

Virginia Water Central

Virginia Water Resources Research Center Blacksburg, Virginia April 2004 (No. 30)



Debris indicating past high water on the James River at Springwood in Botetourt County, Va., February 2004. See the Water Status Report for an update on Virginia stream flows.

FEATURE ARTICLE

Water in the 2004 Virginia General Assembly

The 2004 Virginia General Assembly convened January 14 and was scheduled to adjourn March 13, with a reconvened (“veto”) session planned for April 21. The main issue in this session was the competing budget proposals (for fiscal years 2005 and 2006) from the governor, House of Delegates, and Senate. The Assembly could not agree upon a budget bill by March 13, so the session was extended for three days. With still no agreement in place, the governor called a special budget session commencing March 17; as of April 13, the legislators had not reached final agreement.

Despite the overwhelming presence of the budget issue, the legislature still considered 3006 measures; 1715 passed both houses, 866 failed, and 425 were carried over to 2005. Beginning on page 2, this article lists **84 measures related to water resources or to land activities with a potential impact on water.** The list comes from the Legislative Information Service (LIS) Web site, at leg1.state.va.us. We searched for water-related bills list in nine subject categories used by the LIS: Conservation; Drainage, Soil Conservation, Sanitation, and Public Facilities Districts; Fisheries and Habitat of Tidal Waters; Game, Inland Fisheries and Boating; Health; Mines and Mining; Waste Disposal; Water and Sewer Systems; and Waters of the State, Ports and Harbors.

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We have organized our list by category, alphabetically. Where LIS listed bills under more than one category, we have placed the bill in the first category alphabetically. Within each category, bills are listed in order of their **bill number**, using the following abbreviations: **HB**

= bill started in House of Delegates; **HJ** = joint resolution started in the House; **SB** = bill started in the Senate; and **SJ** = joint resolution started in the Senate. We have numbered the bills consecutively to help refer readers from one bill to another; these numbers, however, have no *legislative* significance.

The bill summaries were taken directly from LIS, with some editing for space, clarity, or emphasis.



At the end of the article, we provide a table of the bill numbers and titles only (no summaries) grouped according to bill fate (passed, failed, or carried over).

Abbreviations:

DCR—Virginia Department of Conservation and Recreation;
DEQ—Virginia Department of Environmental

Quality;
DGIF—Virginia Department of Game and Inland Fisheries;
SWCB—State Water Control Board;
VIMS—Virginia Institute of Marine Science;
VMRC—Virginia Marine Resources Commission;
WQIF—Virginia Water Quality Improvement Fund.

CONSERVATION

- 1) **HB 445 Erosion and sediment control and stormwater management inspectors; certificate of competence. PASSED.** Requires personnel of the Department of Conservation and Recreation (DCR) (inspects for compliance with the Erosion and Sediment Control Law) and the Department of Environmental Quality (DEQ) (inspect for compliance with stormwater management permits) to hold valid certificates of competence of the Erosion and Sediment Control Law.
- 2) **HB 693 Natural and Historic Resources Fund and Commission; created, report. FAILED.** Would have created the Virginia Natural and Historic Resources Fund, a permanent, non-reverting fund of money appropriated by the General Assembly and any other public or private money. The money in the Fund would have been allocated by the Secretary of Natural Resources to the Virginia Land Conservation Fund and the Virginia Water Quality Improvement Fund (WQIF). The bill would have established a seven-member commission to provide recommendations to the Secretary regarding the allocation of the Fund. Under the legislation, the \$10 fee currently assessed on various deeds for which the state recordation tax is collected would have been dedicated to the Fund. An identical bill, **SB 569**, and a related bill, **SB 527**, also failed.
- 3) **HB 719 Chesapeake Bay Preservation Act; requires attorney general to defend locality if any private legal action is brought. CARRIED OVER.** Would require the attorney general, if requested by a locality, to defend the locality in a private legal action resulting from the locality's adoption or implementation of criteria developed by the Chesapeake Bay Local Assistance Board to regulate the land use and protect water quality. An identical bill, **SB 104**, failed. For a related bill, see **SB 427** (#15 below).

- 4) **HB 883 Conservation easements; holders to have principal office in State. PASSED.** Reduces, from five to four, the minimum number of years required for a holder of a conservation easement to have a principal office in the Commonwealth.
- 5) **HB 1177 Stormwater management programs; reorganization. PASSED.** Consolidates Virginia's stormwater management programs within the DCR and transfers oversight responsibilities from the Virginia Board of Conservation and Recreation to the Virginia Soil and Water Conservation Board.
- 6) **HB 1271 Soil and water conservation districts; nonpoint source pollution activities. PASSED.** Specifies the roles of soil and water conservation districts. Districts are to assist the DCR in (i) providing technical assistance to promote conservation management practices, (ii) delivering educational initiatives on water quality issues, and (iii) promoting incentives to encourage voluntary actions to minimize nonpoint source pollution. The districts will also be responsible for locally administering the Department's Agricultural Best Management Practices Cost-Share Assistance Program.
- 7) **HB 1283 Erosion & Sediment Control Law; definition of land-disturbing activity. PASSED.** Specifies that only those surface or deep mining activities that are *authorized under a permit* issued by the Department of Mines, Minerals and Energy shall be excluded from the Erosion and Sediment Control Law's definition of "land-disturbing activity."
- 8) **HB 1350 Environmental permit fees; applicable to water and non-hazardous solid waste. PASSED.** Assesses a combination of permit application fees, annual fees, and permit maintenance fees that will generate approximately \$6 million for the funding of air, water, and waste permit programs at the DEQ; authorizes the Air Pollution Control Board to collect a permit application fee not to exceed \$30,000 for new major stationary sources; establishes annual fees for various non-hazardous solid waste management facilities including non-captive industrial landfills, construction and demolition debris landfills, sanitary landfills, incinerators, and other types of facilities; and establishes the maximum amounts that the State Water Control Board (SWCB) can charge for processing various types of water permits and the maximum amounts it can assess as a permit maintenance fee on each permit type. An identical bill, **SB 365**, also passed.
- 9) **HB 1418 Water quality improvement fee; imposition. CARRIED OVER.** Would impose a \$1 per month fee on owners of improved real property having a value of more than \$60,000, with localities responsible for collecting the fee and remitting the funds to the State Treasurer for deposit in the WQIF. An additional \$1 per month fee would be assessed on such property owners if they are served by a wastewater treatment facility. The locality would be allowed to withhold quarterly \$10,000 or three percent of the amount due, whichever is less, to cover its administrative expenses. Seventy percent of the funds received would be allocated for point-source pollution programs and 30 percent for nonpoint source-pollution programs.
- 10) **HB 1436 Subaqueous lands; Marine Resources Commission to grant easement in Elizabeth River to VEPCO. PASSED.** Authorizes the Virginia Marine Resources Commission (VMRC) to grant an easement and 50-foot right-of-way to Virginia Electric and Power Company (VEPCO) in the Elizabeth River for the construction of an additional electrical transmission line cable to provide service to Norfolk and the surrounding area.
- 11) **SB 104 Chesapeake Bay Preservation Act; requires attorney general to defend locality if any private legal action is brought. FAILED.** See **HB 719** (#3 above).
- 12) **SB 322 Natural resources; recovery of damages to State. CARRIED OVER.** Would allow the attorney general to employ special counsel if he or she decides it is impracticable or uneconomical for the attorney general's office to render the required legal services for cases involving the recovery of damages to natural resources.
- 13) **SB 365 Environmental permit fees; applicable to water and non-hazardous solid waste. PASSED.** See **HB 1350** (#8 above).
- 14) **SB 426 Stormwater; regulation of billing charges. PASSED.** Allows a locality to combine the billings for stormwater charges with billings for water or sewer charges and to establish by ordinance the order in which payments will be applied to the different charges.
- 15) **SB 427 Chesapeake Bay Preservation Act; expands boundaries. FAILED.** Expands the boundaries of the Chesapeake Bay Preservation Act to include the entire watershed of the Chesapeake Bay, not just Tidewater. For a related bill, see **HB 719** (#3 above).
- 16) **SB 523 Watershed Coordination Program; established. PASSED.** Directs the DCR to create the Watershed Coordination Program to engage stakeholders within each of 14 major river basins to develop comprehensive strategic plans to mitigate and prevent nonpoint-source water pollution. The Program

will continue the work of watershed roundtables, support citizen stewardship activities, and be coordinated with the agencies of the Secretariat of Natural Resources, the Department of Forestry, and the Department of Agriculture and Consumer Services. The Program will be funded with private funds; however, the initial costs associated with the development of the Program shall be paid from the WQIF. This bill allows up to \$65,000 per year from the WQIF to be used to cover costs of administering the Program. The DCR may assist in fund-raising efforts to supplement the Fund and provide assistance to the fund-raising efforts of the watershed roundtables.

- 17) **SB 527 Land and Water Conservation Trust Fund; established. FAILED.** Would have established the Land and Water Conservation Trust Fund, capitalized from revenue generated from a fee imposed on waterworks owners of \$2 per water connection, a \$10 fee for each instrument recorded in deed books and upon each judgment docketed in the judgment lien docket book, general fund appropriations, and any other moneys available from public and private sources. This money was to be allocated as follows: at least 47 percent to the Virginia Land Conservation Fund, at least 47 percent going to the WQIF, and up to six percent for management and administration of these two funds. Two related bills, **HB 693** (#2 above) and **SB 569** (#18 below), also failed.
- 18) **SB 569 Natural and Historic Resources Fund and Commission; created, report. FAILED.** See **HB 693** (#2 above).
- 19) **SB 586 Game & fish refuges & preserves; Bd. of Game & Inland Fisheries authorized to grant easements therefor. FAILED.** Would have allowed the Board of Game and Inland Fisheries to grant easements and rights of way over lands and waters acquired for game and fish refuges and preserves.
- 20) **SB 639 Pollutant loading allocations; adoption of nitrogen & phosphorous levels in Chesapeake Bay tributaries. CARRIED OVER.** Would require the SWCB to adopt numeric pollutant-loading allocations for nitrogen and phosphorous for each of the major Chesapeake Bay tributaries; would establish initial loading allocations, which would remain in place until the Board adopts its loading requirements; and would authorize the Board to establish a point-source pollutant trading program for nitrogen and phosphorous.

DRAINAGE, SOIL CONSERVATION, SANITATION, AND PUBLIC FACILITIES DISTRICTS

- 21) **HB 1429 Erosion and Sediment Control Law; submission of conservation plan for land-disturbing activities. CARRIED OVER.** Would require the Virginia Department of Transportation (VDOT) to submit a conservation plan to the DCR for each project involving a land-disturbing activity (defined as disturbed land areas of 10,000 square feet or greater). Currently, all state agencies, including VDOT, have the option of submitting to DCR one *annual* report specifying their land-disturbing activities.

