the area. (*Virginian-Pilot*, 7/25/09. For a previous *Water Central* item: June 2009, p.27.)

•On June 16, the U.S. EPA closed the case on the completed clean-up of a **traffic-paint hazardous waste dump** site discovered in Chesapeake in 2000. The clean-up of the 162 tons of waste took six years, the follow-up monitoring took another three years, and the whole project cost the city \$1.26 million. (*Virginian-Pilot*, 8/14/09)

## Land Use

•On August 17, the Roanoke City Council voted to put under **conservation easement** an additional 5,178 acres around the city's **Carvins Cove water-supply reservoir**. Combined with 6,185 acres around the reservoir that the city placed under easement in April, this is now the largest publicly-held conservation easement in Virginia. (*Roanoke Times*, 8/18/09; Governor's Office news release, 9/13/09)

•In August, the Dan River Basin Association (DRBA) learned that it will receive a \$300,000 grant to help build a 4.5-mile bicycle trail section in Martinsville and Henry County. The Dick and Willie Passage Trail will be part of the **Smith River Trail System**, which eventually will provide a 45-mile route from Philpott Dam to the Dan River in Eden, North Carolina. (*Martinsville Bulletin*, 8/5/09)



•Oakwood Farm in Gainesville (Prince William County) is **one of the first Virginia horse farms to implement water-quality best management practices (BMPs)** through the Virginia DCR's Chesapeake Bay-friendly Horse Farm Program. The BMPs implemented on the farm include fencing off a stream to prevent horse access; dividing a pasture to allow rotational grazing; and creating a non-erodible place for horses to congregate during wet weather. The farm is being made available for public education tours. For more information about this project, visit the Prince William SWCD's Web page for horse owners at [www.pwswcd.org/Horse%20Owners/Horse%20Owners.htm](http://www.pwswcd.org/Horse%20Owners/Horse%20Owners.htm) and click on the "Chesapeake Bay Horse Farm Project" link; or phone (703) 594-3621. (*Bristow News and Messenger*, 7/16/09)

Photo: Stream fencing and the streamside buffer (on left) at Oakwood Horse Farm in Gainesville, Virginia. *Photo courtesy of Prince William Soil and Water Conservation District.*

•In July, the U.S. Fish and Wildlife Service (FWS) presented for public comment a draft 15-year **management plan for the Rappahannock River Valley National Wildlife Refuge** in Richmond County. Established in 1996, the refuge has about 8,200 acres but is intended ultimately to protect about 20,000 acres. In October 2007, the refuge was listed by Defenders of Wildlife as one of 10 "refuges at risk" nationwide, because of adjacent development and a lack of federal funds to complete the refuge. The FWS' draft plan is available online at [www.fws.gov/northeast/planning/Rappahannock/ccphome.html](http://www.fws.gov/northeast/planning/Rappahannock/ccphome.html). (*Fredericksburg Free Lance-Star*, 7/29/09; and *Richmond Times-Dispatch*, 10/12/08)

•On July 24, 1,400 acres around the Crawford's Knob in Nelson County was dedicated as the **Crawford's Knob Natural Preserve Area**, under the control of the Virginia Department of Conservation and Recreation's (DCR) Natural Heritage Program. The Wintergreen Resort gave the land to the Wintergreen Nature Foundation for the purpose of having it preserved. (*Charlottesville Daily Progress*, 7/1/09; and *Waynesboro News-Virginian*, 7/25/09)

Also in July, Virginia completed documents adding 1,200 acres to the **Crow's Nest Natural Area Preserve** in Stafford County. The undeveloped peninsula between Accokeek and Potomac Creeks (both Potomac River tributaries) contains rare plants, excellent bird habitat, tidal wetlands, and one of the few remaining intact coastal plain forests in the region. The new, \$12-million purchase brings the total preserve area to 2,970 acres; a 1,720-acre parcel was purchased in spring 2008 for \$19 million. Stafford County and the Virginia DCR are now joint owners of the preserve. According to an August *Washington Post* article, the current economic recession apparently played a role in Virginia officials getting a lower price for the recent purchase. (*Fredericksburg Free Lance-Star*, 7/30/09; and *Washington Post*, 8/14/09)

•On July 23, the State Water Control Board (SWCB) set an October 2009 deadline for Virginia's tomato industry to negotiate with the Virginia DEQ on reducing **water-quality impacts of tomato plasticulture**. The SWCB said that they may begin a process of regulating the practice if progress is not made in negotiations by the October deadline. Some aquaculture farmers on the Shore assert that plasticulture increases runoff of fertilizers and herbicides that harm shellfish habitats. About 77 percent of Virginia's tomato industry is on the Eastern Shore; the industry brought in \$66.3 million in 2008, placing it second (behind tobacco) as Virginia's highest-grossing agricultural activity. (*Virginian-Pilot*, 7/24/09)

•In July, the National Oceanic and Atmospheric Administration (NOAA) announced a \$1.49 million grant to VIMS for the **purchase of about 450 acres of the York River's Catlett Islands** (Gloucester County), to be added to the Chesapeake Bay National Estuarine Research Reserve, which VIMS manages. The property would be purchased from Newport News development company Timberneck LLC. VIMS is seeking to purchase the property order to control access to it and secure their own access to nearby research projects. Timberneck has offered to sell the land to VIMS for \$1.45 million. Over the next few months, two independent appraisers will evaluate the worth of the property, which is currently assessed by Gloucester County at \$800,000. (*Virginian-Pilot*, 7/7/09; and *Daily Press*, 8/15/09)

•A **\$345,000 grant from the National Fish and Wildlife Foundation** will help farmers and natural resource agencies in the Chesapeake Bay states **work out details of trading nutrient credits**. Only Delaware and Maryland will participate in the first year of the three-year program, but eventually 100 farmers from each state are expected to participate. (*American Farm*, 7/7/09)

## Mining

•In the July 15 *Federal Register* (pages 34311-34316 in Vol. 74, no. 134; the *Federal Register* is online at <http://www.gpoaccess.gov/fr/>), the U.S. Army Corps of Engineers proposed two actions related to **Nationwide Permit 21 (NWP 21)—which covers discharge of materials from surface mining into waterways**, regulated by the Corps under Section 404 of the Clean Water Act—in Virginia, Kentucky, Ohio, Pennsylvania, Tennessee, and West Virginia. First, the Corps proposed to modify NWP 21 to prohibit its use for such discharges and instead require *individual* permits, which involve a more detailed review of a proposed project. Second, the Corps proposed to suspend the use of NWP 21 immediately after a 30-day public-comment period; the suspension would remain in effect until NPW is modified or expires, or until other action is taken to lift the suspension. These actions would affect permitting for stream impacts from surface mining generally, including **mountaintop-removal mining**, a type of surface mining currently used widely for coal and typically involving placement of removed soil, rock, and other debris into stream channels (“valley fills”). The *Federal Register* notice (p. 34312) states, “The Corps now believes that impacts of [surface coal mining activities] on jurisdictional waters of the United States, particularly cumulative impacts, would be more appropriately evaluated through the individual permit process.” Based on comments received during the 30-day public comment period, the Corps decided to hold six public hearings on the proposals, from October 13-15. One public hearing will be held in Virginia, at Mountain Empire Community College in Big Stone Gap on October 15. (U.S. Corps of Engineers Web site,

[www.usace.army.mil/CEPA/News/Pages/090910Permit21.aspx](http://www.usace.army.mil/CEPA/News/Pages/090910Permit21.aspx), 9/11/09; and *Land Letter*, 7/16/09)

Meanwhile, on September 11 the U.S. EPA announced that it plans additional review of 79 mountaintop-removal mining permit applications in four states: 49 in Kentucky, 23 in West Virginia, six in Ohio, and one in Tennessee. (Associated Press, 9/12/09)

**In another mining-regulation development:** On May 29, the U.S. Court of Appeals for the 4<sup>th</sup> Circuit in Richmond *upheld* the Corps’ interpretation of its regulatory authority to issue permits allowing materials removed during mountaintop-removal mining to be placed in headwater streams. The Appeals Court overturned a February 2009 decision by the U.S. District Court for the Southern District of West Virginia, which had held that the Corps had *not* met its legal requirements for environmental review of four permits in 2007. The case is *Ohio Valley v. Aracoma Coal Company* (Case 07-1355). (*E&E News PM*, 5/29/09. For other recent developments in mountaintop-mining regulation: June 2009 *Water Central*, p.28.)



A mountaintop, surface-mining operation in Wise County, Virginia, February 2009. Photo courtesy of Theresa Burriss.

## Stormwater Management

•On May 27, Gov. Tim Kaine along with the governors of the other five Chesapeake Bay watershed states, the mayor of Washington, D.C., and the chair of the Chesapeake Bay Commission wrote to the U.S. House Committee on Transportation and Infrastructure regarding **stormwater control provisions of the federal highway bill**. The letter requested that any new version of the bill require highway projects receiving federal aid to have stormwater control that “mimics pre-construction hydrologic conditions to the maximum extent feasible, and take into consideration the localized water-quality impacts of roadway projects.” The highway bill in effect now *allows* use of funds for stormwater controls, but does not *require* such controls. According to a 2002 Maryland study cited by the officials’ letter, highways generate 22 percent of the nitrogen and 32 percent of the phosphorus that come from urban sources in the Bay watershed. Nationwide, the letter states, highway runoff is related to impairments in 28,000 out of 42,256 impaired waterways. The current title of the highway bill is the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU; it is also referred to as the Federal Surface Transportation Act. The current bill expires September 30, 2009. (*Bay Journal*, Jul.-Aug. 2009)



•In July, **Staunton approved a new stormwater-utility fee structure** with a base fee of \$3.20/month plus a charge for a property-owner's area of impervious surface. Formerly the city had a flat fee of \$2.70/month on only some property owners. The new fee system takes effect in about six months. The city is facing about \$15 million in stormwater projects over the next few years. (*Staunton News Leader*, 7/24/09)

## Wastewater

•In July, the Virginia DEQ gave verbal approval for the **Town of Altavista** (Campbell County) to investigate using bacteria to break down **PCB (polychlorinated biphenyl) contamination** in one of the town's wastewater lagoons. High levels of PCBs were found in the lagoon in 2000, and the town has been in a voluntary remediation program with DEQ since 2002. (*Lynchburg News & Advance*, 7/15/09)

•Work will begin in fall 2009 on a **new wastewater-treatment plant in Alleghany County**, replacing a plant in Clifton Forge which will then become a pump station for the new plant. The new facility, the Lower Jackson Wastewater Treatment Plant, will be located near Iron Gate, will cost \$36-39 million, and will meet new Chesapeake Bay-related nutrient requirements (the Jackson River is a James River tributary). Completion is expected by 2011. (WDBJ-TV, Roanoke, 8/30/09)

•The **Town of New Market** (Shenandoah County) is benefitting from the economic recession by receiving a **bid for a sewer line project at \$3.6 million**, compared to the \$7 million that the town expected to pay. The project will construct a pump station and four miles of lines to carry the town's wastewater to the treatment plant owned by the Town of Broadway and located in Timberville (both in Rockingham County). New Market was allocated \$4.2 million in 2009 federal stimulus funds for the project, so the Virginia DEQ will be evaluating other potential uses for the additional \$600,000 not now needed for New Market's project. New Market still has to borrow \$2.25 million for a connection fee. (*Harrisonburg Daily News-Record*, 8/20/09)



The Jackson River (L.) meets the Cowpasture River in Botetourt County, Virginia, July 19, 2009. This point is about a mile downstream of the site of Alleghany County's new wastewater treatment plant on the Jackson River.

