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SUSTAINING THE OCCOQUAN WATERSHED IN THE NEW MILLENNIUM

As Watershed Population Races Past 363,000 Stakeholders Face New Challenges

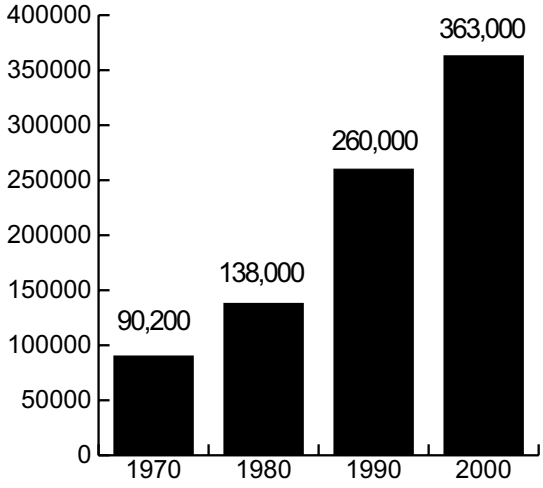
According to recently released 2000 Census data, population in the Occoquan watershed has nearly tripled since detailed statistics were first kept in 1977. While Northern Virginia is home to many densely populated watersheds, the Occoquan watershed is unique in that its major water body – the Occoquan Reservoir – is a significant source of drinking water for the region. Together, the Occoquan Reservoir and the Potomac River supply water to over a million customers in Northern Virginia through the Fairfax County Water Authority.

Despite Northern Virginia's enormous population growth, water quality in the reservoir has been relatively stable due in large part to management systems put in place in the early 1980s. These management systems include a massive down-zoning of Fairfax County's portion of the watershed in 1982, mandatory implementation of water quality Best Management Practices (BMPs), state-of-the-art wastewater treatment at the Upper Occoquan Sewage Authority, the establishment of the Occoquan Watershed Monitoring Laboratory, and the creation of the Occoquan Basin Nonpoint Pollution Management Program (administered by NVRC).

Since the 1980s, however, increased population and an associated increase in impervious surface area has created a host of new threats to the watershed. Despite recent attention on possible effects of terrorist activities, the greatest threats to drinking water in the new millennium are more likely to be spills, leaks, and accidental discharges within the basin's 590 square miles. The threat is not hypothetical – a Colonial Pipeline rupture in March, 1993, released about 407,000 gallons of diesel fuel into Sugarland Run and temporarily forced closure of the Water Authority's Potomac intake.

Further, the physical condition of the watershed's tributaries is also becoming a considerable concern. Increased impervious surface area as a result of development means that

Water quality in the Occoquan Reservoir has remained steady despite a tripling in watershed population since 1977.



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Population Growth Increases Need for Planning in the Occoquan Watershed

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stormwater runoff flows into streams and creeks at a higher volume and velocity. The result is increased erosion of headwaters, blown-out banks, and down-cutting. Sensitive aquatic species can no longer live in many of the watershed's streams – leaving a degraded aquatic ecosystem. Research by the Center for Watershed Protection suggests that watersheds with impervious surface cover of 11 to 25% will show clear signs of degradation, while watersheds with impervious surface cover greater than 25% are typically non-supporting for a diverse stream community. The most recent detailed accounting of impervious surface cover – conducted by NVRC in 1995 – estimates watershed imperviousness to be between 9 and 12%…and rising. Many of the Occoquan's subwatersheds are far in excess of 25%.

Watershed stakeholders have launched a number of new efforts aimed at addressing these threats. Recently, the Fairfax County Water Authority, as a requirement of the federal Safe Drinking Water Act, has completed a Source Water Assessment (SWA) of its Occoquan and Potomac intakes. The Authority identified potential sources of contamination within a 64 square mile zone directly tributary to the reservoir. Potential sources identified include point source discharges, various industrial facilities, and other sites which may provide vehicles for contamination of the reservoir.