FISHERIES AND HABITAT OF TIDAL WATERS

- 22) **HB 182 Bottomlands, state-owned; permits for use. PASSED.** Removes the VMRC's authority to assess royalties for the use of state-owned bottomland. The VMRC retains the authority to charge permit fees for the use of bottomland, the recovery of underwater historic property, and the removal of bottom material, easements, and leases. The bill removes the option available to ship construction and repair businesses of paying a one-time permit fee of up to \$5,000, in lieu of any other royalties; instead, businesses will have to pay a fee of between \$25 and \$100. An identical bill, **SB 606** (#37, below), also passed.
- 23) **HB 446 Menhaden fishery; establishment of a management plan. FAILED.** Would have directed the VMRC to prepare and implement a menhaden fishery management plan.
- 24) **HB 489 Wetlands boards; members. PASSED.** Directs localities that have enacted wetlands zoning ordinances and created wetlands boards to appoint 1—3 alternate members to such boards.
- 25) **HB 758 Hunting, trapping and fishing licenses; exempts spouses of children and grandchildren. PASSED.** Exempts a landowner's grandchildren and their spouses from having to obtain a license to hunt, trap, or fish on their grandparents' property.
- 26) **HB 797 Newport News reservoir project; VMRC to convey easement therefor. FAILED.** Would have authorized the VMRC to convey a permanent easement of approximately 0.9 acres in the Mattaponi River, in King William County, to the City of Newport News for the purpose of constructing a raw water intake structure to provide water supply for the Newport News reservoir project. An identical bill, **SB 420** (#34, below), also failed. For a related bill, see **SB 109** (#33 below).

- 27) **HB 962 Concealed weapons; certain retired members of VMRC authorized to carry. FAILED.** Would have exempted from the permit requirements for carrying concealed weapons any retired member of the Law Enforcement Division of the VMRC who has a service-related disability or at least 15 years of service (other than a person terminated for cause), provided such officer carries written proof of certain required documentation issued by the chief law-enforcement officer of the VMRC.
- 28) **HB 1024 Saltwater fishing licenses and permits; fees increased. PASSED.** Authorizes the VMRC to increase fees administratively for saltwater fishing licenses and permits, but not more frequently than once every three years. The amount generated from increases in the *commercial* fishing fees is to be paid into the Marine Fishing Improvement Fund, and the amount generated from increases in the *recreational* fishing licenses is to be paid into the Saltwater Recreational Fishing Development Fund. The bill also authorizes the VMRC to establish permit fees for delayed or limited entry fisheries, for shellfish relaying, and for scientific collections. For a related bill, see **HB 1452** (#31 below).
- 29) **HB 1278 Oysters and clams; penalty for theft of certain. PASSED.** Provides that taking naturally occurring oysters or clams from leased planting grounds without the owner's permission constitutes larceny.
- 30) **HB 1313 William J. Hargis, Jr., Library at Institute of Marine Science. PASSED.** Designates the library at the Virginia Institute of Marine Science (VIMS) the William Jennings Hargis, Jr., Library.
- 31) **HB 1452 Fresh water and saltwater fishing; a combined license may be established. PASSED.** Establishes a special combined fishing license for persons who want to fish in freshwater and saltwater. People who purchase this license will not have to buy a basic state fishing license issued by the Department of Game and Inland Fisheries (DGIF) or the saltwater recreational fishing license issued by the VMRC. The cost of this license is \$19.50 for residents and \$37.50 for nonresidents. Of the \$19.50 resident fee, \$7 will be paid into the Saltwater Recreational Fishing Development Fund, \$12 into the Game Protection Fund, and 50 cents to a VMRC sales agent. Of the \$37.50 nonresident fee, \$7 will be deposited in the Saltwater Recreational Fishing Development Fund, \$30 into the Game Protection Fund, and 50 cents to the sales agent. For a related bill, see **HB 1024** (#28 above).
- 32) **HJ 226 Natural aquatic resources; VIMS to study. CARRIED OVER.** Would request VIMS, in consultation with appropriate state and federal natural resource management agencies, local governments, and interested parties to conduct a two-year study (to be submitted to the 2006 session of the General Assembly) of the natural aquatic resources associated with available water resources.
- 33) **SB 109 Submerged land permit; exemptions. FAILED.** Would have exempted any water-supply project for which the SWCB had approved a Virginia Water Protection Permit from having to receive a separate permit from the VMRC for use of state-owned bottomland. The bill provided that although the permit could not be issued until the SWCB had consulted with the VMRC and considered its recommendations, issuance of the permit would constitute *final* state action on the project. For a related bill, see **HB 797** (#26 above).
- 34) **SB 420 Newport News reservoir project; VMRC to convey easement therefor. FAILED.** See **HB 797** (#26 above).
- 35) **SB 432 Bottomlands, state-owned; permits for use. PASSED.** Prohibits any person from reapplying for a VMRC bottomlands permit within a year of the denial of the original permit if it is for the same or substantially similar use of the bottomlands.
- 36) **SB 605 Water columns for aquaculture purposes; leasing. PASSED.** Authorizes the VMRC to lease (for specified fees) the water column above certain state-owned bottomlands for aquacultural purposes. The applicant must identify the size, location, and characteristics of the proposed leased area, describe the types of aquaculture structures to be deployed, and provide a five-year development plan detailing the activities to take place in the leased area. Each five-year lease may be renewed for an additional five-year period, provided the area has been aquaculturally productive.
- 37) **SB 606 Bottomlands, state-owned; permits for use. PASSED.** See **HB 182** (#22 above).

GAME AND INLAND FISHERIES

- 38) **HB 301 Hunting, trapping, fishing and motorboat registration; fees increased. PASSED.** Authorizes the Board of Game and Inland Fisheries to revise the fees for hunting, trapping, fishing, and motorboat registration. The fees cannot be changed more than once every three years. Any increase or decrease in the fee cannot be for more than \$5.
- 39) **HB 1142 Aquatic nuisance species, nonindigenous; control and eradication. PASSED.** Directs the Department of Game and Inland Fisheries to utilize the best available scientific technology that is

specific to controlling the targeted nonindigenous aquatic nuisance species, environmentally sound, practical, and cost effective. This bill also directs the Secretary of Natural Resources to seek and accept all possible funding to carry out the purposes of Virginia's nonindigenous aquatic nuisance laws.

- 40) **SB 439 Sales and use taxes: entitles Hampton City to allocable revenues from watercraft business and sales. FAILED.** Would have dedicated to the City of Hampton 2 percent of the 3.5 percent state general sales tax, plus all of the watercraft sales tax from boat sales in the City and from sales made by boating businesses located in the City, for the purposes of enhancing and improving recreation opportunities for boaters and anglers and for conservation initiatives.
- 41) **SB 554 Personal flotation devices; required for children. FAILED.** Would have required all children 12 years of age or younger to wear a Type I, II, III, or Type V U.S. Coast Guard-approved personal flotation device on recreational vehicles under 21 feet in length, with recreational vessel operators subject to a \$250 fine for violation. The bill defined "recreational vessel" to include any vessel capable of being used for transportation on water *when the vessel is being used for non-commercial purposes*.

HEALTH

- 42) **HB 747 Sewage systems and public water supplies, local; adequacy. CARRIED OVER.** Would direct the State Department of Health to undertake a comprehensive assessment process to determine the adequacy of local sewage systems and public water supplies provided to its citizens by each locality in the Commonwealth. If the department determined that a locality's sewage systems or public water supplies are not adequate to serve its current population, or will be inadequate within the next five years, and the locality failed to develop a program to cure this situation, then the department would establish and apply a local sewage system and public water supply residential development *impact fee* in such locality. The fee, collected from builders of new residential units, would be based upon the department's determination of the impact of each additional residential unit on existing sewage systems and public water supplies and on the costs of improving or developing new sewage systems and public water supplies in order to adequately meet the needs of such new residential development. The department would make disbursements to the locality for the acquisition, improvement, or development of new or existing sewage systems and public water supplies, until such time as the department determined that the local sewage systems and public water supplies are adequate.
- 43) **HB 930 Septic systems; validity of septic tank permits. PASSED.** Grandfathers certain onsite sewage systems into the Board of Health's regulatory scheme. The bill provides that whenever any onsite sewage system is failing and the Board's regulations for repairing it impose (i) a requirement for treatment beyond the level of treatment provided by the existing onsite sewage system when operating properly or (ii) a new requirement for pressure dosing, the owner may request a waiver from such requirements. The Commissioner is required to grant such requests, unless he or she finds that the failing system was installed illegally without a permit. The owner of the property is required to disclose to all potential purchasers or mortgage holders that any operating onsite sewage system permit granted under a waiver shall be null and void at the time of transfer or sale of the property.
- 44) **HB 1198 Public water supplies; emergency plans for safe handling during any extended power outage. PASSED.** Authorizes the Board of Health to promulgate requirements and criteria for community public water suppliers to develop and maintain an emergency management plan for providing pure water during any extended power outage.
- 45) **SB 125 Water wells; location and testing in Goochland County. PASSED.** Adds Goochland County to those localities that may establish their own standards, consistent with State Board of Health regulations, for location and testing of water from private wells, and to establish *more stringent* standards for construction and abandonment of such wells.

WASTE DISPOSAL

- 46) **HB 639 Landfills; siting in Appomattox County, submission of environmental impact reports. PASSED.** Authorizes Appomattox County to construct a landfill closer to an existing public water supply intake or reservoir than is allowed by law, if the Director of the DEQ finds that the distance would not be detrimental to human health and the environment, and provides that a new landfill in Appomattox can be sited in a wetland. (Under current law, a landfill cannot be within five miles up-gradient of any water supply intake or reservoir and cannot impact 1.25 acres or more of wetlands.) The bill prohibits any further exemptions from the landfill-siting requirements unless an environmental

impact statement, subject to a public hearing, has been submitted to the Virginia Waste Management Board.