•Intending to build an approximately 40,000 gallon/day wastewater treatment plant to serve a high school, businesses, and other public buildings, **Middlesex County must decide whether to discharge the treated wastewater effluent on land or into a tributary of Urbanna Creek** (a Rappahannock River tributary). Before deciding, the county board of supervisors plans to examine the results of a Hampton Roads Sanitation District study on land-application of effluent. The county already has one study indicating that 31 to 62 acres of land are needed for 180,000 gallons of effluent per day, the amount the county expects ultimately from two existing treatment plants and the proposed new plant. (*Daily Press*, 8/20/09)

•In July, the **Hampton Roads Sanitation District**, which provides wastewater services to about 1.6 million customers in southeastern Virginia, presented to its member local governments a plan for financing **\$1.2 billion of infrastructure work needed over the next ten years**. The proposal would require about an 80-percent increase in the average monthly sewer bill over the coming decade. (*Virginian-Pilot*, 7/15/09)

•Throughout 2009, the City of **Suffolk was continuing a project to "smoke test" its sewer distribution lines** to detect leaks that allow stormwater to enter the sanitary sewer lines (which can lead to sewer overflows during heavy rains) or that allow sewage to leak out of the lines. As of late July, the city's Department of Public Utilities had tested about 175,000 linear feet of sewer lines. Suffolk's testing program is part of a November 2007 consent agreement among 13 Hampton Roads localities, the Hampton Roads Sanitation District, the Virginia DEQ, and the U.S. EPA for the region to reduce sanitary sewer system overflows. (*Suffolk News-Herald*, 7/27/09)

## Water Supply and Conservation

•Here's another update on **water-supply planning in the Albemarle County-Charlottesville area** (for a previous update: June 2009 *Water Central*, p.30): 1) August 4 was the deadline for companies to submit

bids for redesigning a new Ragged Mountain Dam. After cost estimates for the new dam increased substantially (up to \$100 million from a \$37-million estimate when the project was first approved), the Rivanna Water and Sewer Authority (RWSA) ended its contract with original designer. 2) A firm to conduct a South Fork Rivanna River Reservoir dredging-feasibility study was to be chosen by August 25. 3) \$25,000 has been authorized to hire a firm to review the design for the pipeline between the South Fork Rivanna Reservoir and the Ragged Mountain Reservoir; this review is to be done by the end of 2009. 4) RWSA staff will compare three possible water-supply pipelines: South Fork pipeline, a pipeline from the James River, and a replacement of the existing Sugar Hollow pipeline. (*Charlottesville Tomorrow*, 7/30/09. Please see [http://cvilletomorrow.typepad.com/charlottesville\\_tomorrow\\_/2009/07/rwsa\\_july2009.html](http://cvilletomorrow.typepad.com/charlottesville_tomorrow_/2009/07/rwsa_july2009.html) for a review of the recent history of long-term water-supply planning in the Albemarle-Charlottesville area.)

•**The Town of Appomattox is debating its long-term water-supply options.** The town currently relies on wells that have sufficient present capacity, but their long-term adequacy is part of the local debate. The town is under a consent order from the Virginia DEQ to reduce the levels of copper and zinc in its water, and according to the town's mayor, two studies have shown that corrosivity in the town's well water is contributing to the copper/zinc problem. Options being debated include joining Appomattox County in constructing a waterline from the Otter River at Concord along U.S. Route 460 to Appomattox, buying water from Appomattox County, and drilling more wells. (*Altavista Journal*, 8/26/09)

•In July, the **City of Norfolk** announced a proposed arrangement to **sell some of its surplus water to the City of Suffolk and to Isle of Wight County**. An unusual aspect of the arrangement is that Norfolk gets much of its water from reservoirs constructed in the early to mid-1900s on land that would eventually be within Suffolk's borders, after Suffolk merged with Nansemond County in 1974. Suffolk and Isle of Wight formed the Western Tidewater Water Authority in 1998 and have since been investigating ways to increase their water supply (including approval by the Virginia DEQ in 2005 of an increase in the Authority's permitted groundwater withdrawal). If approved by all localities, the new arrangement with Norfolk would provide the Authority with up to 15 million gallons per day in the later stages of the 40-year deal; the Authority would have to construct a five-mile pipeline. (*Virginian-Pilot*, 7/20/09)

## Wetlands

•Since 2007 and continuing into 2013, the **National Wetland Condition Assessment** is being conducted to provide a new national baseline on wetlands in the United States. The effort is being led by the U.S. EPA in collaboration with states and tribes. This assessment is intended to build upon the *Wetland Status and Trends* reports from the U.S. Fish and Wildlife Service (the Fish and Wildlife Service produced five reports between 1983 and 2005; information on these reports is available online at [www.fws.gov/wetlands/StatusAndTrends/index.html](http://www.fws.gov/wetlands/StatusAndTrends/index.html).) Besides the assessment of wetlands conditions, the current effort seeks to increase states' and tribes' wetland-monitoring capacity and to advance wetland-monitoring science and the connection between wetlands science and wetlands management. EPA's Web site for the project is [www.epa.gov/wetlands/survey/](http://www.epa.gov/wetlands/survey/). (*National Wetlands Newsletter*, May-June 2009)



Lizard's-tail in bloom in a wet area of Caledon State Park (King George County), June 2009.

•The U.S. Army Corps of Engineers recently began using a new **regional approach for wetland delineation**—that is, determining what lands are considered wetlands—in the Coastal Plain in Virginia and other Atlantic and Gulf Coast states. Wetland delineation is a key part of the Corps' responsibility under the federal Clean Water Act (CWA) to regulate wetlands that fall under the jurisdiction—and permitting requirements—of the CWA. The new process allows use of local factors or information to be part of a delineation of a *non-tidal* wetland (the new process does not involve *tidal* wetlands). In Virginia, the new process only applies to the area east of Interstate 95; rules for areas west of I-95 are to be issued in fall 2009. The new process procedures are found in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (October 2008), available online at [http://usace.army.mil/CECW/Pages/reg\\_supp.aspx](http://usace.army.mil/CECW/Pages/reg_supp.aspx). (*Virginian-Pilot*, 8/3/09)

## Out of Virginia

### Chesapeake Bay States

• **Oyster aquaculture** is a \$30-million industry in Virginia, but as of 2008 it was only a \$1-million enterprise in Maryland. The Shellfish Aquaculture Leasing bill passed by the Maryland General Assembly in 2009 seeks to boost that state's oyster-aquaculture industry by establishing Aquaculture Enterprise Zones where the permit process will be simplified and where permit holders must actually produce oysters or give up their permit. (*Bay Weekly*, 9/3/09)

• As of early August, **seafood processors in Maryland** began applying for some of the approximately **25,000 H2-B seasonal-worker visas** that unexpectedly had not already been claimed. The Maryland crab industry has come to rely on seasonal immigrant workers to process Chesapeake Bay Blue Crabs in the fall; about 400 workers are needed for Maryland's 22 processors. The H2-B visa program allots 66,000 visas annually for various seasonal workers, including landscapers and farmworkers as well as seafood workers. Prior to the announcement of the unclaimed visas this year, about a third of Maryland's processors had been closed and others had been short-staffed because they had not been able to get visas for foreign workers nor to find domestic workers for the relatively low-paying crab-picking jobs. (*Baltimore Sun*, 8/7/09)

• **Various measures to reduce watershed damage** are being taken during construction of the six-lane, **\$2.6-billion Intercounty Connector highway in Maryland**, that state's "most expensive and controversial" highway project, according to the *Washington Post*. The 18.8-mile highway between Interstates 95 and 270—under construction now with completion expected in late 2010 or early 2011—has been planned for decades as a way to relieve some of the traffic on the I-495, the Capital Beltway. Part of the controversy has been the expected environmental impacts, including the effects of crossing several streams. The environmental-protection measures include the following: bridge abutments on the most sensitive streams are being placed farther away than normal from stream banks; 17-foot-high openings for wildlife passage are being placed every few miles; sediment sensors are in place in streams before and after the streams cross construction areas; and no construction work is allowed in areas near streambeds between March 15 and August 1, to avoid impacts on fish spawning. (*Washington Post*, 8/16/09)

• A study released in July 2009 by Salisbury University and the Maryland Department of the Environment documented the **sources of bacteria in eight impaired watersheds in Anne Arundel County, Maryland**. The researchers used a "bacterial source tracking" (BST) technique (antibiotic resistance analysis) to identify sources of the indicator bacteria group, *Enterococcus*. The following table shows the percentages for the sources of bacteria in each watershed:

Watershed	% from Humans	% from Pets	% from Livestock	% from Wildlife
Magothy River	20	26	26	28
Severn River	24	23	24	28
South River	21	33	24	22
West Chesapeake Bay	28	37	15	19
Rhode River	22	18	24	36
West River	28	37	15	19
Furnace Creek	33	29	0	38
Marley Creek	34	34	<1	31

(*Maryland Gazette*, 8/19/09. Percentages taken from "Brief Summary of BST Report by Dr. Mark Franna & Dr. Elichia Venso, Salisbury University, July 2009," available online through the MDE at [www.mde.state.md.us/assets/document/salisbury/summary\\_document.pdf](http://www.mde.state.md.us/assets/document/salisbury/summary_document.pdf).)

• The 1,600-resident town of Edmonston, Md. (Prince George's County), is receiving \$1.3 million in 2009 federal stimulus funds to **remove its existing main street and replace it with a street designed to reduce stormwater runoff** to the nearby Anacostia River. The new street will include rain gardens, porous brick, and areas of trees. So-called "green streets" have been done in some cities but no other such projects are currently being done in the Washington, D.C., area. (*Washington Post*, 7/23/09)

• **Two dams on the Patapsco River** between Ellicott City and Catonsville in Maryland will be removed as part of a restoration project paid for by \$4 million in 2009 federal stimulus funds from the National Oceanic and Atmospheric Administration (NOAA). The dams were built in the early 20<sup>th</sup> Century to provide water



power to local textile mills, but that function has long since ceased. This work is part of **50 restoration projects in 20 states** being funded by \$167 million from NOAA. (*Howard County [Md.] Times*, 7/7/09)

•Here are some recent developments related to **potential water impacts of natural gas drilling in the Marcellus shale formation** in parts of Maryland, New York, Ohio, Pennsylvania, and West Virginia.

•• In August, the **Susquehanna River Basin Commission (SRBC)** held public hearings on two areas of proposed regulations concerning **use of Susquehanna basin water for energy-related purposes**, including natural gas drilling in the Marcellus formation. First, the SRBC is proposing that natural gas drillers be able to use water from any approved SRBC water source at any approved drilling site, rather than having to get an individual permit for each drill site. The second regulatory action would incorporate SRBC's practice of reviewing large water-using energy products that could affect the basin's water resources (concurrently with federal agency reviews). According to the SRBC's executive director, "The Susquehanna basin is increasingly at the hub of energy production...." (*Lock Haven [Penn.] Express*, 7/15/09)

••Sen. Robert Casey (D-Penn.) and Rep. Patrick Murphy (8<sup>th</sup>-Penn) have proposed **federal legislation that would repeal the exemption for hydraulic fracturing** (the technique that injects water and other substances underground to free up natural gas) from regulation under the federal Safe Drinking Water Act. The bills, known as the Fracturing Responsibility and Awareness of Chemicals Act, would require drilling companies to disclose the chemicals used in the hydraulic-fracturing fluids. The bills are S.1215 (Senate) and H.R.2766 (House); as of September 11, both remained in committee. (*Philadelphia Intelligencer*, 7/27/09; and <http://thomas.loc.gov>, 9/11/09)

For a previous *Water Central* item on Marcellus shale, please see the June 2009 issue, p. 31. In addition, "[Natural Gas Quest: All About Drilling in New York and Pennsylvania](#)," a Web site from the *Press and Sun-Bulletin* of Binghamton, N.Y., provides access to background resources about the Marcellus formation and the drilling process, along with dozens of news articles on the topic. For an introduction to **natural gas activities in southwestern Virginia**, please see the Dec. 2008 *Water Central*, p. 6.

## Elsewhere

•The Obama administration's Fiscal Year 2010 budget includes \$475 million for the **Great Lakes Restoration Initiative**, an EPA-led effort to renew efforts to correct water-quality and aquatic-habitat problems in the Great Lakes. As of mid-August, the program had been approved by the U.S. House of Representatives but not yet by the Senate. If the program is approved, its first round of grants (in 2010) would focus on toxic substances, invasive species, nonpoint source pollution and its impact on nearshore environments, habitat restoration, and program accountability and evaluation. ("Great Lakes Restoration Initiative" Web site at [www.epa.gov/greatlakes/glri/index.html](http://www.epa.gov/greatlakes/glri/index.html), 9/11/09; and *Land Letter*, 8/13/09)

• In August, researchers from the University of North Carolina-Wilmington, Florida Atlantic University, the United States Geological Survey, the Scottish Association for Marine Science, the National Oceanic and Atmospheric Administration, the Marine Conservation Biology Institute, and the North Carolina Museum of Natural Sciences began the first of four cruises to study the **deepwater coral ecosystems in the Gulf of Mexico and in the Atlantic Ocean off the coasts of North Carolina and Florida**. This is the second of four field seasons to learn about the organisms associated with deepwater reefs and to measure distribution, growth, and reproduction of the corals. These deepwater reefs provide can provide information about past ocean conditions and how conditions may be changing in response to warming or acidification of ocean waters. (U.S. Geological Survey Web site, "Deep-sea Coral Cruises, 2009," [http://fl.biology.usgs.gov/DISCOVRE/cruise\\_plan\\_2009.html](http://fl.biology.usgs.gov/DISCOVRE/cruise_plan_2009.html), 9/11/09)

•On July 17, U.S. District Judge Paul Magnuson (Middle District of Florida) ruled illegal the U.S. Army Corps of Engineers' decades-long practice of using **water from Georgia's Lake Lanier to meet Atlanta's water needs**. The case originated with a lawsuit filed by Alabama in 1990 and later joined by Florida, who claim that Atlanta's use is harming these two downstream states' use of the Chattahoochee River (which was dammed to make Lake Lanier). Temporary agreements during the intervening years delayed the litigation. The ruling said that under the federal Water Supply Act of 1958, the Corps is required to get Congressional approval for withdrawals from Lake Lanier for water supply if such withdrawals "seriously affect" the project's intended purposes for flood control, hydroelectric power, and navigation, and that the Corps' failure to do so renders such withdrawals illegal. The judge set a three-year period for either the three states to reach an agreement or for Congress to act, and that if no resolution takes place in that period, he will order withdrawals for Atlanta to be cut to the levels used in the 1970s. (*Atlanta Journal-Constitution*, 7/18/09. For a previous *Water Central* item: Sept. 2008, p. 14.)

•**Water quality and natural habitat were two of the winners in Minnesota** in May when the legislature allocated an estimated \$397 million (over two years) from a sales tax increase approved by voters as a constitutional amendment. The state's Clean Water Fund is to receive \$151 million; \$158 million will go to parks, trails, and the arts; and \$88 million will go to habitat restoration and preservation. Part of the water-related funds will be used to expand the state's water-quality monitoring to include **emerging contaminants**. (*Minnegram*, Univ. of Minnesota Water Resources Center, June 2009. For background on emerging contaminants, please see the April 2009 *Water Central*, p. 35.)

Meanwhile, in another emerging contaminants item: The 2009 **Texas legislature** passed a bill (HB 19) requiring that the labels for certain medications (or the information provided with the medication) include the statement, "**Do not flush unused medications or pour down a sink or drain.**" While flushing used to be the recommended procedure for unused medications, now the practice is discouraged in order to reduce the potential for drugs to contaminate aquatic systems. Some pharmacies (including some in Virginia) have medication take-back services, but if that option is unavailable, the recommended disposal procedure is to seal medications in plastic along with cat litter or some other inedible substance and place them in the trash. (*Cross Section*, High Plains Water District of Lubbock, Tex., June 2009).

•Research indicates that farmers in **northwest central Texas** can save significant money on fertilizer by accounting for the "nitrogen credit" from **nitrate-contaminated irrigation water from the Seymour aquifer**. The shallow aquifer underneath 20 Texas counties has been contaminated with nitrate for decades. Texas AgriLife Research scientists estimate that irrigating with water from much of the aquifer could generate 55 pounds per acre of usable nitrogen fertilizer during a cotton-growing season, more than the crop requires. (*Tx H2O*, from the Texas Water Resources Institute, Spring 2009)

•"It's unbelievable. Every citizen should see what's happening here." That was the comment of U.S. Senator John McCain of Arizona upon seeing the effects of Mountain Pine Beetles on Lodgepole Pine trees in Rocky Mountain National Park in August. Sen. McCain along with Sen. Mark Udall of Colorado held a hearing in Colorado on August 24 to learn about the **changes that national parks could experience, or are already experiencing, from a warmer climate**. Mountain Pine Beetles and other bark beetles periodically have outbreaks that damage pines and other trees, but an unusually large Mountain Pine Beetle outbreak has occurred in recent years. The current outbreak's coincidence with warmer winter temperatures and drier conditions, and the expansion of beetle impacts to other pine species farther north and at higher elevations, have raised questions about the impact of climate change on the beetles' biology and trees' resistance to beetles. Besides these suspected impacts, other temperature-caused changes in national parks cited by participants at the August 24 hearing include melting glaciers in Glacier National Park in Montana; movement to higher elevations by certain mammals in Yosemite National Park in California; reduced snowpack and spring runoff in Colorado; and increased "bleaching" of corals in the Virgin Islands (coral bleaching occurs when higher ocean temperatures cause the animals that produce coral shells to expel algae that live with and produce food for the animals). Speakers also said national parks managers need better climate-change data and information from predictive models in order to respond to present and future impacts. (*Land Letter*, 8/27/09; U.S. Forest Service Rocky Mountain Research Station Web site on western bark beetles at [www.usu.edu/beetle/index.htm](http://www.usu.edu/beetle/index.htm), 9/2/09; and NOAA Coral Health and Monitoring Program Web site at [www.coral.noaa.gov/cleo/coral\\_bleaching.shtml](http://www.coral.noaa.gov/cleo/coral_bleaching.shtml), 9/2/09)

## Final Word

•"Much is riding on the meeting in Copenhagen [in December 2009]. Nations will gather to chart a revised course to meet the planet's warming challenges. Successfully reducing greenhouse gas emissions, however, will greatly depend on what is done by regional, state, and local governments around the world. Those gathering in Denmark should keep that in mind." Virginia Secretary of Natural Resources L. Preston Bryant, in a commentary about the role of state and local actions in reducing greenhouse-gas emissions. (*Richmond Times-Dispatch*, 7/17/09)



If you're looking for news articles on a particular water-related topic, please visit the *Virginia Water Central* News Grouper, [Hwww.vwrrc.vt.edu/va\\_water\\_grouper.html](http://www.vwrrc.vt.edu/va_water_grouper.html)

## SPECIAL NEWS ITEM: HARDWARE RIVER WATERSHED PROTECTION PROJECT

*Water Central* thanks Alyson Sappington for providing this report on stream research in summer 2009 by a team of student interns.

In recent years, the Virginia Department of Environmental Quality (DEQ) has released several reports listing the North Fork and main stem of the Hardware River as “impaired” according to DEQ standards. The Hardware River, located in Albemarle and Fluvanna counties, is a James River tributary. The Hardware’s impairment is due to levels of fecal coliform bacteria that exceed state standards, with the main source of the bacteria being warm-blooded animal waste in the watershed.

In summer 2009, a grant from the Charlottesville Area Community Foundation provided the Thomas Jefferson Soil and Water Conservation District (TJSWCD) with funds to hire five student interns to conduct a visual field survey of the Hardware River and its tributaries. The interns were Leigh Corbitt, a recent graduate of the University of Virginia; Aryn Hoge and Liza Stoner, both current students at U.Va.; Anna Stuart Burnett, a student at Washington and Lee; and Sarah Morehouse, a graduate of Virginia Commonwealth University. From June to August, the team took on the task of investigating the watershed by walking its streams.

Wading watershed streams and equipped with digital cameras, hand-held global positioning system (GPS) devices, and waterproof notebooks, the interns recorded their observations and documented conditions or activities that might be a source of bacteria (such as straight pipes or animal access) or other potentially harmful impact (such areas of erosion and sediment runoff). A report of the interns’ work will be available on the TJSWCD Website at [www.tjswcd.org](http://www.tjswcd.org) by late fall 2009. Following completion of this preliminary investigation of the Hardware River, the TJSWCD hopes to develop partnerships with local landowners and to provide financial and technical assistance for improving the quality and health of this valuable resource.

For more information, please contact Alyson Sappington, District Manager, Thomas Jefferson Soil and Water Conservation District, 706G Forest Street, Charlottesville, VA 22903; phone (434) 975-0224; email [alyson.sappington@vaswcd.org](mailto:alyson.sappington@vaswcd.org).



Intern Aryn Hoge takes stops to take notes while walking the Hardware River in Summer 2009.  
Photo courtesy of Thomas Jefferson Soil and Water Conservation District.



## WATER QUALITY and YOU/ LA CALIDAD de AGUA y USTED

In this section, *Water Central* offers suggestions for how individuals can help maintain and improve the quality of Virginia's waters and aquatic habitats. Unless otherwise noted, you are welcome to reproduce and distribute items in this section, but please retain the credits to the original source(s). All Web sites mentioned were functional as of 9/8/09. A Spanish translation begins on the following page. *Water Central* thanks Christian Little for his help with this section.

En esta sección, *Water Central* le ofrece sugerencias de cómo las personas pueden mantener y mejorar la calidad de las aguas y los hábitats acuáticos en Virginia. Ustedes pueden reproducir y distribuir esta página, pero por favor mantengan los créditos originales. Todos los sitios Web mencionados funcionaban el 8 de septiembre 2009. Para información en español, por favor vea la página próxima. Gracias a Christian Little por su ayuda con esta sección.

### Basic Information about Mercury

[The following text is from the U.S. Environmental Protection Agency [EPA] Web site, "Mercury-Basic Information," located online at [www.epa.gov/mercury/about.htm](http://www.epa.gov/mercury/about.htm), 9/8/09. Much more information about mercury is available at that site. The Spanish translation below is also from that site.]