- 47) **HB 1462 Solid waste; per ton fees for disposal. CARRIED OVER.** Would establish a \$5 per ton municipal solid waste disposal fee to be collected by localities where the municipal solid waste landfills are located; 50 percent of the money collected would be retained by the host localities for abatement of solid-waste related pollution, groundwater monitoring and cleanup, litter control, recycling, or for other waste-related purposes; and 50 percent would go to the state's Landfill Cleanup and Closure Fund, the Brownfields Restoration and Economic Redevelopment Assistance Fund, and Environmental Emergency Response Fund.
- 48) **HJ 247 Municipal solid waste; urging Congress to enact legislation to regulate importation thereof. PASSED.** Memorializes Congress to enact the State Waste Empowerment and Enforcement Provision Act of 2003, which gives state and local governments the authority to regulate the importation of solid waste into their jurisdictions. An identical bill, **SJ 79** (#50 below), also passed.
- 49) **SB 315 Green schools program; to promote waste reduction and resource efficiency. PASSED.** Authorizes the Board of Education to assist local school boards in the development and implementation of programs of instruction that comply with the provisions of Standard 1 of the Standards of Quality, specifically relating to citizenship and environmental issues and geography necessary for responsible participation in American society and the international community. Any such "green schools" program will focus on waste reduction through recycling and other mechanisms and educating students to help schools contain costs and to reduce waste production through resource efficiency. The bill *does not require* the Board or any school board in the Commonwealth to implement a green school program, nor is it meant to imply or otherwise indicate that state or local funding is required to develop or implement any green school program.
- 50) **SJ 79 State Waste Empowerment and Enforcement Provision Act of 2003; urging Congress to promptly enact. PASSED.** See **HJ 247** (#48 above).

WATER AND SEWER SYSTEMS

- 51) **HB 100 Water and sewer connections; suspension. FAILED.** Would have provided that a locality or a water and waste authority may suspend connections to its water and sewer systems during periods when mandatory water-conservation measures have been imposed by the locality or by the Commonwealth in the area of the connections.
- 52) **HB 335 Zoning ordinances; to promote quality water resources. FAILED.** Would have provided that the general purpose of promoting the health, safety, or general welfare of the public shall explicitly include the authority—through zoning, subdivision, site-plan and building-permit actions—to regulate, restrict, permit, prohibit, and determine the uses of land *based upon* the present availability of drinking-water resources and upon objective measures of future water-resource availability.
- 53) **HB 601 Water supplies; inspection. PASSED.** Removes the requirement that localities test the public water supply for the presence of methyl tertiary-butyl ether (MTBE).
- 54) **HB 737 Water and sewage systems; mandatory connection in Franklin County. PASSED.** Adds Franklin County to those counties allowed to require connection to their water and sewage systems by owners of property that may be served by such systems and to the list of localities that may provide that taxes or charges imposed for water or sewer use thereof shall be a lien on the real estate served by the water or sewer system. A related bill, **SB 600** (#61 below), also passed.
- 55) **HB 919 Water and sewer authorities; conduits for fiber optic cable. PASSED.** Permits water and sewer authorities to install, own, and operate pipe or conduit to carry fiber optic cable.
- 56) **HB 967 Water systems and small water utilities; requires emergency electricity generation systems. CARRIED OVER.** Would require the owner of a water system or a small water utility to prepare a cost study and file it with the State Corporation Commission if more than 50 percent of the water system's or water utility's customers request the emergency system in writing. The cost study would include an analysis of different options available for an *emergency electricity generation system* and shall itemize all the costs reasonable and necessary relating to the purchase, installation, operation, and maintenance of such a system. The Commission would determine the reasonableness of the cost study, and if a cost study is deemed reasonable, poll the customers of the water system, after providing information regarding the costs involved, to determine whether more than 50 percent of the customers continue to request that the system be installed. If more than 50 percent of a water system's customers continue to request that a system be installed, then the water system would install such a system within

a reasonable time and ensure that it is fully operational. The owner of the water system or small water utility would be allowed to recover the costs incurred to comply with the mandate as a part of the monthly billing amortized over a five-year period.

- 57) SB 110 Water supply plan regulations; effective date. PASSED.** Delays the effective date of water supply plan regulations one year. Under the bill passed in 2003, the SWCB was prohibited from finalizing the water supply plan regulations prior to July 1, 2004. Because the Technical Advisory Committee has not completed its drafting of these regulations, the date on which the regulations can become effective has been delayed until after July 1, 2005.
- 58) SB 190 Water and sewage systems; mandatory connection in Wythe County. PASSED.** Allows Wythe County, in assuming the obligations of a public service authority, to assume such obligations under the same terms and conditions as applicable to the public service authority.
- 59) SB 351 Subdivision ordinances; provisions to allow locality to determine adequate water supply sources. CARRIED OVER.** Would authorize localities to include in their subdivision ordinances provisions allowing the locality to determine whether there are adequate water sources and drinking water distribution infrastructure to deliver sufficient and safe water for human consumption to meet the demand required by a new subdivision. Before adopting such an ordinance, the locality would have to identify in its comprehensive plan, and in the local or regional water plan required by the state, the (i) adequacy of public water supply facilities that will be used in making such a determination, (ii) the areas where such subdivisions may be located, and (iii) existing water supply and infrastructure needs in the potential growth area. If the locality determined that adequate water supply or related water facilities did not exist, it would have to provide a timeframe of when such supply or facilities will be adequate to meet the water demand.
- 60) SB 400 Water-saving ordinances; localities may imposed. PASSED.** Permits localities to restrict the nonessential use of ground water during declared water shortages or water emergencies. This authority currently applies only to the City of Virginia Beach.
- 61) SB 600 Water and sewage systems; mandatory connection in Franklin County. PASSED.** Adds Franklin County to existing *Virginia Code* provisions that allow certain counties to require connection to their water and sewage systems, or to impose a nonuse fee on residents who have an adequate domestic source of potable water and a system for the disposal of sewage; grants Franklin County authority to treat certain unpaid taxes or charges imposed for water or sewers as a lien on the real estate served by the water or sewer system; and replaces population-bracket language with Amelia County. A related bill, **HB 737** (#54 above), also passed.
- 62) SB 642 Coal and gas road improvement tax; distribution of revenues to water & sewer system projects. PASSED.** Adds sewer systems and lines to water projects as an option for localities to use a portion of the coal and gas road improvement tax revenues, and provides that any revenues generated by the coal and gas road improvement tax and designated for local water or sewer projects shall be distributed to the local public service authority rather than the local governing body.

WATERS OF THE STATE, PORTS AND HARBORS

- 63) HB 24 Rudee Inlet Authority; abolished. PASSED.** Repeals the 1960 act that created the Rudee Inlet Authority, which has reportedly long been dormant and whose duties have been taken over by various city offices of Virginia Beach.
- 64) HB 331 Duck blinds; allows use in certain localities and waters. CARRIED OVER.** Would amend an Act of Assembly to allow floating blinds in the waters of Caroline, Essex, King George, Richmond, and Westmoreland counties and in portions of the Rappahannock and Potomac rivers, so long as they are staked and meet certain siting requirements.
- 65) HB 440 Oil-discharge plans; changes in provisions. PASSED.** Allows operators of tank vessels operating in Virginia waters the option of submitting a U.S. Coast Guard-approved vessel-response plan in place of the state-required oil-discharge contingency plan, and to meet the financial assurance requirement by having a U.S. Coast Guard-approved Certificate of Financial Responsibility. (Under current law, an oil-discharge contingency plan has to be filed and approved by the SWCB and the operator of the tank vessel has to deposit \$500 per gross ton of such vessel to assure against any environmental damage.)
- 66) HB 496 Floodways or floodplains; unlawful to obstruct or contaminate. FAILED.** Would have added floodways and 100-year floodplains (to the existing banks and channels) as areas of state waters

that one may not obstruct or contaminate; also would have expanded venue related to this law to include similar courts in contiguous localities that share such waters as common boundaries.

- 67) HB 535 Big Sandy River watershed; provisions for removing obstructions. PASSED.** Allows localities within the Big Sandy River watershed to bring enforcement actions against any person obstructing or dumping refuse in any tributary of the Big Sandy River; allows localities to remove obstructions that might endanger the public health or safety and to recover such costs; allows localities within the Big Sandy River watershed to require any person to notify the locality before constructing, placing, or putting a bridge, culvert, or drainpipe across the Big Sandy River or its tributaries; and exempts authorized silvicultural activities and activities conducted under a state-agency permit. A related bill, **SB 549** (# 79 below), failed.
- 68) HB 603 No-discharge zones; regulations. PASSED.** Directs the SWCB to adopt certain regulations to control the discharge of sewage from boats and vessels and to require marinas to notify boat patrons of no-discharge restrictions.
- 69) HB 685 Water Protection Permit; provisions. PASSED.** Clarifies, for purposes of obtaining a Virginia Water Protection Permit, that the diversion of water from non-navigable water channels located on private lands is *not* to be considered an impact on instream beneficial uses, so long as the water is returned to the channel undiminished. The bill also provides that a permit application is complete when the SWCB receives from the applicant any additional information it has requested as part of its permit review process; the SWCB then has 120 days to take action on the permit application.
- 70) HB 728 Solid waste; transportation by non-hazardous waste barges fee. FAILED.** Would have authorized the Virginia Waste Management Board to establish a fee of \$7.50 on each ton of non-hazardous solid waste transported by barge or other vessel carrying, loading, or off-loading waste on Virginia waters, and would have prescribed the test required to certify that containers holding such waste are watertight, leak-proof, and designed to prevent the loss or spillage or leakage of waste.
- 71) HB 901 Shipyard Workers Fund, Vocational Incentive Scholarship Program for; created. FAILED.** Would have required the General Assembly to make an annual appropriation of \$150,000 to this fund for scholarships for shipyard workers enrolled in a three-year program of educational instruction at Tidewater Community College.
- 72) HB 949 Subaqueous lands; Governor to convey certain in Elizabeth River to Norfolk City. PASSED.** Authorizes the Governor to convey, in a form approved by the Attorney General, certain subaqueous lands in the Elizabeth River at Norfolk to the City of Norfolk.
- 73) HB 1182 Monacan Bridge. PASSED.** Designates the Lynchburg bypass bridge across the James River between Amherst County and the City of Lynchburg the "Monacan Nation Bridge." An identical bill, **SB 560** (#80 below), also passed.
- 74) HB 1227 Rappahannock River Basin Commission; created; membership. PASSED.** Creates the Rappahannock River Basin Commission as an independent local entity without political subdivision status, and establishes rules for representation on the Commission, quorum requirements, compensation, and conformity with the Joint Rules Committee's guidelines for collegial bodies.
- 75) HB 1450 Petroleum Storage Tank Fund; reimbursements. PASSED.** Requires that in those instances where third-party claims have been mediated or adjudicated that the reimbursement sought from the Virginia Storage Tank Fund not exceed the portion of the settlement that is reasonable and necessary to compensate the third-party damages caused by the release of petroleum. The SWCB is given the authority to determine what is reasonable and necessary compensation.
- 76) HJ 72 Nutrient management plans; JLARC to study effectiveness of implementation & performance thereof. PASSED.** Directs the Joint Legislative and Review Commission to study the effectiveness of Virginia's nutrient-management plans.
- 77) SB 267 Rivanna River Basin Commission; created. PASSED.** Establishes the Rivanna River Basin Commission to provide guidance for the stewardship and enhancement of the water and natural resources of the Rivanna River Basin, and to provide a forum in which local governments and citizens can discuss issues affecting the Basin's water quality and quantity and other natural resources.
- 78) SB 406 Roanoke River Basin Advisory Committee; membership. PASSED.** Returns to the legislative members of this Advisory Committee the power to appoint non-legislative citizen members. (During the 2003 session, the power to appoint the citizen members nominated by PDCs was given to the Speaker of the House of Delegates and the Senate Committee on Privileges and Elections.)
- 79) SB 549 Big Sandy River watershed; provisions for removing obstructions. FAILED.** Would have allowed any locality located within the Big Sandy River watershed to remove any obstructions

dumped, placed, or put in tributaries of the Big Sandy River that might endanger public health or safety, provided that the owner of the property is given reasonable notice and a reasonable time to remove the obstruction, and to recover the costs for the removal of the obstruction from the owner of the property, with an exemption for those activities that are conducted pursuant to a permit issued by a state agency. A related bill, **HB 535** (#67 above), passed.