**Forms of mercury.** Mercury is a naturally occurring element that is found in air, water and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds.

**Sources of mercury.** Mercury is an element in the earth's crust. Humans cannot create or destroy mercury. Pure mercury is a liquid metal, sometimes referred to as quicksilver that volatilizes readily. It has traditionally been used to make products like thermometers, switches, and some light bulbs.

Mercury is found in many rocks including coal. When coal is burned, mercury is released into the environment. Coal-burning power plants are the largest human-caused source of mercury emissions to the air in the United States, accounting for over 40 percent of all domestic human-caused mercury emissions. EPA has estimated that about one quarter of U.S. emissions from coal-burning power plants are deposited within the contiguous U.S. and the remainder enters the global cycle. Burning hazardous wastes, producing chlorine, breaking mercury products, and spilling mercury, as well as the improper treatment and disposal of products or wastes containing mercury, can also release it into the environment. Current estimates are that less than half of all mercury deposition within the United States comes from U.S. sources.

**Exposure to mercury.** Mercury in the air eventually settles into water or onto land where it can be washed into water. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish, shellfish, and animals that eat fish. Fish and shellfish are the main sources of methylmercury exposure to humans. Methylmercury builds up more in some types of fish and shellfish than others. The levels of methylmercury in fish and shellfish depend on what they eat, how long they live, and how high they are in the food chain.

EPA works with the U.S. Food and Drug Administration (FDA) and with states and tribes to issue advice to women who may become pregnant, pregnant women, nursing mothers, and parents of young children about how often they should eat certain types of commercially-caught fish and shellfish. Fish advisories are also issued for men, women, and children of all ages when appropriate. In addition, EPA releases an annual summary of information on locally-issued fish advisories and safe-eating guidelines to the public. Fish is a beneficial part of the diet, so the EPA and the FDA encourage people to continue to eat fish that are low in methylmercury.

Another less common exposure to mercury that can be a concern is breathing mercury vapor. These exposures can occur when elemental mercury or products that contain elemental mercury break and release mercury to the air, particularly in warm or poorly-ventilated indoor spaces.

**Health effects of mercury.** Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Research shows that most people's fish consumption does not cause a health concern. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn.

**Ecological effects of mercury.** Birds and mammals that eat fish are more exposed to mercury than other animals in water ecosystems. Similarly, predators that eat fish-eating animals may be highly exposed. At

high levels of exposure, methylmercury's harmful effects on these animals include death, reduced reproduction, slower growth and development, and abnormal behavior.

**Reducing mercury releases.** EPA issues regulations that require industry to reduce mercury releases to air and water and to properly treat and dispose of mercury wastes. EPA also works with industry to promote voluntary reductions in mercury use and releases, and with partners in state, local and tribal governments to improve their mercury reduction programs. EPA works with international organizations to prevent the release of mercury in other countries. The public can contribute to mercury-reduction efforts by purchasing mercury-free products and correctly disposing of products that contain mercury, and by reducing demand for products whose production leads to the release of mercury into the environment.

## **En Español**

### **Información Básica sobre el Mercurio**

[El siguiente texto proviene de un sitio Web de la Agencia de Protección Ambiental de Estados Unidos (EPA), [www.epa.gov/mercury/about-espanol.htm](http://www.epa.gov/mercury/about-espanol.htm), 9/8/09. Más información sobre mercurio está disponible a este sitio Web. La traducción también proviene de este sitio Web.]

**Formas de mercurio.** El mercurio es un elemento que ocurre naturalmente en la naturaleza y se encuentra en el aire, el agua y la tierra. Existe en varias formas: mercurio elemental o metálico, compuestos inorgánicos de mercurio y compuestos orgánicos de mercurio.

**Fuentes de mercurio.** El mercurio es un elemento básico que se encuentra en la corteza terrestre. Los humanos no pueden crear o destruir el mercurio. El mercurio puro es un metal líquido que a veces se denomina como azogue. Tradicionalmente se utiliza para hacer productos como termómetros, interruptores y algunas bombillas.

El mercurio se encuentra en muchas rocas incluyendo el carbón. Cuando se quema el carbón, el mercurio es emitido al medio ambiente. Las plantas de energía que queman carbón mineral son la principal fuente de emisiones de mercurio al aire en los Estados Unidos y representan cerca del 40 por ciento de todas las emisiones de mercurio al interior del país. La incineración de desechos peligrosos, la producción de cloruro, el rompimiento de productos de mercurio y el derramamiento de mercurio, así como el tratamiento y desecho inapropiado de productos y desperdicios que contienen mercurio, también pueden liberar el mercurio al medio ambiente. La Agencia de Protección Ambiental (EPA, por sus siglas en inglés) ha estimado que cerca de un tercio de todas las emisiones en los Estados Unidos son depositadas en las áreas contiguas a EE.UU. y el resto entra al ciclo global. Los estimados vigentes son que cerca del cincuenta por ciento de todo el mercurio desechado dentro de los Estados Unidos proviene de fuentes estadounidenses.

**Exposición al mercurio.** El mercurio en el aire eventualmente se asienta en el agua y en el suelo donde puede fluir al agua. Una vez depositado, los microorganismos pueden transformarlo a mercurio metílico, una forma altamente tóxica que se acumula en los peces, los mariscos y animales que se alimentan de peces. Los peces y los mariscos son las principales fuentes de exposición de mercurio metílico en los seres humanos. El mercurio metílico se acumula en algunos tipos de pescados y mariscos más que en otros. Los niveles de mercurio metílico en los peces y los mariscos dependen de lo que comen, cuánto tiempo viven y cuán avanzados estén en la cadena alimenticia.

La EPA trabaja en colaboración con la Administración de Alimentos y Drogas y con los estados y tribus indígenas para emitir avisos a las mujeres en edad fértil, mujeres embarazadas, madres que amamantan a sus hijos y padres de niños pequeños sobre la frecuencia en que deben ingerir ciertos tipos de pescado y mariscos que han sido pescados comercialmente. Los avisos sobre el consumo de pescado son también emitidos para hombres, mujeres y niños de todas las edades cuando es apropiado. Además, la EPA publica información sumaria anualmente sobre los avisos de la pesca publicados localmente y sobre las pautas del consumo sano para el público. El pescado es un alimento saludable, por lo tanto, la EPA alienta a las personas a continuar comiendo pescado, especialmente si es bajo en mercurio metílico.

Otra exposición menos común al mercurio que también es preocupante ocurre al respirar el vapor del mercurio. Dichas exposiciones pueden ocurrir cuando el mercurio elemental o productos que contienen mercurio se rompen y lo exponen al aire, particularmente en lugares calurosos o espacios internos con pobre ventilación.

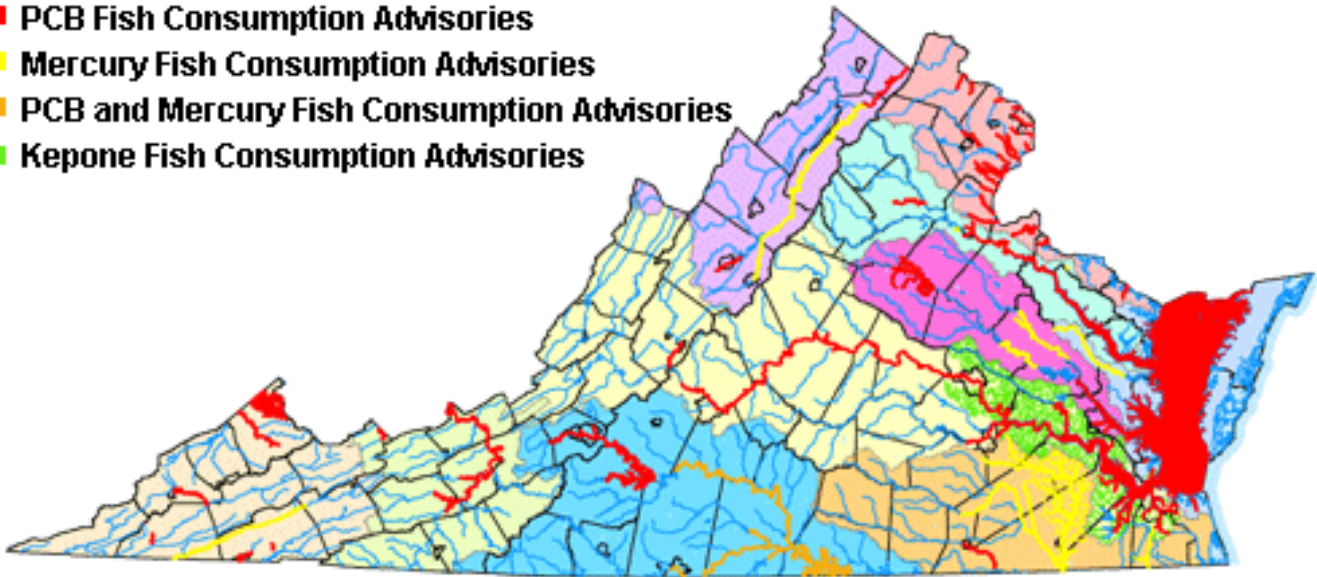
**Los efectos del mercurio a la salud.** La exposición a niveles altos de mercurio puede perjudicar el cerebro, el corazón, los riñones, los pulmones, y el sistema inmunológico de las personas de todas las edades. Los estudios de investigación revelan que el consumo básico de pescado de la mayoría de las personas no es motivo de preocupación. Sin embargo, se ha demostrado que los niveles altos de mercurio metílico en las vías sanguíneas de los bebés por nacer y los niños pequeños pueden ser perjudiciales al sistema nervioso en vías de desarrollo dificultando así su proceso de razonamiento y aprendizaje.

**Los efectos ecológicos del mercurio.** Las aves y los mamíferos que se alimentan de los peces están más expuestos al mercurio que otros animales en los ecosistemas acuáticos. De igual manera, los predadores que comen animales que se alimentan de los peces pueden tener una exposición elevada. A niveles altos de exposición, los efectos dañinos del mercurio metílico en estos animales incluyen la muerte, la reproducción reducida, el crecimiento y desarrollo reducido y el comportamiento anormal.

**El reducir las emisiones de mercurio.** La EPA emite regulaciones que le exigen a la industria reducir las emisiones de mercurio al aire y al agua y a desechar apropiadamente los desechos de mercurio. La EPA también trabaja con la industria para promover las reducciones voluntarias en el uso y la emisión de mercurio y con los socios en los gobiernos estatales, locales y tribales para mejorar sus programas de reducción de mercurio. La EPA trabaja con las organizaciones internacionales para prevenir la emisión de mercurio a otros países. El público puede contribuir a los esfuerzos para la reducción de mercurio al comprar productos libres de mercurio y al deshacerse correctamente de los productos que contienen mercurio.

### Mercury and Fishing in Virginia

- PCB Fish Consumption Advisories
- Mercury Fish Consumption Advisories
- PCB and Mercury Fish Consumption Advisories
- Kepone Fish Consumption Advisories



Waterways shown in yellow or orange on this map are under a fish-consumption advisory due to mercury. For guidance about fishing in these areas or in other advisory areas, visit [www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm](http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm) or contact the Virginia Department of Health (VDH) at (804) 864-8192 or the local VDH office, listed in your phone book. (Map from VDH Web site listed, 9/8/09)

**En Español:** En esta mapa, las áreas amarillas y naranjas indican las aguas con un aviso sobre el mercurio en el pescado. Para consejos de pescar en estas áreas, visite el sitio de Web [www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm](http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm) (en inglés) o llame por teléfono al Departamento de Salud de Virginia (VDH) al (804) 864-8192, o su oficina local de VDH, inscrito en su guía telefónica. (El mapa de VDH sitio Web, 9/8/09)



## VIRGINIA GOVERNMENT WATER ISSUES OVERVIEW

This section lists water issues under current consideration (study or regulation) by state boards, commissions, or agencies in Virginia. Information in this issue is based on public meetings listed **July 7-September 9, 2009**, on the **Virginia Regulatory Town Hall** Web site, at [www.townhall.state.va.us/L/meetings.cfm](http://www.townhall.state.va.us/L/meetings.cfm). The Town Hall site posts agendas of upcoming meetings and minutes of past meetings held by Virginia's boards, commissions, and departments; also, the Town Hall site includes various water-related meeting on relatively local issues that are *not listed here*, such as water-treatment plant permit hearings or meetings about specific scenic rivers. Unless otherwise noted, all contact people listed in this section are Virginia state employees. To find the e-mail address any state employee, go online to [www.employees.state.va.us/directory-search.cfm](http://www.employees.state.va.us/directory-search.cfm). You can also request state employee phone numbers by calling (800) 422-2319. All Web sites listed in this section were functional as of 9/14//09.

### Total Maximum Daily Load (TMDL) Processes

Under the federal Clean Water, when a water body fails (with a certain frequency) to meet state water-quality standards, the water is to be designated as "impaired," requiring development of a total maximum daily load (TMDL). A TMDL *study* identifies the pollutant source(s) causing the impairment and determines how much of the pollutant(s) the water can receive (the "load") and still meet standards. A TMDL *implementation plan* (required by Virginia law) maps a process for reducing the pollutant load to the TMDL level. Many Virginia TMDLs are underway, each involving many public meetings. The table below lists those where public meetings were held during the period noted above. Information on the status of all TMDLs in Virginia is available online at [www.deq.state.va.us/tmdl/](http://www.deq.state.va.us/tmdl/).

Location	Water(s) & Impairment	Larger Watershed(s)	Most Recent Meeting Date	For More Information
Augusta County	Middle River and tributaries for bacteria and aquatic life (benthic) impairment	Shenandoah River/ Potomac River	7/16/09	Nesha Mizel
Bedford, Campbell, Charlotte, Halifax, and Pittsylvania counties	Cub Creek, Little Otter River, and Staunton River for PCBs (polychlorinated biphenyls)	Roanoke River	7/30/09	Amanda Gray
Bedford, Montgomery, and Roanoke counties, plus cities of Roanoke and Salem	Peters Creek, Roanoke River, and Tinker Creek for PCBs	Roanoke River	7/29/09	Mary Dail
Brunswick, Charlotte, Lunenburg, and Mecklenburg counties	Meherrin River and tributaries for bacteria	Chowan River/ Albemarle Sound, N.C.	8/25 and 8/27/09	Margaret Smigo
Charles City County	Morris Creek for bacteria	Chickahominy River/James River	7/15/09 (final public meetings on TMDL study)	Margaret Smigo
Charlotte County	Ash Camp Creek and Twittys Creek for aquatic life (benthic) impairment	Roanoke River	8/17/09	Ram Gupta
Cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach	Elizabeth River mainstem and Eastern, Western, and Southern branches, plus Lafayette River, Broad Creek, Indian River, and Paradise Creek, all for bacteria	Hampton Roads/ Chesapeake Bay	8/28/09	Jennifer Howell
Cities of Chesapeake and Virginia Beach	Albemarle Canal, North Landing River (middle), West Neck Creek (middle), Milldam Creek (lower), and Nawney Creek (upper and lower),	North Landing River/ Albemarle Sound, N.C.	7/28/09	Jennifer Howell

	all for dissolved oxygen impairment			
Fairfax County and City of Fairfax	Accotink Creek for aquatic-life (benthic) impairment	Potomac River	8/18/09	Katie Conaway
Grayson County	Elk Creek for bacteria	New River	7/21/09	Shelley D. Williams
Isle of Wight and Southampton counties	Blackwater River, Mill Swamp, Rattlesnake Swamp, Seacock Swamp, and Tarrara Creek, all for potential dissolved oxygen impairment (to be determined if due to natural or human causes)	Chowan River	7/28/09	Jennifer Howell
James City, New Kent, and York counties	Skimino Creek, Taskinas Creek, and Ware Creek, all for shellfishing impairments	York River	9/1/09	Jennifer Howell
Northumberland County	Shellfishing areas in Fountain Cove and Bridgeman, Cod, Cubitt, Hack, Hull, Presley, and Rogers creeks, all for bacteria	Potomac River	9/1/09	Margaret Smigo
Richmond County	Richardson Creek and Totuskey Creek shellfishing areas for bacteria	Rappahannock River	9/9/09 (final public meeting on TMDL study)	Margaret Smigo
City of Suffolk	Upper Nansemond River watershed for bacteria	Chesapeake Bay	7/9/09	Jennifer Howell
Washington County	Middle Fork Holston River for aquatic life impairment and bacteria	South Holston Lake/ Upper Tennessee River	7/28/09	Shelley D. Williams
Washington County	Wolf Creek for aquatic life impairment and bacteria	South Holston Lake/ Upper Tennessee River	7/28/09	Shelley D. Williams
Wythe County	Cripple Creek for bacteria	New River	7/23/09	Shelley D. Williams

### **Other Topics Under Current Consideration**

The following lists topics considered in public meetings held during the period noted at the beginning of this section. The focus of this section is topics of broad or statewide concern; generally, meetings about individual permits or strictly local issues are not included. Items are listed alphabetically by topic, followed by the agency or group coordinating state study or action and then a contact name. Minutes of most meetings listed are available at the Virginia Regulatory Town Hall Web site, [www.townhall.state.va.us](http://www.townhall.state.va.us). Agency Abbreviations: DCR = Dept. Conservation and Recreation; DEQ = Dept. Environmental Quality; DGIF = Dept. Game and Inland Fisheries; DMME = Dept. Mines, Minerals and Energy; SWCB = State Water Control Board; VDH = Department of Health. "VAC" numbers indicate the *Virginia Administrative Code* section for a particular regulation; you can access and search the VAC at <http://leg1.state.va.us/cgi-bin/legp504.exe?000+men+SRR>. "NOIRA" stands for Notice of Intended Regulatory Action.

**Biosolids Permits**—1) 7/20/09 public meeting on application by Nutri-Blend, Inc., to land-apply biosolids on approximately 1411 acres in Henrico County; public comment period: 7/21/09—8/21/09; more information: Anita Tuttle. 2) 7/21/09 public meeting on application by Recyc Systems, Inc., to land-apply biosolids on approximately 2000 acres in Lancaster County; public comment period: 7/22/09—8/24/09; more information: Anita Tuttle. 3) 7/28/09 public meeting on application by Agri-Services to land-apply biosolids on approximately 1711 acres in Essex County; public comment period: 7/29/09—8/31/09; more information: Anita Tuttle. 4) 8/3/09 public hearing on application by Nutri-Blend, Inc., to land-apply biosolids on approximately 1556 acres in Goochland County; public comment period: 7/2/09—8/21/09; more information: Anita Tuttle.

**Biosolids Regulations (9 VAC 25-20, 25-31, and 25-32)**—SWCB’s advisory committee on biosolids regulations met 8/20/09. The SWCB published a Notice of Intended Regulatory Action (NOIRA) in the June 23, 2008, *Virginia Register* about several possible amendments to the biosolids regulations. More information: William K. Norris.

**Coal Combustion By-products Regulation Amendment 2 (9 VAC 20-85-10 et. seq.)**—1) Public meeting on NOIRA: 7/7/09. The Virginia Waste Management Board published in the June 8, 2009, *Virginia Register of Regulations* a Notice of Intended Regulatory Action (NOIRA) for this part of the coal-combustion by-products regulations. The public comment period on the NOIRA ended 7/10/09. 2) Advisory Committee meeting: 7/28/09. The DEQ has established this advisory committee to review and make recommendations on the entire regulation, including location restrictions, design and construction requirements, operations, closure, testing of the materials prior to placement, a public-notice component, and other topics that may be brought up during the public comment period. More information: Melissa Porterfield.

**Coal Surface Mined Land Reclamation**—1) DMME public informal conference: 7/30/09. The DMME held this informal conference on the permit application by Paramount Coal Company Virginia for a proposed area located 1.2 miles west of McClure, on the McClure River in Dickenson County; more information: Harve Mooney. 2) DMME’s Coal Surface Mining Reclamation Fund Advisory Board meeting: 8/11/09; more information: Gavin Bledsoe. 3) DMME’s Abandoned Mined Land Advisory Committee met 9/9/09; more information: Roger L. Williams.

**Coin-operated Laundry Discharge General Permit Regulation (9 VAC 25-810)**—Advisory committee meetings: 7/24/09 and 9/3/09. The SWCB is considering reissuance, including possible amendments, to this regulation. The NOIRA appeared in the April 27, 2009, issue of the *Virginia Register of Regulations*. More information: George Cosby.

**Groundwater Management Area (Eastern) Regulations (9 VAC 25-600 et seq.) and Groundwater Withdrawal Regulations (9 VAC 25-610 et seq.)**—Public meetings on NOIRA: 8/10/09, 8/13/09, and 8/18/09.. In the July 6, 2009, *Virginia Register of Regulations*, the SWCB published a NOIRA for these regulations. The public comment period on the NOIRA ends 8/19/09. More information: Melissa Porterfield.

**Poultry Waste Management Regulation (9 VAC 25-630)**—SWCB public hearings: 7/29/09, 8/4/09, 8/6/09. The SWCB is considering amendments to the Virginia Pollution Abatement (VPA) General Permit Regulation on managing poultry waste. The proposed amendments affect poultry waste transferred off-site and used for land application by another entity other than the poultry grower. These provisions establish end-user requirements for record keeping, storage, timing and rates, and buffers. The proposed regulation was published in the 6/22/09 issue of the *Virginia Register of Regulations*. The public comment period ended 8/21/09. More information: Betsy K. Bowles. **(See article above starting on page 7 for more on this regulation.)**

**Recycling**—DEQ’s Recycling Markets Development Council meeting: 9/2/09. More information: Michael Ward, Virginia Petroleum Council, (804) 225-8248 or m.ward7@verizon.net.

**Scenic Rivers**—Goose Creek Advisory Committee meeting, 7/15/09. More information: David C. Dowling.

**Sewage Handling and Disposal: Alternative Onsite Systems**—Meetings of the *ad hoc* committee on emergency regulations: 7/16/09, 7/30/09, and 8/20/09. This committee is gathering stakeholder input for emergency regulations to establish performance requirements, operation and maintenance requirements, and horizontal setbacks for alternative onsite sewage systems. More information: Allen Knapp.

**Sewage Handling and Disposal Regulations (12 VAC 5-610)**—VDH’s advisory committee meeting: 7/17/09. More information: Robert W. Hicks.