- 80) SB 560 Monacan Bridge. PASSED.** See **HB 1182** (#73 above).
- 81) SB 603 Pollutant Discharge Elimination System permits; changes duration of issuance. CARRIED OVER.** Would require that the duration of a Virginia Pollutant Discharge Elimination System permit be *no less than* five years; currently, such permits are for terms *not to exceed* five years.
- 82) SB 629 Wetlands mitigation bank; island in Potomac River adjacent to Virginia to be used thereas. PASSED.** Allows an island in the Potomac adjacent to Virginia to be used as a wetlands mitigation bank.
- 83) SB 686 Sailing vessel Virginia; authorizing Governor to enter into agreement w/Maritime Heritage Foundation. CARRIED OVER.** Would authorize the governor to enter into an agreement with the Virginia Maritime Heritage Foundation for the operation of the sailing vessel *Virginia*; would transfer ownership of the *Virginia* to the Commonwealth, but give responsibility for operation and maintenance of the ship to the Foundation; would set out the minimum requirements of the agreement; and would stipulate that the ship is to be used for trade missions, marketing, economic development, film production, festivals, and other events.

OTHER

- 84) HJ 313 Commending Virginia Save Our Streams. PASSED.** States that the General Assembly commends Virginia Save Our Streams for its ongoing efforts to encourage citizens to participate in the quest for clean water.

Bills Organized by Fate (Passed, Failed, or Carried Over to 2005)

PASSED

HB 24 Rudee Inlet Authority	HB 1313 William J. Hargis, Jr. Library
HB 182 Bottomlands, state-owned registration	HB 1350 Environmental permit fees
HB 440 Oil discharge plans	HB 1436 Subaqueous lands
HB 445 Erosion and sediment control and stormwater management inspectors	HB 1450 Petroleum Storage Tank Fund
HB 489 Wetlands boards	HB 1452 Fresh water and saltwater fishing
HB 535 Big Sandy River watershed	HJ 72 Nutrient management plans
HB 601 Water supplies	HJ 247 Municipal solid waste
HB 603 No discharge zones	HJ 313 Commending Virginia Save Our Streams
HB 639 Landfills	SB 110 Water supply plan regulations
HB 685 Water Protection Permit	SB 125 Water wells
HB 737 Water and sewage systems	SB 190 Water and sewage systems
HB 758 Hunting, trapping and fishing licenses	SB 267 Rivanna River Basin Commission.
HB 883 Conservation easements	SB 315 Green schools program
HB 919 Water and sewer authorities	SB 365 Environmental permit
HB 930 Septic systems	SB 400 Water-saving ordinances
HB 949 Subaqueous lands	SB 406 Roanoke River Basin Advisory Committee
HB 1024 Saltwater fishing licenses and permits	SB 426 Stormwater
HB 1142 Aquatic nuisance species, nonindigenous	SB 432 Bottomlands, state-owned
HB 1177 Stormwater management programs	SB 523 Watershed Coordination Program
HB 1182 Monacan and Malcolm J. Forbes, Sr., Bridges	SB 560 Monacan Bridge
HB 1198 Public water supplies	SB 600 Water and sewage systems
HB 1227 Rappahannock River Basin Commission	SB 605 Water columns for aquaculture purposes
HB 1271 Soil and water conservation districts	SB 606 Bottomlands, state-owned
HB 1278 Oysters and clams	SB 629 Wetlands mitigation bank
HB 1283 Erosion & Sediment Control Law	SB 642 Coal and gas road improvement tax
	SJ 79 State Waste Empowerment and Enforcement Provision Act of 2003

FAILED

HB 100 Water and sewer connections
 HB 335 Zoning ordinances
 HB 446 Menhaden fishery
 HB 496 Floodways or floodplains
 HB 693 Natural and Historic Resources Fund and Commission
 HB 728 Solid waste
 HB 797 Newport News reservoir project
 HB 901 Shipyard Workers Fund, Vocational Incentive Scholarship Program
 HB 962 Concealed weapons
 SB 104 Chesapeake Bay Preservation Act
 SB 109 Submerged land permit
 SB 420 Newport News reservoir project
 SB 427 Chesapeake Bay Preservation Act
 SB 439 RS & UT
 SB 527 Land and Water Conservation Trust Fund
 SB 549 Big Sandy River watershed
 SB 554 Personal flotation devices
 SB 569 Natural and Historic Resources Fund and Commission
 SB 586 Game & fish refuges & preserves

CARRIED OVER

HB 331 Duck blinds
 HB 719 Chesapeake Bay Preservation Act
 HB 747 Sewage systems and public water supplies, local
 HB 967 Water systems and small water utilities
 HB 1418 Water quality improvement fee
 HB 1429 Erosion and Sediment Control Law

HB 1462 Solid waste
 HJ 226 Natural aquatic resources
 SB 322 Natural resources
 SB 351 Subdivision ordinances
 SB 603 Pollutant Discharge Elimination System permits
 SB 639 Pollutant loading allocations
 SB 686 Sailing vessel Virginia



*"On March 16, 2004, the Virginia General Assembly adjourned 'sine die' — 'without another day' — and without a budget, but *not* without some water bills."*

—By Lauren LeBarre and Alan Raflo

Lauren LeBarre is a Virginia Tech senior who served an English Department internship with the Water Center in Spring 2004.

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 this issue's Feature Article, Water Status Report, and "For the Record" section. The SOLs listed are from Virginia's 2003 Science SOLs and 2001 Social Studies SOLs. Abbreviations: BIO = biology; CE = civics and economics; ES=earth science; GOVT = Va. and U.S. government; VS = Virginia Studies; WG = world geography.

Feature Article—General Assembly Inventory
 Social Studies: VS.10, CE.7, GOVT.8, GOVT.9.

Water Status Report—Streamflow
 Science: 6.9, ES.7, ES.9, BIO.9.
 Social Studies: WG.2.

For the Record—State Water Regulations
 Social Studies: VS.10, CE.7, GOVT.8, GOVT.9.

VIRGINIA WATER STATUS REPORT

This section of *Water Central* presents recent and historical data on Virginia's precipitation, stream flow, and groundwater levels (one topic per issue, rotating among the three topics).

Stream Flow in Virginia, Feb.—April 2004 and Jul. 1999—Mar. 2004

The graphs below, taken from the U.S. Geological Survey's Internet site, "WaterWatch—Current Water Resources Conditions,"¹ compare recent Virginia stream flow to historical records. The 77 sites included in the graphs all have at least 30 years of records. The top graph covers February 17—April 2, 2004; the bottom graph covers July 1999 through March 2004. Each graph uses a "stream flow index," which measures how a site's average streamflow 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 the 77 monitoring stations.

Index values mean the following:

Values indicating dry conditions:

- 1 = average daily flow for the graphed date is a record low flow for that date;
- 2 = average daily flow for the graphed date exceeds less than 10 percent of historical values for that date;
- 3 = average daily flow on the graphed date exceeds 10—24 percent of historical values for that date;

Value indicating "normal" flow:

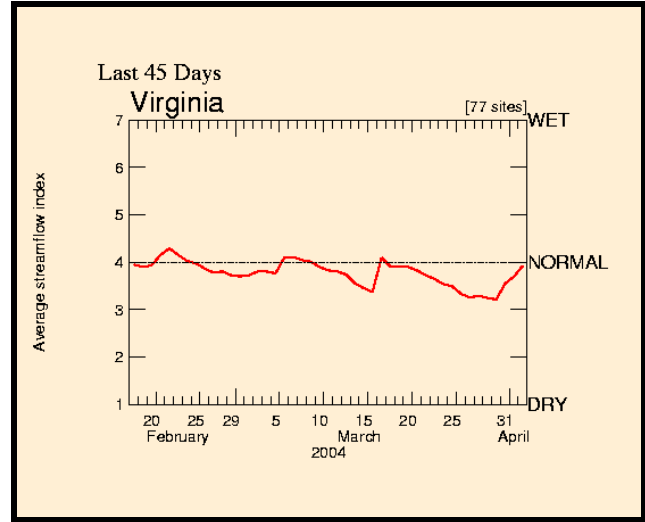
- 4 = average daily flow on the graphed date exceeds 25—74 percent of historical values for that date;

Values indicating wet conditions:

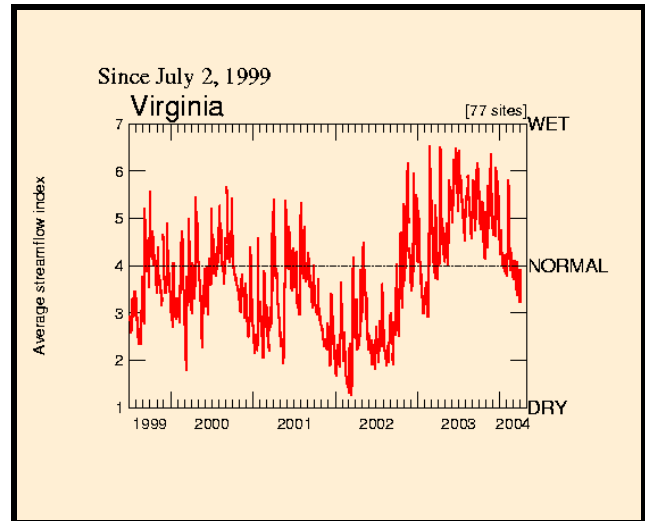
- 5 = average daily flow on the graphed date exceeds 75—89 percent of historical values for that date;
- 6 = average daily flow on the graphed date exceeds 90 percent of historical values for that date;
- 7 = average daily flow for the graphed date is a record high flow for that date.

Gaps in the data: Gaps in the top graph represent days when fewer than two-thirds of the stations reported data (due to equipment or weather problems). On such days, plotting a statewide average value may misrepresent actual conditions.

Average Daily Stream Flow Index, Compared to the Historical Average, February 17—April 2, 2004.



Average Daily Stream Flow Index, Compared to the Historical Average, July 1999—March 2004.



¹ Graphs from water.usgs.gov/cgi-bin/dailyMainW?state=va&map_type=real&web_type=plot, 4/2/04.

IN AND OUT OF THE NEWS

Newsworthy Items You May Have Missed

The following summaries are based on information in the source(s) indicated in parentheses, usually at the end of each item. Selection of this issue's items ended April 2, 2004. Except as otherwise noted, the localities mentioned are in Virginia and the dates are in 2004.

In Virginia...

•“**Tap water** in thousands of [Washington, D.C.] houses has recently tested **above the federal limit for lead contamination**,” began a *Washington Post* front-page article on January 31. Water in 4,075 homes, out of 6,118 tested in summer 2003, contained lead in concentrations above the U.S. EPA limit of 15 parts per billion (ppb) (2,287 houses exceeded 50 ppb, and 157 exceeded 300 ppb). Officials and residents are examining the actions and responsibilities of the D.C. Water and Sewer Authority (WASA), which maintains the city’s water-treatment and -distribution facilities; the U.S. Army Corps of Engineers, which provides the city’s water through the Washington Aqueduct; the city’s government (WASA is independent from the D.C. government, but its operations are monitored by a city council committee); and the EPA. By March, concern had spread to Arlington, Falls Church, Fairfax, and Vienna—areas that receive all or part of their water from the Washington Aqueduct. The D.C. news, along with reports from other parts of the county about lead in public school drinking water, is also having national implications. Members of Congress have called on the EPA to review its lead regulations, and the EPA asked states to describe how they are protecting children from lead.

Several technical aspects are at issue. First is the potential effects of water-treatment practices used at the Washington Aqueduct, including use of the disinfectant chloramine instead of chlorine, on water’s corrosion potential: more corrosive water can result in more leaching of lead from pipes and fixtures. Second is the presence of lead service lines: about 23,000 out of 130,000 residential water service lines in Washington are made of lead, rather than copper. Third is the potential for lead leaching from newer plumbing fixtures: even fixtures labeled as “lead-free” may legally contain up to seven-percent lead. Finally, the most significant question is how much the lead in drinking water may be contributing to high blood-lead levels in children and pregnant women, the most at-risk groups.

As of April 5, the *Post*’s archive of over 100 articles on new developments in the story or on background about lead in water was available online at www.washingtonpost.com/wp-dyn/metro/specials/water/; registration is necessary to access the archive. More information on lead is available from the Centers for Disease Control Web site at www.cdc.gov/health/lead.htm, and the Virginia Department of Health Web site at www.vahealth.org/leadsafe/. (*Washington Post*, 1/31, 2/20, 3/2, 3/5, 3/18, 3/28, and 4/1/04)

•In February, **Albemarle County’s engineering staff** presented to the public a **draft groundwater ordinance** for developments. The ordinance’s requirements would range from Tier 1, where a developer would be required to drill a successful well, to Tier 4, where an industrial operation would have to create a groundwater-management plan and conduct aquifer monitoring. Following the public comment period that ended March 5, the county staff was to decide whether to submit the proposed ordinance to the county planning commission or to return it to a groundwater planning committee for revisions. (*Charlottesville Daily Progress*, 2/3/04)

•What’s 50 inches long, weighs 63 pounds, and has stripes? The Virginia **state record Striped Bass**, caught January 30 by Carolyn Brown of Virginia Beach. The previous record was a 61-pound fish caught in 1996. (*Roanoke Times*, 2/10/04)

•In southeastern Virginia the **effects of Hurricane Isabel** lingered on in February, five months after the storm hit. Over 300 families in southeastern Virginia, particularly in Poquoson, were still living in trailers provided by the Federal Emergency Management Agency (FEMA) to people whose homes were damaged by the storm. The extent of work needed in the area has made it difficult to find available contractors. At the same time, some southeastern Virginia localities were still dealing with removal of storm debris. While many residents cleaned up their properties soon after the storm, others chose to wait, so “plenty of work” remained as of February, according to the executive director of the Virginia Peninsula Public

Service Authority. (*Newport News Daily Press* article in *Roanoke Times*, 2/10/04; and *Newport News Daily Press*, 2/17/04)

Long-term impacts of Isabel were in evidence in northern Virginia, as well. In March, the **Fairfax County Water Authority (FCWA)** announced plans to build **eight new storage tanks and purchase six generators**. During Isabel, the authority's treatment plants lost power, its backup electrical system proved too weak, and its storage was used up within a few hours. The new tanks and generators will cost up to \$60 million, financed by rate increases of about \$1.25 per month on the average water bill. FCWA serves customers in Fairfax, Loudoun, and Prince William counties and the city of Alexandria. (*Washington Post*, 3/9/04)

•The **Western Virginia Water Authority**, combining the assets, personnel, and billing systems of the water and wastewater systems of the **City of Roanoke and Roanoke County**, should be operating by July. In February, city and county officials agreed to a six-year plan to equalize rates. The average city water/sewer bill will increase about \$1.50 annually from 2005 to 2010, while the average county bill will decrease by about \$0.50 annually over that period. (*Roanoke Times*, 2/11/04)

•On February 17, Richmond Circuit Court Judge Randall Johnson ruled that the James River Association may proceed in its **lawsuit against regulations governing hauling of trash by barge on Virginia's rivers**. The regulations in question, approved by the Virginia Waste Management Board on July 25, 2003, set a \$1 per ton fee and established procedures for monitoring barges' contents. The suit claims the regulations are invalid because the public was unaware, at the time of a public hearing on the rules, that the Virginia Department of Environmental Quality (DEQ) and Waste Management, Inc.—who plans to haul trash by barge on the James River—had reached a confidential agreement in December 2002 that included the \$1 per ton fee. There is also controversy over a two-hour closed session by the Waste Management Board just prior to adopting the barge rules, which may have violated state law on open public meetings.

Partially in response to the barge-hauling controversy, the DEQ in February announced a new strategy for communicating with the public. Also, in March the DEQ announced its intention to establish a task force to develop a new "formal policy to direct how the agency works with the public on environmental issues and to promote

significant, substantive involvement by the public," according to a DEQ press release. (*Richmond Times-Dispatch*, 2/15 and 2/20/04; and Va. DEQ Press Release, 3/25/04, available online at www.deq.state.va.us/info/homepage.html)

•In February, **Appomattox County** agreed to pay \$225,000 (for attorneys' fees) to settle a **federal lawsuit** that challenged the county's ordinance on **land application of biosolids** (the solid material removed during wastewater treatment). Eleven county farmers brought the suit in August 2002. In November 2003, U.S. District Court Judge Norman Moon ruled that the ordinances were "void and unenforceable." As part of the settlement, the plaintiffs will not pursue \$820,000 in damages that they originally sought. (*Lynchburg News & Advance*, 2/20/04. For a previous item, please see the January 2004 *Water Central*, p. 22)

•As of February, a proposal by the **Cowpasture River** Preservation Association for the state to designate **65 miles of the river in Alleghany, Bath, and Highland counties as a "Tier III Exceptional Water"** had met official opposition from the Bath and Highland boards of supervisors. Local opposition has been based on the perception that such status would restrict development and on the desire to maintain local control of land use decisions. Proponents claim the designation would prevent only new pipe ("point source") discharges, allowing development that does not result in such discharges.

Virginia's "Guidance for Exceptional Surface Waters Designations" (in the *Virginia Administrative Code* of regulations at 9 VAC 25-260-30.A.3), explains the background and requirements of the Tier III program under the federal Clean Water Act. According to that guidance: "Upon regulatory designation of a water body as an exceptional water, the quality of the water shall be maintained and protected by not allowing any degradation except on a very short term basis; only existing...point sources will be allowed to continue to discharge to [the water]; new or expanded point source discharges [will be] allowed to waters upstream or tributary to exceptional waters as long as the mixing zone for the discharge will not extend into the exceptional waters segment; [and] nonpoint source control measures must conform to the highest standards of Best Management Practices available." Currently, one stream in Virginia—North Creek in Botetourt County—has Tier III status. Twenty-four other applications are pending. (*Roanoke Times*, 2/23/04)

•In February, the City of Newport News and the Virginia Marine Resources Commission (VMRC) agreed to **allow the City a second hearing** on its request for an intake on the Mattaponi River to supply the **proposed King William Reservoir**. In return, the City dropped its lawsuit requesting a such a hearing. A judge ruled in January that the City should be granted a hearing, and the VMRC voted to appeal that ruling; the February agreement stopped the litigation, at least temporarily. The agreement also stipulated that the VMRC will set time limits during the hearing for supporters and opponents, allow the City to question state experts, and limit public comments to the question of how the intake would affect American Shad in the river. The hearing must be held by August 15. (*Newport News Daily News*, 2/25/04. For previous items on this long-running story, please see the following issues of *Water Central*: August 2003, p. 12; June 2003, p. 17; and December 2002, p. 16.)

•In February, **Caroline County** began a permitting process to **withdraw water from the Rappahannock River to serve expected growth**. The county plans to spend about \$52 million over 25 years to provide water and sewer service for 8,000—12,000 customers in several new subdivisions. The current county water system, using wells, serves 300 customers. ([Fredericksburg] *Free Lance-Star*, 3/2/04)

•In March, the **Chesterfield County** Board of Supervisors accepted about \$1.5 million in federal, state, and private funds to extend a **public sewer line to serve about 90 homes in the Rayon Park community**. Since at least 2001, residents had been asking for help to correct unhealthy conditions created by flooding and failing septic systems, and the *Richmond Times-Dispatch* had written several articles on the area. The community also has been affected by the adjacent Defense Supply Center Richmond, where improper disposal of toxic chemicals led to designation of the Center as a federal Superfund site in 1987. In 2002, the Rayon Park community association received \$150,000 from Horne Engineering, a contractor hired to clean up the Defense Supply Center but who was indicted for leaking contaminated groundwater and failure to report the leaks. From these settlement funds, the community association provided \$135,000 towards the cost of the sewer line. (*Richmond Times Dispatch*, 2/12 and 3/11/04)

•The Chesapeake Bay Program recently released **new information on the progress made in reducing the levels of nitrogen and**

phosphorus reaching the Bay, indicating that the current levels of nutrient reduction will *not* achieve the goals set for 2010. Computer models estimated that, between 2000 and 2002, nitrogen loads decreased by 3.5 million pounds per year, while phosphorus loads were unchanged. Since 1987 (the year of the first Bay Agreement) the average annual reduction in nitrogen has been 4 million pounds; for phosphorus, 500,000 pounds. But to reach the nutrient-reduction goals for 2010, beginning in 2003 nitrogen loads would need to decrease an average of 13 million pounds per year, and phosphorus loads would need to decrease an average of 800,000 pounds per year. (*Bay Journal*, Mar. 2004)

Meanwhile, a **U.S. Geological Survey report** released in 2003 found that **about half of the nitrogen reaching streams in the Bay watershed comes from groundwater**. The “age” of this groundwater—how long the water remains underground—ranges from one to 50 years, meaning that as much as 50 years may be needed for groundwater-transported nitrogen to reach the Bay. This groundwater characteristic is one factor creating a lag between watershed-management practices and evidence of water-quality improvements. The report’s authors conclude that “proposed water-quality criteria in the Bay probably will not be met by 2010 due to the time needed to implement management practices and the effects of ground water and other watershed properties on nutrient transport.” The six-page report, *The Influence of Ground Water on Nitrogen Delivery to the Chesapeake Bay* (USGS Fact Sheet FS-091-03) is available online at md.water.usgs.gov/publications/fs-091-03/.