**Solid Waste Management and Groundwater**—1) 7/15/09: Public hearing to receive comments on a permit-modification application from **Fauquier County** for the Corral Farm Sanitary Landfill. Among items under consideration are amendments to the Operations Manual, Leachate Management Plan, Landfill Gas Management Plan, Control Program for Unauthorized Waste, Construction Quality Assurance Manual, and Closure/Post-Closure Plan. The public comment period ran 6/10/09 to 7/30/09. More information: Ladun Olaseni.

**Solid Waste Management Regulation (9 VAC 20-80), Amendment 7**—Waste Management Board public hearing: 8/3/09. According to the Va. Regulatory Townhall notice of this meeting: “The proposed amendments will recodify the Solid Waste Management Regulation (9 VAC 20-80) into a more cohesive and concise regulation (9 VAC 20-81). The proposed regulation includes the incorporation of the Vegetative Waste Management and Yard Waste Composting Regulation (9 VAC 20-101). ...Other substantive changes include provisions for a pre-approved alternate liner design that does not require a variance submission; a pre-approved alternate cover design without a demonstration; consolidation of related topics; consolidation of exemptions into one section; the addition of standards for Centralized Waste Treatment facilities; revisions made to conform to existing statutes; [less imposing standards for] composting and other types of facilities that are higher in the waste hierarchy...; change from full permit to permit by rule status for composting facilities; and removal of operations manual from the permit. ...In general, the regulations are revised to reflect future ‘streamlined’ permits supplemented



by more easily updated separate plan documents (operations, etc.).” The proposal was published in the 7/9/09 issue of the *Virginia Register of Regulations*; the public comment period end 9/4/09. More information: Leslie Beckwith.

**Stormwater Management Regulations (4 VAC 50-60)**—Public hearings on proposed amendments: 6/30/09, 7/1/09, 7/7/09, 7/9/09, and 7/14/09. Amendments are proposed for Parts 1, 2, 3, and 13 of the Virginia Stormwater Management Program Permit Regulations to address criteria for water quality and quantity, criteria and procedures for local stormwater-management programs, and the administration and schedule of fees. The public comment period ended 8/21/09. More information: David Dowling. **(See article above starting on page 7 for more on this regulation.)**

**Wind Energy Permitting**—Meetings of regulatory advisory panel for small renewable wind energy project permit by rule: 7/22/09 and 8/27/09. This advisory panel is helping the DEQ in development of a permit by rule for small renewable wind energy projects, a regulatory action called for by the 2009 General Assembly (HB 2175/SB 1347). The DEQ plans to publish a NOIRA in the future for this rulemaking. More information: Carol C. Wampler.

### **Regular Meetings of Statewide Boards and Commissions**

**Marine Resources Commission**—Meets monthly; most recent meetings: 7/28/09 and 8/24/09; minutes of all VMRC meetings are available online at [www.mrc.virginia.gov/calendar.shtm](http://www.mrc.virginia.gov/calendar.shtm). More information: phone (757) 247-2200, TDD (757) 247-2292; main Web page: [www.mrc.virginia.gov/index.shtm](http://www.mrc.virginia.gov/index.shtm).

**State Water Control Board**—Meets quarterly; most recent meeting: 7/23/09; minutes of SWCB meetings are available at the Virginia Regulatory Town Hall Web site, <http://www.townhall.state.va.us/L/meetings.cfm> (click on “Past Year” to access meeting minutes from the past 12 months). More information: Cindy Berndt.

**Cave Board**—Meet three times per year; most recent meeting: 8/15/09. More information: phone (804) 786-7951; Web site: [www.dcr.virginia.gov/natural\\_heritage/cavehome.shtm](http://www.dcr.virginia.gov/natural_heritage/cavehome.shtm).

**Chesapeake Bay Local Assistance Board**—Meets March, June, September, and December. Most recent meeting: 6/16/09 (Policy Committee and full board). More information: phone (800) CHESBAY; Web site: [www.dcr.virginia.gov/chesapeake\\_bay\\_local\\_assistance/board.shtm](http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/board.shtm).

**Conservation and Recreation Board**—Meets at least three times/year, upon call of chair. Most recent meeting: 8/20/09. More information: David C. Dowling, (804)786-2291 or david.dowling@dcr.virginia.gov; Web site: [www.dcr.virginia.gov/bcr.shtm](http://www.dcr.virginia.gov/bcr.shtm).

**Game and Inland Fisheries Board**—Meets bimonthly; most recent meetings: 7/14/09 and 8/18/09 (full board); 8/10/09 (Wildlife and Boat Committee). More information: Beth B. Drewery; Web site: [www.dgif.virginia.gov/about/](http://www.dgif.virginia.gov/about/).

**Gas and Oil Board**—Meets monthly; most recent meetings: 7/21/09, 8/18/09. More information: David Asbury; Web site: <http://www.dmme.virginia.gov/divisiongasoil.shtm>.

**Groundwater Protection Steering Committee**—Meets third Tuesday of odd-numbered months; most recent meeting: 7/21/09. More information: Mary Ann Massie; Web site: [www.deq.virginia.gov/gwpsc/](http://www.deq.virginia.gov/gwpsc/).

**Land Conservation Foundation**—Meets about three times per year; most recent meeting: 3/27/09. More information: phone (804) 786-3218; Web site: [www.dcr.virginia.gov/virginia\\_land\\_conservation\\_foundation/index.shtm](http://www.dcr.virginia.gov/virginia_land_conservation_foundation/index.shtm).

**Licensing and Regulation Boards**—Licensing boards for engineers, geologists, onsite sewage system professionals, soil scientists, waste-management facility operators, waterworks and wastewater works operators, and wetland delineators are under the Dept. of Professional and Occupational Regulation; phone (804) 367-8500, TDD (804) 367-9753; Web site: [www.dpor.virginia.gov/dporweb/boards.cfm](http://www.dpor.virginia.gov/dporweb/boards.cfm).

**Outdoors Foundation**—Meets at least quarterly; most recent meetings: 9/3/09 (Resource and Development Committee, Preservation Trust Fund Committee, and full Board of Trustees). More information: Bobbie Cabibbo at (540) 327-7727 or bcabibbo@vofonline.org; Web site: [www.virginiaoutdoorsfoundation.org](http://www.virginiaoutdoorsfoundation.org).

**Scenic River Advisory Board**—Meets at least two times a year. Most recent meeting: 5/14/09. More information: Lynn Crump, DCR, (804) 786-5054 or lynn.Crump@dcr.virginia.gov; Web site: [www.dcr.virginia.gov/recreational\\_planning/srmain.shtm](http://www.dcr.virginia.gov/recreational_planning/srmain.shtm).

**Soil and Water Conservation Board**—Meets bimonthly; most recent meeting: 7/23/09. More information: phone the DCR at (804) 786-1712; Web site: [www.dcr.virginia.gov/soil\\_and\\_water/vs&wcb.shtm](http://www.dcr.virginia.gov/soil_and_water/vs&wcb.shtm).

**Waste Management Board**—Meets about three times per year. More information: contact: Dept. of Environmental Quality, (800) 592-5482; Web site: [www.deq.virginia.gov/cboards/homepage.html#waste](http://www.deq.virginia.gov/cboards/homepage.html#waste).

## N O T I C E S

If you would like to receive e-mail notifications about meetings, reports, and other items related to water quality and water monitoring, you may do so by joining the Virginia Water Monitoring Council; contact Jane Walker at (540) 231-4159 or janewalk@vt.edu.

All Web sites listed in this section were functional as of September 14, 2009.

### World Water Monitoring Day

September 18 is the official World Water Monitoring Day, but since March 22 (World Water Day) and continuing through December 31, 2009, volunteers from around the world will be participating in the event. Anyone with an interest in water quality is encouraged to participate. The event focuses on four key water-quality measures: temperature, dissolved oxygen, pH, and turbidity. Participants can register and enter their data online by going to [www.worldwatermonitoringday.org](http://www.worldwatermonitoringday.org).

The Virginia Department of Environmental Quality (DEQ) is distributing a limited number of water monitoring kits (shown at right; photo courtesy of Water Environment Federation). Each kit can perform up to 50 tests for dissolved oxygen, pH, turbidity, and temperature. The kits are free, but please limit the number that you request. To order kits, contact Stuart Torbeck at [charles.torbeck@deq.virginia.gov](mailto:charles.torbeck@deq.virginia.gov) and provide your mailing address and the number of kits needed. More information about test kits is available online at [www.worldwatermonitoringday.org/Test\\_Kits/Kits\\_Main.html](http://www.worldwatermonitoringday.org/Test_Kits/Kits_Main.html).



To learn more about World Water Monitoring Day events occurring in Virginia, visit [http://va.water.usgs.gov/wqday\\_09/intro.htm](http://va.water.usgs.gov/wqday_09/intro.htm).

### “Extreme Stream Makeover” of Blackwater Creek, Oct 19-22, 2009

The Blackwater Creek watershed includes portions of Bedford and Campbell counties and the city of Lynchburg. “Extreme Stream Makeover” is a week-long, local project aimed at sparking greater community involvement and public action to improve and restore water quality. Hundreds of volunteers will work at various sites throughout the watershed. Sponsored by the James River Association (JRA) and local government, businesses, and organizations. More information: [www.jamesriverassociation.org/what-we-do/extreme-stream](http://www.jamesriverassociation.org/what-we-do/extreme-stream), or contact JRA at (804) 788-8811 or [info@jamesriverassociation.org](mailto:info@jamesriverassociation.org).

### Toyota TAPESTRY Grants for Science Teachers

The Toyota TAPESTRY Grants for Science Teachers program is now accepting entries for the 2009-2010 competition, through **January 18, 2010**. Grants of up to \$10,000 each to K-12 teachers for innovative, year-long projects that enhance science education. Fifty large grants and a minimum of 20 mini-grants totaling \$550,000 will be awarded this year in three categories: physical science application; environmental science education; and integrating literacy and science. Applicants must either be an elementary teacher who teaches science in the classroom or a middle or high school science teacher, and they must be residents of one of the 50 states; Washington, D.C.; or the U.S. territories. More information: [www.nsta.org/pd/tapestry/](http://www.nsta.org/pd/tapestry/).

### Nutrient Trends Report from USGS

The U.S. Geological Survey (USGS) has released *Nutrient Trends in Streams and Rivers of the United States, 1993-2003*. The 52 study sites included five locations in Virginia, on the Appomattox, James, Mattaponi, Pamunkey, and Rappahannock rivers. Available online at <http://pubs.usgs.gov/sir/2008/5202/>; or contact the USGS Water Science Center in Colorado at (303) 236-4882.

### Stormwater Best Management Practices in the James River Watershed

*Stormwater BMPs in Virginia's James River Basin: An Assessment of Field Conditions & Programs* is a June 2009 report from the Center for Watershed Protection. This study surveyed the performance of about 200 stormwater BMP facilities in urban areas throughout the James River watershed. The report is online at [http://www.cwp.org/Resource\\_Library/Center\\_Docs/SW/ExtremeBMP/extrmbmp\\_tech\\_rp09.pdf](http://www.cwp.org/Resource_Library/Center_Docs/SW/ExtremeBMP/extrmbmp_tech_rp09.pdf).

## Human Health and the Chesapeake Bay

In July, the Chesapeake Bay Foundation (CBF) issued *Bad Water 2009—The Impact on Human Health in the Chesapeake Bay Region*, which focuses on bacteria (particularly *Vibrio*) in swimming and fishing waters, nitrate in drinking water, and mercury in fish as three main **human-health threats from polluted waters** in the Chesapeake Bay watershed. The report is available online at [www.cbf.org/Page.aspx?pid=521](http://www.cbf.org/Page.aspx?pid=521), or contact CBF at (804) 780-1392 (Virginia office) or [chesapeake@cbf.org](mailto:chesapeake@cbf.org).

## Pesticides in the Chesapeake Bay

*Pesticides and the Maryland Chesapeake Bay Watershed* is a 44-page white paper published in July 2009 by the Pesticides and the Chesapeake Bay Watershed Project, whose co-sponsors are the Maryland Pesticides Network and the Johns Hopkins Center for a Livable Future. The report covers usage of pesticides, effects on aquatic life and wildlife, possible public health effects, sources of pesticides, laws and policies, and preventing pesticide pollution. Available online at [www.mdpestnet.org/publications/MPN-2009WhitePaper.pdf](http://www.mdpestnet.org/publications/MPN-2009WhitePaper.pdf), or contact the Maryland Pesticides Network at (410) 849-3909 or [info@mdpestnet.org](mailto:info@mdpestnet.org).

## Oyster Restoration Efforts Reviewed

*Native Oyster (*Crassostrea virginica*) Restoration in Maryland and Virginia: An Evaluation of Lessons Learned 1990-2007*, a May 2009 report from Maryland Sea Grant, reviews data from hundreds of oyster-restoration efforts to identify what has worked and what hasn't. The review was done by the Oyster Restoration Evaluation Team, a group of six scientists from Florida, Maryland, and Virginia. The report is available online at [www.mdsg.umd.edu](http://www.mdsg.umd.edu), or contact Maryland Sea Grant at (301) 405-7500.

## Interested in Ponds?

*The Pond Guidebook* from the Natural Resource, Agriculture, and Engineering Service (NRAES) at Cornell University, covers potential uses of ponds, measurements, construction and maintenance, fish management, aquatic plants, wildlife, recreational use and safety, and use for fire suppression. References are listed for specific topics. Not available online; for ordering information, visit <http://www.nraes.org/> or contact NRAES at P. O. Box 4557, Ithaca, NY 14852-4557; (607) 255-7564; [nraes@cornell.edu](mailto:nraes@cornell.edu).

## 30 Seconds of Fame for Septic Systems

The National Environmental Services Center (NESC) at West Virginia University has available three 30-second public service announcements (PSA) about proper septic system maintenance and its importance. The humorous PSAs emphasize the key role of individuals in helping protect water supplies and water quality. The PSAs are available for viewing or downloading at [www.nesc.wvu.edu/subpages/psa.cfm](http://www.nesc.wvu.edu/subpages/psa.cfm). You can reach the NESC at (800) 624-8301 or [info@mail.nesc.wvu.edu](mailto:info@mail.nesc.wvu.edu).

## USDA Census of Agriculture by Watersheds

The U.S. Department of Agriculture's *Census of Agriculture* (published every five years) now has a version organized by watersheds. Produced in May 2009, the new document organizes 38 land characterizations from the 2007 and 2002 census reports at the 6-digit hydrologic unit code (HUC) level (the level of river basins such as the James or Potomac). The publication is available online at [www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Watersheds](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Watersheds).

## Grading America's Infrastructure

In January 2009, the American Society of Civil Engineers published its latest *Report Card for America's Infrastructure*. The report examines current conditions and estimates the cost of need repairs in 15 areas of infrastructure. The nation's infrastructure overall received a "grade" of D in this report. Water-related sections of the report include Bridges, Dams, Drinking Water, Hazardous Waste, Inland Waterways, Levees, Solid Waste, Wastewater, and Energy. The report, past reports (1998, 2001, 2003, and 2005), and more information are available online at [www.infrastructurereportcard.org/index](http://www.infrastructurereportcard.org/index).

## Pandemic Influenza Fact Sheet for the Water Sector

This U.S. EPA fact sheet provides information to assist the water sector in integrating pandemic planning into existing business continuity and emergency response plans and reducing the risk to public health that would be caused by disruption in operation of water systems. Available online at <http://cfpub.epa.gov/safewater/watersecurity/pandemicflu.cfm>.



## Energy and Climate Notices

•A summary of the major provisions of the energy and climate bill (H.R. 2454, the **American Clean Energy and Security Act of 2009**) passed by the U.S. House of Representatives on June 26, is available online from “Environment and Energy Daily” at [http://www.eenews.net/special\\_reports/us\\_climate\\_debate/hr2454/](http://www.eenews.net/special_reports/us_climate_debate/hr2454/).

•**Climate Change and Water Resources Management – A Federal Perspective** (USGS Circular 1331; 65 pages) is a February 2009 report from the U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Reclamation, and National Oceanic and Atmospheric Administration. According to the summary, the report seeks to “explore strategies to improve water management by tracking, anticipating, and responding to climate change.” The report is online at <http://pubs.usgs.gov/circ/1331/>, or phone (888) ASK-USGS.

•For information on carbon capture and sequestration technology and research efforts, visit the **U.S. Department of Energy’s “Carbon Sequestration” Web page** at [www.fossil.energy.gov/programs/sequestration/](http://www.fossil.energy.gov/programs/sequestration/).

•In June, the National Research Council released a new report on renewable energy: **Electricity from Renewables: Status, Prospects, and Impediments**. For access to the online version or for print-copy information, visit [http://www.nap.edu/catalog.php?record\\_id=12619](http://www.nap.edu/catalog.php?record_id=12619) or phone (800) 624-6242.

•**Unlocking Energy Efficiency in the U.S. Economy**, a July report by the consulting firm McKinsey & Company, asserts that the United States can reduce its energy consumption by 23 percent by 2020, saving an estimated \$1.2 trillion. Accomplishing this would take an investment of \$520 billion over that 10-year period. The 165-page report is available at [www.mckinsey.com/clientervice/electricpowernaturalgas/US\\_energy\\_efficiency/](http://www.mckinsey.com/clientervice/electricpowernaturalgas/US_energy_efficiency/).

•**“Electric Infrastructure and the Future of Virginia’s Economy,”** in the Summer 2009 edition of *Virginia Issues and Answers*, discusses the role of electric and electronic infrastructure in Virginia’s present and predicted future economy. The article includes five key factors for future infrastructure to support a competitive economy, and it includes a useful explanation of the frequently seen phrase, “smart electrical grid.” In the same edition, **“Why Do We Need a Green Revolution?”** is an interview with Pulitzer Prize-winning author Thomas Friedman on the central role of energy in a range of global issues. Among the topics discussed are the potential impacts of putting a cost on carbon, the opportunity for the United States (and Virginia) to be a clean-energy industry leader, and the practice of electricity “decoupling” (providing ways for electric utilities to profit from energy conservation by customers). Available online at [www.via.vt.edu](http://www.via.vt.edu), or contact the Virginia Tech Office of University Relations at (540) 2321-6867 or phylo@vt.edu.

## Upcoming Conferences and Workshops

Between newsletters, please visit the Water Center’s “Quick Guide to Water-related Meetings and Conferences in Virginia,” on our Web site at [www.vwrc.vt.edu/VAConfQuickGuide.html](http://www.vwrc.vt.edu/VAConfQuickGuide.html).

### Events in Virginia

Through October 31, statewide: **Virginia Waterways Cleanup**, in conjunction with the **International Coastal Cleanup**. Organized by Clean Virginia Waterways. More information: (434) 395-2602 or [cleanva@longwood.edu](mailto:cleanva@longwood.edu); Web site: [www.longwood.edu/cleanva/iccva.htm](http://www.longwood.edu/cleanva/iccva.htm).

September 24 to November 19, every other Thursday: **28th International Submerged Lands Management Conference Webinar Series**. Online only seminars; see specific dates and topics below; all held at 3 p.m. Eastern time. More information: Kelly Samek, Florida Department of Environmental Protection at [Kelly.Samek@dep.state.fl.us](mailto:Kelly.Samek@dep.state.fl.us); Web site: [www.submergedlandsconference.com](http://www.submergedlandsconference.com).

**Webinar dates and topics:** Sep. 24: Public Trust; Oct 8: Working Waterfronts; Oct. 22: Water Dependency; Nov. 5: Wetlands Restoration/Climate Change Adaptation; Nov. 19: Marine Spatial Planning.

Sep. 29, Spotsylvania County Schools Administration Building: **Low Impact Development: Uses for Watershed Protection**. Organized by the Virginia Water Monitoring Council. More information: Jane Walker, at (540) 231-4159 or [ywmc@vt.edu](mailto:ywmc@vt.edu); Web site: [www.vwrc.vt.edu/ywmc/March2009Conference\\_followup.htm](http://www.vwrc.vt.edu/ywmc/March2009Conference_followup.htm).

Oct. 2-4, Blacksburg: **Geomorphology and Vegetation: 40th Annual Binghamton Geomorphology Symposium**. Organized by Virginia Tech departments of Biological Systems Engineering, Civil and Environmental Engineering, and Geography. More information: Cully Hession, (540) 231-9480 or [chession@vt.edu](mailto:chession@vt.edu); Web site: <http://twosweet.bse.vt.edu/bing2009/>.

Oct. 7-8, Virginia Military Institute, Lexington: **4th Annual Commonwealth of Virginia Energy Symposium.** Organized by VMI's Center for Leadership and Ethics. More information: Major Amy K. DeHart, (540) 464-7740 or dehartak@vmi.edu; Web site: <http://www.vmi.edu/show.aspx?tid=27297&id=29361>.

Oct. 9, Richmond: **Mapping Virginia Communities Workshop: An Introduction to GIS and Community Analysis.** resented by New Urban Research, Inc., of Portland, Ore. More information: Gina Clemmer at (877) 241-6576 or gclimmer@newurbanresearch.org; Web site: <http://www.nur-online.com/>.

Oct. 15-16, Richmond: **Virginia Water Research Conference—Water Resources in Changing Climates.** Organized by the Virginia Water Resources Research Center and VCU Rice Center for Environmental Life Sciences. **Please see page 45 for more information.**

Oct. 15, Stratford Hall, Stratford (Westmoreland County): **Stormwater Management and TMDLs.** Annual meeting of the Virginia Chapter of the Soil and Water Conservation Society. More information: Fred Gars at (540) 434-1404 ext. 125 or fred.garst@va.usda.gov; Web site: <http://www.bse.vt.edu/swcs/>.

Oct. 17, Roanoke area: **Dam Owners Workshop.** Organized by the Virginia Lakes and Watersheds Association. More information: Lisa Cahill at lisa@watershedservices.net; Web site: <http://www.vlwa.org/>.

October 28, James Madison University's Festival Conference Center, Harrisonburg, Shenandoah **"Water and the Developing Landscape: Stormwater Regulations, Explanations & Opportunities."** Organized by Shenandoah Valley Pure Water Forum. More information: Bruce Lundeen at (540) 434-3392 or lundeebe@cisat.jmu.edu. After September 28, also look for more information at the Virginia Watersheds Alliance Web site at [www.vawatersheds.org](http://www.vawatersheds.org) or the Pure Water Forum Web site at [www.purewaterforum.org](http://www.purewaterforum.org).