• In March, the Town Council of **Fincastle** (Botetourt County) approved a **yearlong moratorium on new approvals of construction requiring sewer connections**. The moratorium will allow the town to determine the capacity of the current old sewer system and look at new options. (*Roanoke Times*, 2/16/04; and Town of Fincastle, 4/6/04)

•The **safety of Virginia’s dams is receiving increased attention** from the Virginia Department of Conservation and Recreation (DCR) because of the age of the dams, development below them, and the warning provided by excessive rainfall in 2003. Virginia has 117 dams rated “Class 1,” indicating that a failure would probably cause human fatalities and substantial economic loss. Of these, 30 dams have “conditional” operating permits, meaning the dams have one or more safety problems.

(Nationwide there are about 77,000 dams, 10,000 Class 1 dams, and 2,600 dams with safety problems, according to the American Society of Civil Engineers and the Association of Dam Safety Officials.) Conditional permits require repairs by the dam owner, but compliance has typically been poor. The DCR is moving to enforce this requirement more strongly, according to the DCR's director, Joseph Maroon. In March, the agency initiated an enforcement action against the owner of a 50-year-old farm-pond dam in Augusta County that was in danger of failing. (Associated Press, as printed in the *Richmond Times-Dispatch*, 3/15/04, and in the *Roanoke Times*, 3/19/04. More information about the DCR's dam-safety program is available online at www.dcr.state.va.us/sw/damsafty.htm.)

- In 1998, Virginia set regulations for clay or plastic liners to help prevent **leakage of contaminants from landfills**. But localities still see problems from landfills built before those regulations. For example, an old **Bedford City** landfill, built in the 1970s and closed in 1993, is leaking toxic contaminants into at least one adjacent private well. In March the city began working with the Va. DEQ to develop a plan to address the contamination. *Bedford County* had a similar experience in the 1990s, resulting in the county paying \$1.3 million to purchase a 140-acre farm where groundwater had been contaminated by a closed county landfill. According to DEQ geologist Geoff Christie, Virginia has 320 landfills (open or closed), with 187 having evidence of groundwater contamination; it's not clear how many of the leaking landfills have affected other landowners. (*Roanoke Times*, 3/22/04)

- On March 22, the Va. DEQ released the **latest edition of the biennial water quality report** required under the federal Clean Water Act. The 2004 *Water Quality Assessment Integrated Report*, based on data from January 1998 through December 2002, classifies the state's lakes, rivers, streams, and estuarine waters in one of three categories: waters meeting designated uses (waters are designated to support one or more of the following: aquatic life, fishing, shellfishing, swimming, public water supply, or wildlife); impaired waters (*not* meeting one or more designated uses); and waters for which insufficient information exists to make a determination. The report is available online at www.deq.state.va.us/wqa/. Among the findings are the following:

- About 2,200 river/stream miles (4.3 percent of the state total) meet all their designated uses;

- About 4,100 river/stream miles (8.2 percent) support some designated uses, but no enough information is available to assess all uses;
- About 6,900 river/stream miles (13.7 percent) are impaired; and
- DEQ has insufficient information on 37,000 river/stream miles (74 percent) to determine whether they support any designated uses. (Va. DEQ Press Release, 3/22/04)

...and Outside of Virginia

- In December 2003, President Bush signed a law expanding the use of community development block grant funds to cover **construction of tornado-safe shelters in mobile home parks**. The Tornado Shelters Act (Public Law 108-146) amended the Housing and Community Development Act of 1974. To be eligible for funds, a park must contain at least 20 units, consist primarily of low- and moderate-income people, and be situated in a state where a tornado has occurred within the last three years. (*Natural Hazards Observer*, Mar. 2004)

- Under the federal Clean Water Act, the **National Pollution Discharge Elimination System** (NPDES) regulates point-source discharges of water pollutants. The program, administered by the U.S. EPA in cooperation with 40 states, faces a **substantially increased workload** as new regulations take effect for concentrated animal feeding operations and for stormwater management by small cities and small construction sites ("Phase II" stormwater regulations). Under these two new rules, the number of facilities requiring an NPDES permit is expected to increase by about 35 percent, compared to the mid-1990s. (Inside EPA's *Outlook 2004*, Jan. 2004)

- **Speaking of stormwater:** In February **New Jersey** put into effect "the strictest stormwater controls adopted by any state," according to Gov. James McGreevey. The rules require a 300-foot buffer between new developments and drinking-water sources, stormwater controls for small municipalities and construction sites, and "no net loss" of groundwater recharge. (Inside EPA's *Water Policy Report*, 1/26/04)

Meanwhile, on February 12 the U.S. Senate passed S.1072, the **federal highway bill**, which includes **\$958 million** (\$24 million for Virginia) for state efforts to reduce **water-quality impacts from stormwater**. The companion House bill (H.R.3550, which passed the House on April 2) does not include the stormwater provision.

Lynchburg News & Advance, 2/14/04; and Library of Congress Web site, thomas.loc.gov, 4/7/04)

•According to a study led by the U.S. Fish and Wildlife Service, **liver tumors were found in 50 to 60 percent of Brown Bullhead catfish collected from the Anacostia River in 2001.**

This tumor rate is as high as ever documented in an American river. The study, published in the March 2004 issue of *Environmental Toxicology and Chemistry*, links the tumors to DNA damage caused by contaminants from vehicle emissions and runoff. A number of state and federal clean-up efforts, coordinated since 1999 by the Anacostia Watershed Toxics Alliance, are in progress on the river, along with data collection to help determine the impacts of these efforts. (*Washington Post*, 2/11/04)

•On February 12, the International Maritime Organization released a **proposed ballast-water treaty**. For ratifying nations, the treaty would set standards for the number of organisms allowed in ships' ballast water. Ballast water taken on board in one part of the world can contain organisms that can become invasive pests when the water is released in some other area. The treaty also would allow nations to set *more stringent* ballast-water-discharge standards, which the United States may do through bills to reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (currently H.R.1080 in the House and S.525 in the Senate). (Inside EPA's *Water Policy Report*, 2/23/04)

•In **North Carolina, water and sewer merger agreements** between the city of Raleigh and six Wake County towns are either in place, under negotiation, or expected. The current agreements give Raleigh control over how much water is provided to the towns, while the towns get a more secure water supply and—at some time in the future—pay cheaper Raleigh system rates. Proponents of the mergers claim the security of supply and cheaper rates outweigh the loss of control; opponents have pointed out that the cheaper rates are only promised for the future (2008 in the earliest case) and the water-supply growth limitations may not match community needs. (*Raleigh News & Observer*, 3/15/04)

•On March 19, the U.S. EPA and the Food and Drug Administration (FDA) announced a **revised consumer advisory on mercury in fish**, replacing the agencies' 2001 advisory. Following are the key parts of the advisory:

“Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high

quality protein and other essential nutrients, are low in saturated fat and contain omega-3 fatty acids. A well balanced diet that includes a variety of fish and shellfish can contribute to heart health and children's proper growth and development. Thus, women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.

“By following these three recommendations for selecting and eating fish or shellfish, women and young children will receive the benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury.

1. Do not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury. Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish. Another commonly eaten fish, albacore (“white”) tuna has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
3. Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don't consume any other fish during that week.

Follow these same recommendations when feeding fish and shellfish to your young child, but serve smaller portions.”

The advisory and other information are available through the FDA's Web site at www.cfsan.fda.gov. The FDA's “Consumer Inquiries” phone number is (888) 723-3366.

A Final Word

“The fish are happy, we're happy, and Fredericksburg is happy,” said Fredericksburg Mayor Bill Beck on February 23 as **work started to remove the Embrey Dam** from the Rappahannock River near the city. Removal of the dam, built in 1910, opens the entire Rappahannock to upstream spawning migrations of American Shad, Striped Bass, and other fish. (*Virginian-Pilot*, 2/24/04)

—By Alan Rafla and Lauren LeBarre

N O T I C E S

State Water Meetings and Hearings

The Virginia Department of Environmental Quality (DEQ) posts notices of regulatory action, public hearings and meetings, and other events on-line at www.deq.state.va.us/info/ (click on "Public Calendar" or "Public Notices"). Following is a list of upcoming water-related public meetings (4/28 to 5/26/04), plus a list of recent past events (3/4 to 4/21/04) in case readers wish to enquire about issues addressed at given meeting. To reach the contact people by e-mail, go to the Public Calendar Web site, find the event, and click on the name; by phone, call the DEQ Central Office at (800) 592-5482.

Upcoming meetings (last checked 4/1/04):

4/16, Glen Allen: Mercury advisory committee. DEQ Piedmont Regional Office, 10 a.m. More information contact Alex Barron.

4/21, Hampton: Public hearing on proposed permit amendment for Bethel landfill in Hampton. Northampton Branch Library, 7 p.m. More information: Rachel Borum.

4/28 and 5/26/04, Glen Allen: Advisory committee on proposed water quality standards amendments for Chesapeake Bay and tidal waters. More information: Elleanore Daub.

5/3, Harrisonburg; 5/4, Woodbridge; 5/5, Roanoke; 5/6, Abingdon: Public meeting on proposed amendments to water quality management planning regulations for watersheds of the Potomac-Shenandoah River, Rappahannock River, Roanoke River, Tennessee-Big Sandy River, and New River. More information: Charles Martin.

Recent meetings:

3/4, Farmville: Public meeting on proposed "total maximum daily load" (TMDL) for impairments in the upper Appomattox River. More information: Kelly Wills.