### **Events Elsewhere**

Sep. 24, Washington, D.C.: **Beyond Stationarity: Climate change and water resources management today—adaptation opportunities and challenges from local to national scale.** Panel discussion organized by the National Capital Region Section of the American Water Resources Association. The panel includes (among others) former Virginia Water Resources Research Center Director Leonard Shabman. More information: Marian Norris at (202)342-1443, x206, or marian\_norris@nps.gov; Web site: [www.awra.org/state/natcap/events.htm](http://www.awra.org/state/natcap/events.htm).

Sep. 30-Oct. 2, Atlanta, Ga.: **Southeast Stormwater Association Annual Conference.** More information: Danielle Hopkins at (850) 561-0904 or danielleh@ksanet.net; Web site: [www.seswa.org/conferences.asp](http://www.seswa.org/conferences.asp).

Oct. 2-5, Boulder, Colo.: **Ground Water and Climate Change.** Organized by the National Ground Water Association. More information: (800) 551-7379 or customerservice@ngwa.org; Web site: [www.ngwa.org/development/conferences/details/0910025100.aspx](http://www.ngwa.org/development/conferences/details/0910025100.aspx).

Oct. 9-11, Shepherdstown, W. Va.: **Chesapeake Watershed Forum.** Organized by the Alliance for the Chesapeake Bay. More information: Lou Etgen at (410) 377-6270 or letgen@acb-online.org; Web site: [www.acb-online.org/ChesForum2009.cfm](http://www.acb-online.org/ChesForum2009.cfm).

Oct. 10-14, Orlando, Fla.: **Water Environment Federation Annual Technical Exhibition and Conference.** More information: (800) 666-0206; Web site: <http://www.weftec.org>.

Oct. 15-16, Isleta, N.M.: **54<sup>th</sup> Annual New Mexico Water Conference.** Organized by the New Mexico Water Resources Research Institute. More information: (575) 646-4337 or nmwrri@wrri.nmsu.edu; Web site: <http://wrri.nmsu.edu/conf/conf09/conf.html>.

Oct. 22-23, Charleston, S.C.: **Hurricane Hugo 20<sup>th</sup> Anniversary Symposium on Building Safer Communities.** Organized by the Applied Technology Council. More information: (650) 595-1542; Web site: [www.atcouncil.org](http://www.atcouncil.org).

Oct. 26-28, Portland, Ore.: **Association of State Drinking Water Administrators Annual Conference.** More information: Tom Maves at (202) 293-7655; Web site: <http://www.asdwa.org/>.

Nov. 1-5, Portland, Ore.: **Estuaries and Coasts in a Changing World.** 20<sup>th</sup> biennial conference of the Coastal and Estuarine Research Federation. More information: (410) 326-7467 or info@erf.org; Web site: <http://www.sgmeet.com/cerf2009/default.htm>.

Nov. 9-12, Seattle, Wash.: **American Water Resources Association Annual Conference.** More information: (540) 687-8390 or info@awra.org; Website: [www.awra.org/meetings/Seattle2009/index.html](http://www.awra.org/meetings/Seattle2009/index.html).

Jan. 20-22, 2010, Washington, D.C.: **10<sup>th</sup> National Conference on Science, Policy, and the Environment: The New Green Economy.** Organized by the National Council for Science and the Environment. More information: (202) 530-5810 or conference@ncseonline.org; Web site: <http://ncseonline.org/conference/greeneconomy/>.

## Also Out There...

(Brief descriptions of some interesting articles *Water Central* has recently discovered.)

• **“Future Proofing Cities,”** in the May 2009 issue of *Natural Hazards Observer*, discusses the similarities among Australian and western U.S. cities in meeting their water needs from distant sources, and the challenges that cities face in developing resilience in their water supplies. In the July 2009 issue, **“How Certain Are We About Our Flood Risk?”** examines the current state of assessing, preparing for, and managing flood risks and impacts, including thought-provoking comments on the 100-year floodplain standard, flood insurance programs, levee construction and management, and risk factors in current prediction methods. Available online at [www.colorado.edu/hazards/o/](http://www.colorado.edu/hazards/o/); or contact the Natural Hazards Center in Boulder, Colo., at (303) 492-6818 or [hazctr@colorado.edu](mailto:hazctr@colorado.edu).

• **“Once Shunned, Wastewater Now Viewed as a Valuable Resource,”** in the Summer 2009 issue of *Arroyo* from the Arizona Water Resources Research Center. Focusing on Arizona, where reclaimed water has been used since the 1980s, this article discusses reclaimed/recycled/reused water possibilities, issues, and technology. (Virginia’s water reuse and reclamation regulation, 9VAC25-740-10 et. seq., was approved in Dec. 2007 and took effect in Oct. 2008.) Available online at <http://ag.arizona.edu/azwater/arroyo/>, or contact the Arizona center at (520) 791-9591 or [wrrc@cals.arizona.edu](mailto:wrrc@cals.arizona.edu).

• **“Coal’s Future Wagered on Carbon Capture.”** This article by Steven Mufson in the “Green” section of the August 11, 2009, *Washington Post* describes in valuable detail some of the technological, financial, and oversight challenges of capturing and sequestering carbon dioxide from coal-fired power plants in order to reduce significantly coal’s impact on greenhouse gas emissions. To access the article online, go to [www.washingtonpost.com/wp-srv/nation/green/index.html](http://www.washingtonpost.com/wp-srv/nation/green/index.html) and search for the title or author.

• **Special Coverage: King William Reservoir,** in the Newport News *Daily Press*, August 16-18, 2009. In these three editions, the *Daily Press* reviews the long history of Newport News’ ultimately unsuccessful attempt to build a reservoir in King William County. The main articles are the following: “What happened and what went wrong with the King William Reservoir project,” 8/16/09; “Environmentalists, King William County residents and Mattaponi Indians explain why they fought the reservoir for so many years,” 8/17/09; and “Newport News officials lay out future water needs and some alternatives to the reservoir,” 8/18/09. The *Daily Press* home page is <http://www.dailypress.com>; or contact the newspaper at (757) 247-4600.

## AT THE WATER CENTER

To reach the Virginia Water Resources Research Center: phone (540) 231-5624; FAX (540) 231-6673; e-mail [water@vt.edu](mailto:water@vt.edu); Web site [www.vwrrc.vt.edu](http://www.vwrrc.vt.edu).

### New Publications

The following recently published Water Center report is available at our Web site at [http://www.vwrrc.vt.edu/special\\_reports.html](http://www.vwrrc.vt.edu/special_reports.html):

*Water Dependency of Energy Production and Power Generation Systems*, by Tamim Younos, Rachelle Hill and Heather Poole. Special Report 46-2009.

### Grant Received

“Non-Navigation Beneficiaries of Lock and Dam Projects.” The principal investigator is Tamim Younos of the Water Center, and the co-principal investigator is John Bigger of the Virginia Tech Advanced Research Institute in Arlington, Va. The grant of \$100,000 from the National Waterways Foundation will support a study of the use and cost of water for selected power generation facilities across the United States. The project will also examine special issues such as the impact of dam removal on power generation. The project runs 9/1/09 to 5/30/10. For more information: Tamim Younos at [tyounos@vt.edu](mailto:tyounos@vt.edu) or (540) 231-8039.



## 2009 VIRGINIA WATER RESEARCH CONFERENCE



2009 VIRGINIA WATER RESEARCH CONFERENCE

# WATER RESOURCES *in* CHANGING CLIMATES

OCTOBER 15-16, 2009  
 TRANI CENTER FOR LIFE SCIENCES,  
 VIRGINIA COMMONWEALTH UNIVERSITY,  
 MONROE PARK CAMPUS, RICHMOND, VA

Virginia WATER RESOURCES Research Center

VCU Rice Center

FOR MORE INFORMATION, VISIT OUR WEBSITE: [WWW.VWRRC.VT.EDU](http://WWW.VWRRC.VT.EDU)

ENVIRONMENTAL CHANGES      POLITICAL CHANGES      ECONOMIC CHANGES

In October, the Virginia Water Resources Research Center and the Rice Center for Environmental Life Sciences at Virginia Commonwealth University will present “Water Resources in Changing Climates,” a research conference to address environmental, political, and economic changes faced by stakeholders, researchers, and managers of water resources.

Special keynote speakers include Preston Bryant, Virginia secretary of natural resources and Virginia Burkett, chief scientist for global change research at the U.S. Geological Survey.

Morning and afternoon sessions will be held concurrently during the two day conference. Session topics include stormwater management, water conservation and alternative water supplies, climate change, nutrient cycles, monitoring changes within watersheds, modeling water quantity and quality, managing wastewater, and more.

A poster session will also be presented on day two of the conference.

The conference will be **October 15-16, 2009**, at the Trani Center for Life Sciences on Virginia Commonwealth University’s Monroe Park Campus in Richmond, Virginia. Lodging is available at the [DoubleTree Hotel Richmond Downtown](http://www.doubletree.com) at the special rate of \$89 plus tax per room per night (good through September 23, 2009).

**Online registration is open until October 2** at [www.vwrcc.vt.edu/2009conference.html](http://www.vwrcc.vt.edu/2009conference.html). For more information, contact Jane Walker at (540) 231-4159 or [janewalk@vt.edu](mailto:janewalk@vt.edu).



## TEACHING WATER

### Especially for Virginia's K-12 teachers

### This Issue and the Virginia Standards of Learning

Below are suggestions for Virginia Standards of Learning (SOLs) that may be supported by items in this issue. The SOLs listed below are from Virginia's 2003 Science SOLs and 2001 Social Studies SOLs. **Abbreviations:** BIO = biology; CE = civics and economics; ES=earth science; GOV = Va. and U.S. government; LS=life science; WG = world geography.

Newsletter Section	Science SOLs	Social Studies SOLs
Feature: Water-quality Policies	6.5, 6.9, LS.12, ES.7, ES.9, BIO.9	CE.3, CE.7, WG.2, WG.7, WG.12, GOV.7, GOV.8, GOV.9
For the Record: Waterway Condition Reports	4.8, 6.5, 6.7, LS.7, LS.12, ES.7, ES.9, BIO.9	CE.3, CD.7, WG.2, WG.7, WG.12, GOV.9
Water Status (precipitation, groundwater, stream flow, tropical storms, and drought)	4.5, 4.6, 4.8, 6.5, 6.6, 6.7, LS.7, LS.12, ES.7, ES.9, ES.13	WG.2

### YOU GET THE LAST WORD

Please answer the following questions to let us know whether the newsletter is meeting your needs. Please send your responses to the e-mail or mailing address in the box below.

1. Would you rate the **content** of this issue as good, fair, or poor?
2. Would you rate the **appearance** as good, fair, or poor?
3. Would you rate the **readability** of the articles as good, fair, or poor?
4. What **length** is about right: 8 pages? 12 pages? 16 pages? 24 pages? More? \_\_\_ Fewer? \_\_\_
5. What **frequency** is about right? 4 issues per year? 6 issues per year? More? \_\_\_ Fewer? \_\_\_
6. Please add any other **comments** you wish to make.

## Virginia Water Central

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If you do not have Internet access and would like a photocopy of the newsletter, please contact us. Thank you!