3/9, Culpeper: Public meeting on proposed TMDL for bacteria impairment in Muddy Run. More information: Katherine Bennett.

3/10, Bealton: Public meeting on proposed TMDL for bacteria impairment of Deep Run in Stafford and Fauquier counties. More information: Katherine Bennett.

3/10, Glen Allen: Public meeting on proposed amendments to the Virginia Water Protection general permit for the following: impacts less than one-half acre; facilities and activities of utilities; linear transportation projects; and impacts from development. More information: Ellen Gilinsky.

3/11, Chesterfield: Public meeting on proposed TMDL for bacteria, benthic, dissolved oxygen, and pH impairments in the lower Appomattox River. More information: Chris French.

3/15, Tenth Legion: Public meeting on proposed TMDL for bacteria and benthic impairments of Smith Creek in Rockingham and Shenandoah counties. More information: Robert Brent.

3/15, Lawrenceville: Public meeting on proposed TMDL for bacteria and benthic impairments of Roses Creek in Brunswick County. More information: Chris French.

3/16, Buchanan: Public meeting on proposed TMDL for bacteria impairment of Looney Creek in Botetourt County. More information: Jason Hill.

3/16, Lucketts: Public meeting on proposed TMDL for bacteria impairment of Limestone Branch in Loudoun County. More information: Katherine Bennett.

3/17, Glen Allen: Public meeting on proposed TMDL for benthic impairment of unnamed tributary of Chickahominy River in Hanover County. More information: Chris French.

3/17, Radford: Public meeting on proposed TMDL for bacteria and benthic impairments of Peak Creek, Back Creek, and Crab Creek in Pulaski and Montgomery counties. More information: Jason Hill.

3/17, South Hill: Public meeting on proposed TMDL for bacteria and benthic impairments of Flat Creek in Mecklenburg County. More information: Kelly Wills.

3/18, Bluefield: Public meeting on proposed TMDL for benthic and bacteria impairments of Bluestone River in Tazewell County. More information: Nancy Norton.

3/18, Luray: Public meeting on proposed TMDL for bacteria impairment of Hawksbill Creek in Page County. More information: Robert Brent.

3/18, Neersville: Public meeting on proposed TMDL for bacteria impairment of Piney Run in Loudoun County. More information: Katherine Bennett.

3/18, Sedalia: Public meeting on proposed TMDL for bacteria impairment of Reed Creek in Bedford County. More information: Jason Hill.

3/23, Calverton: Public meeting on proposed TMDL for bacteria impairment of Cedar Run and Licking Run in Fauquier and Prince William counties. More information: Katherine Bennett.

3/23, Richmond: State Water Control Board. More information: Cindy Berndt.

3/25—3/31, various locations: Public meetings on proposed water quality assessment integrated report. More information: Darryl Glover.

3/25, Verona: Public meeting on proposed TMDL for bacteria and benthic impairments in Middle River and South River watersheds. More information: Robert Brent.

3/30, Lexington: Advisory committee on proposed amendments to sewage collection and treatment regulations. More information: Reed Barrows.

4/1, Luray: Public meeting on proposed designation of certain streams in Shenandoah National Park as exceptional waters. More information: Jean Gregory.

4/7, Glen Allen: Wetlands enhancement and restoration coordinating committee. More information: Ellen Gilinsky.

Don the PFDs—Canoeing Ahead!

The Alliance for the Chesapeake is planning weeklong educational paddling trips for Summer 2004. The rivers and dates are as follows: James, June 23—27; Patuxent, June 11—13 (dates tentative); Potomac, July 9—17; and Susquehanna, June 23—20. For more information or to sign up: Brook Lenker, (717) 737-8622; Web site: www.AllianceChesBay.org.

Interested in Low Impact Development?

Low impact development, or LID, is receiving lots of attention for its potential to reduce stormwater and water-quality impacts of development. Two upcoming conferences on LID are noted below under “Conferences and Other Gatherings.” For an interesting case study of LID in Philadelphia, see the February 2004 issue of *NWQEP Notes*, published by North Carolina State University and available online at www.bae.ncsu.edu/programs/extension/wqg/. For a paper copy: (919) 515-3723, or notes_editor@ncsu.edu.

A Resource for Tackling TMDLs

The Virginia Department of Environmental Quality’s Total Maximum Daily Loads (TMDL) Homepage, located at www.deq.state.va.us/tmdl/, has information on Virginia’s impaired waters and how the state is responding. The site includes background on the TMDL process, Virginia’s schedule of required TMDLs, TMDL reports, state water-quality reports, interactive maps, and a glossary.

Mapping Perennial Streams

State regulations effective March 1, 2002, require localities which are subject to Virginia’s Chesapeake Bay Preservation Area Designation and Management Regulations to identify the waters within their jurisdiction that have *perennial* flow. Fairfax County completed its perennial-stream mapping in Fall 2003, and the county’s field protocol is available online at www.fairfaxcounty.gov/dpwes/watersheds/perennial.htm. For more information: (703) 324-5500, or SWPDmail@fairfaxcounty.gov.

Tornado Warnings Report

The Natural Hazards Center at the University of Colorado has published a “Quick Response Report” entitled *Public Response to Tornado Warnings: A Comparative Study of the May 4, 2003 Tornadoes in Kansas, Missouri, and Tennessee*. The report is available online at www.colorado.edu/hazards/qr/; to purchase a paper copy, phone (303) 492-6819.

Water and Wastewater Regulations for Small Communities

The National Environmental Training Center for Small Communities, located at West Virginia University, has an online guide to federal rules that affect water and wastewater systems in small communities. The Web site is www.nesc.wvu.edu/netcsc/netcsc_Regs.html.

Conferences and Other Gatherings

•**National Monitoring Conference.** May 17—20, 2004, Chattanooga, Tenn.; sponsored by the National Water Monitoring Council. More information: Myra Fuller, (423) 751-2614 or mgfuller@tva.gov; Web site: www.tetrattech-ffx.com/nwqmc/index.cfm.

•**Tri-state Regional Low Impact Development Conference.** May 19—20, 2004, Wytheville, Va. Sponsored by New River-Highlands Resource Conservation and Development Council. More information: (276) 228-2879, or rachelhavens@va.nacdn.net.

•**National River Rally.** May 21—25, Wintergreen Resort in Nelson County, Va.; sponsored by River Network. More information: (503) 241-3506; Web site: www.rivernetnetwork.org/rally.

•**Design of Storm Water, Erosion, & Sediment Control Systems.** June 21—23, 2004, Stillwater, Okla.; sponsored by Oklahoma State University. More information: George Collington, (405) 744-5714 or gcollin@okstate.edu; Website: aep.ceat.okstate.edu.

•**Southeastern Regional Conference on Stream Restoration.** June 21—24, 2004, Winston-Salem, N.C.; sponsored by the North Carolina Stream Restoration Institute. More information: Dani Wise, (919) 515-7475 or dani_wise@ncsu.edu; Web site: www.bae.ncsu.edu/programs/extension/wqg/sri/2004_conference/index.html

•**Putting the LID (Low-impact Development) on Stormwater Management.** Sep. 21—23, 2004, College Park, Maryland; sponsored by the U.S. EPA, the Metropolitan Washington Council of Governments, and several co-sponsors. More information: Brian Rustia, (202) 962-3200 or brustia@mwkog.org; Web site: www.mwcog.org/environment/lidconference.

Also Out There...

From the many water-related publications that arrive in the Water Center's mail, here are brief descriptions of some recent, detailed articles on various subjects.

- “Defiant Toxin Lingers in South River”—A review of the history of mercury contamination in Virginia's South River and recent developments. *Staunton [Va.] News Leader*, 3/28/04; (800) 793-2459.

- “A Lesson in Microbiology”—An introduction to the groups of microscopic organisms that can cause water-borne diseases. *On Tap*, Winter 2004; National Drinking Water Clearinghouse, Morgantown, W.Va., (800) 624-8301; available online at www.ndwc.wvu.edu.

At the Water Center

To reach the Water Center: (540) 231-5624; water@vt.edu; www.vwrrc.vt.edu.

•New CD-ROM: “Watershed Academy Web.”

The Water Center has for loan a copy of this CD, developed by the U.S. EPA. The CD offers an

introduction into watersheds and the water-management field through 44 teaching modules organized into six themes. Those who complete 15 “core” modules and pass the related self-tests are eligible to receive a free Watershed Management Training Certificate through the mail. Copies of the CD are available by phone at (800) 90-9198 or by email at ncepimal@one.net (request publication EPA 841-C-03-001). The training program is available online at www.epa.gov/watertrain/.

•New Report Available

Virginia Water Research Symposium 2003 Water Resource Management for the Commonwealth, P9-2004. This report contains the proceedings from the 2003 Virginia Water Research Symposium, October 7—10, 2003. The report is available *online only* at www.vwrrc.vt.edu/Proceedings.htm. A copy of the proceedings on CD-ROM was mailed to each registered symposium participant.

Lauren LeBarre assisted with the Notices section.

CORRECTIONS

The Feature Article on nutrient management in the January 2004 *Water Central* contained two errors. First, the section on Nutrient Management Plans, p. 8, incorrectly listed *water source* as one of the factors considered in site nutrient management plan (the other factors listed are correct). Second, the section on the Conservation Reserve Enhancement Program (CREP), p. 9, incorrectly stated that “landowners who commit to a 10-year CREP receive \$50 per acre, while those in a 15-year plan receive \$75 per acre.” Actually, Virginia landowners who commit either to a 10-year or 15-year CREP receive an annual, per-acre rental payment that ranges from \$50 to \$80. *Water Central* thanks Cynthia Hancock, Skyline Soil and Water Conservation District, for these clarifications.

READER COMMENT

Re: “Experts Look at Reliability and Safety of Virginia's Water Supplies” [January 2004 *Water Central*]:

Among the possibilities cited for helping to ensure Virginia's future water supplies are building new reservoirs, pipelines for water transfer, conservation, wastewater reclamation and reuse and desalination. Unfortunately, one very important potential water source, namely groundwater, was completely overlooked. Readers of this article may get the impression that reservoirs and pipelines, reuse, and desalination are the only ways new water can be developed. I must confess that groundwater specialists have not done a good job on promoting the benefits of developing well water supplies, and in my 35 years of consulting experience this has been a common problem.

It may be useful to list once again the advantages of developing a subsurface reservoir over a surface reservoir. Among these are [the following]: many sites available for large-capacity wells, little or no evaporation losses, small land area required, no danger of catastrophic collapse or silting of reservoir, uniform water temperature, high biological purity, safety from terrorist attacks, and lack of necessity for overland pipelines.

As you know, in Virginia exploration and production of groundwater for *public* supply, with some exceptions, is mostly limited to the coastal communities that can tap thick sand and gravel aquifers. This does not mean, however, that communities elsewhere in the state cannot locate aquifers suitable for public supply. Developing groundwater has so many advantages over surface water supplies—not the least being economics of cost, local availability, and water quality—that the groundwater option should always be the first to be investigated by qualified groundwater professionals before any other water supply options are considered.

—Frits van der Leeden, Lexington, Va., March 2, 2004

BEST STUDENT PAPER PRESENTATION AWARDS FROM THE 2003 VIRGINIA WATER RESEARCH SYMPOSIUM

Congratulations to Elizabeth M. Hagen and Jonathan M. Lester, winners of the 2003 Virginia Water Research Symposium Best Student Paper Presentation Awards. The 2003 symposium marked the first year the Water Center judged students' presentations. Approximately 20 students presented their research at the symposium. Students were judged on their presentation skills and their ability to communicate their research objectives, methods, and conclusions.

Elizabeth Hagen received an award for her presentation entitled **“Effects of Agriculture Disturbance On Autumn Allochthonous Input To Southern Appalachian Streams.”** Ms. Hagen is a M.S. candidate in the Biology Department at Virginia Tech and is advised by Jackson R. Webster. Following is a **summary** of her paper:

Changes in land uses within a watershed can result in disturbances to freshwater ecosystems. This study assessed the impact of agricultural land use on autumn allochthonous input, i.e., the input of leaves, wood, and other organic material from the terrestrial environment into the stream. Allochthonous input is a vital energy source to the aquatic community. In this study, allochthonous input was measured in 12 southern Appalachian streams with differing degrees of agricultural land use. Input ranged from 4 to 343 grams of ash-free dry mass per square meter, with higher values recorded in forested and light agricultural streams. Allochthonous input peaked in November in forested streams, but was highest in September and November in agricultural streams.



Jonathan Lester received an award for his presentation entitled **“Investigation of the Applicability of Neural-Fuzzy Logic Modeling for Culvert Hydrodynamics.”** Mr. Lester was a Ph.D. candidate in Civil Engineering at West Virginia University at the time he conducted the research and was advised by Robert N. Eli. Mr. Lester graduated in August 2003 and currently works for Arcadis FPS in Virginia Beach. Following is a **summary** of his paper:

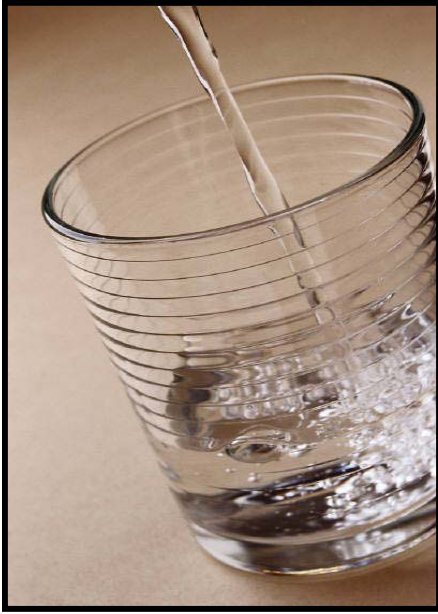
This study investigated a new approach to the complex subject of culvert hydrodynamics. When designing culverts, the purpose is to determine the diameter needed to pass the design flow-rate for the culvert geometry provided. The literature indicated there had been no reports of using artificial intelligence—neural networks, “fuzzy logic,” or combined neural-fuzzy logic—to investigate and predict culvert hydrodynamics.

This research examined the feasibility of using a neural-fuzzy logic model to determine culvert size based on other variables. Commercial culvert software was employed to account for variables affecting culvert flow conditions, including different slopes, lengths, flow-rates, pipe sizes, and headwater and tailwater conditions. Fuzzy logic was used to interpret the data and predict culvert diameter. Predicted diameters were then compared to the actual culvert diameters to determine the accuracy of the model.

The research papers by these two award recipients and other symposium participants can be found in the Water Center's *2003 Water Research Symposium Proceedings*. People attending the symposium should have already received a copy of the Proceedings on CD-ROM. The proceedings will be posted on the Water Center's Website at www.vwrrc.vt.edu/Proceedings.htm.

The Water Center invites and encourages students to participate in the 2004 Virginia Water Research Symposium, to be held October 4–6, 2004, at Virginia Tech in Blacksburg. Please see the “Call for Papers” in this issue of *Water Central*. Abstract submissions are due to the Water Center by May 28, 2004.

CALL FOR PAPERS



The Virginia Water Resources Research Center invites you to submit abstracts for the annual **Virginia Water Research Symposium 2004**, to be held on the Virginia Tech campus on October 4-6, 2004. To be considered, submit an abstract of 300 words or less that lists the title, author(s) and if a graduate or undergraduate student, author(s) affiliation, phone number, fax number, and email address no later than May 28, 2004.

Basic and applied research papers are solicited in all areas related to water and the environment (natural sciences, policy, and socio-economic issues). Researchers from colleges and universities (faculty, graduate and undergraduate students), federal and state agencies, private organizations, consulting firms, and others are invited to present papers and lead workshops.

For symposium information, visit the website (www.vwrrc.vt.edu/2004symposium). Full papers will be accepted for publication in the proceedings.

Water Center Policy: By submitting an abstract, the potential presenter agrees to register for the symposium.

Paper Submission:

1. Length: 4-8 pages (single spaced; font size 12; includes figures, tables, and references)
2. Order: **a.** Title (12 words or less), **b.** Author Name(s) (Indicate if first author is an undergraduate or graduate student), **c.** Author Affiliation(s), **d.** Email Address of the Corresponding Author, **e.** Abstract (300 words or less), **f.** Introduction, **g.** Methods, **h.** Results and Discussion, **i.** Acknowledgments, and **j.** References
3. Follow the detailed author guide posted on the Water Center Website:
www.vwrrc.vt.edu/2004symposium

Workshop Proposal Submission:

Submit a 1-2 page workshop outline that includes information on the subject matter and name(s), affiliation(s), email address, and phone number of workshop instructors

Deadlines:

- | | |
|---|--------------------------|
| 1. Submission of Abstracts and Workshop Proposals | May 28, 2004 |
| 2. Notification of Acceptance/Rejection | June 30, 2004 |
| 3. Papers for publication in the proceedings | September 1, 2004 |

Send submissions to Ms. Jane Walker (email: janewalk@vt.edu)

VWRRRC
23 Agnew Hall (0444)
Virginia Tech
Blacksburg, VA 24061
Phone: 540-231-4159
FAX: 540-231-6673

FOR THE RECORD

Sources for Selected Water Resources Topics

Following State Water Regulations

This section replaces a previous article on the same topic in the April 2000 *Water Central*, p. 22.

State regulations cover water-supply and wastewater facilities, aquatic-resource protection and management, fishing, shellfishing, boating, stormwater management, waste management, handling of pesticides and other toxic materials, and many other activities affecting Virginia's water resources. Listed below are the agencies and citizen boards involved in developing—or *promulgating*—water-related regulations in Virginia, according to the *Virginia Administrative Code* (for more on this *Code*, see “Finding Existing Regulations,” below.)

Agencies

Agriculture and Consumer Services
Chesapeake Bay Local Assistance
Conservation and Recreation
Environmental Quality
Game and Inland Fisheries
Health
Marine Resources Commission
Mines, Minerals, and Energy
Potomac River Fisheries Commission
Transportation

Citizen Boards

Chesapeake Bay Local Assistance Board
Conservation and Recreation Board
Pesticide Control Board
Soil and Water Conservation Board
Waste Management Board
Water Control Board
Waste Management Facility Operators' Board
Water- and Wastewaterworks Operators' Board

Finding Proposed Regulations

In proposing the adoption, amendment, or repeal of regulations, agencies and boards must follow the Virginia Administrative Process Act (*Va. Code* 9-6.14:1 to 9-6.14:25). A fundamental requirement is public notification of regulatory actions in the *Virginia Register of Regulations*. The *Register* contains “Notices of Intent” to take action, all proposed and recently adopted regulations, and other official state notices. The *Virginia Register* is published biweekly, with quarterly indices. The online version is available at register.state.va.us. Printed copies are

available at many public libraries. For print subscriptions, contact Weil Publishing, phone (800) 877-9345 or e-mail to sharon.weston@weilpublishing.com.

The “Virginia Regulatory Town Hall” allows citizens to track the regulatory process electronically. This Web site includes drafts of proposed regulations, economic impact analyses, and other valuable information. Users may sign up for free e-mail notification of proposals and public meetings. The site address is www.townhall.state.va.us.

Most of the agencies listed above provide useful regulatory information on the Internet. The Department of Environmental Quality, for example, maintains a Water Quality Standards Homepage (www.deq.state.va.us/wqs/). To find the Web site of any Virginia agency, go to www.virginia.gov/cmsportal, click on “Government,” then “Contact Virginia Government” to reach the agency search.

Finding Existing regulations

Adopted regulations, once they become effective, become part of the *Virginia Administrative Code*. Regulations are identified by another “code,” such as 4VAC3-20-10 (one section of the state's stormwater regulations). Here's how that label is derived:

4 = Title 4—Conservation and Natural Resources;
VAC = *Virginia Administrative Code*;
3 = *Agency within that title*—Conservation and Recreation Board in this title (agency numbers differ among the different titles);
20 = The *chapter number* assigned to the particular regulation; and
10 = The *section* within the chapter.

The *Virginia Administrative Code* is available at leg1.state.va.us/000/srr.htm. The print version is available at larger libraries.

Water Central thanks Cindy Berndt, Va. Dept. of Environmental Quality, for her help with this section.

Next “For the Record”: Following Federal Water Regulations

For a list of all *previous* topics, please see the Guide to Past *Water Central* Articles (Topic Area: Sources of Information) in the January 2004 issue of *Water Central*.

Virginia Water Central

Published by the Virginia Water Resources Research Center, 23 Agnew Hall (0444), Blacksburg, VA 24061; (540) 231-5624; fax (540) 231-6673; e-mail: water@vt.edu; Tamim Younos, interim director. *Water Central* staff: Alan Raflo, editor; George Wills, illustrator.

Printing and mailing costs for *Water Central* are partially supported by a grant from the Virginia Manufacturers Association's Outreach Group.

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You can find *Water Central* on the Internet at www.vwrrc.vt.edu. If you prefer to read the newsletter there, instead of receiving a paper copy, please send an e-mail requesting this to water@vt.edu, and we will notify you whenever a new issue is posted.

Please notify us at (540) 231-5463 or araflo@vt.edu if your address has changed or if you no longer wish to receive the newsletter.

Thank you!

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