The Authority also mapped major road crossings as well as sewage trunk lines and pumping stations. Because of the risk of hazardous spills from traffic accidents, locations where major highways carry high volumes of commercial traffic across streams are of particular concern. Nine major stream crossings were identified in the study, although several hundred smaller crossings can be found across the landscape. Sewer facilities also have the potential to cause concern in case of a sewer system or pump station failure. Because most sewer pipes are gravity-driven, they are typically located immediately adjacent to streams.

The Source Water Assessment results can be used to identify possible watershed protection measures and to prioritize water quality improvement efforts. Cooperation with the appropriate State and local agencies, among other organizations, would be needed before implementing any such measures.

The watershed's local governments have taken the leading role to protect aquatic habitats and the physical integrity of tributary streams. Fairfax County completed a Stream Protection Strategy Baseline Study in January, 2001, which resulted in a snapshot of the health of the County's streams. In watershed areas protected by the Water Supply Protection Overlay District, impervious surface levels are generally low and overall stream health rankings high. Six of eight watersheds are rated as "excellent." Further to the west, however, where development in the County's portion of the watershed has been concentrated (Centreville and Chantilly), and where impervious surface area averages in the high teens and low twenties, composite condition ratings include three poor watersheds, three fair watersheds, and four good watersheds. Only one small watershed ranked as excellent. Significantly, the County expects that impervious sur-

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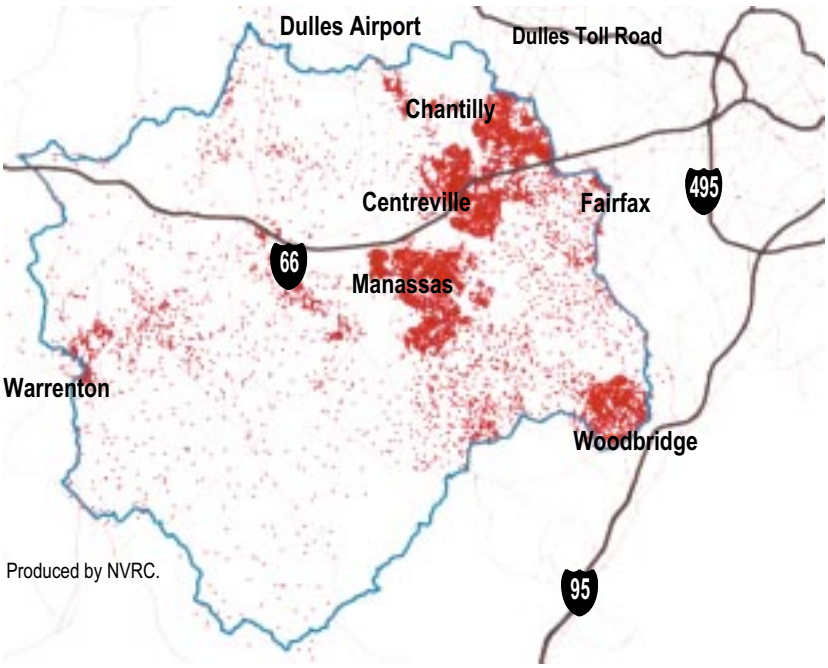
2000 Population Density in the Occoquan Watershed

1 Dot = 50 People



IS VIRGINIA'S PATCHWORK OF STORMWATER MANAGEMENT REGULATIONS DUE FOR AN OVERHAUL?

Equity Issues, Pressure to Clean the Chesapeake Bay Have Lawmakers Asking Whether Programs Should be Expanded or Made Mandatory

Should the Chesapeake Bay Preservation Act be expanded to include all local governments in Virginia's Chesapeake Bay watershed? Should the State mandate that local governments implement the Stormwater Management Regulations? Should all of Virginia's stormwater management regulations be combined into one program?

These will likely be among critical issues faced by the General Assembly's Commission on the Future of Virginia's Environment when it resumes its work in 2002.

Although stormwater runoff in Virginia's portion of the Chesapeake Bay watershed eventually reaches a common destination, regulations and programs governing stormwater management and water quality vary significantly jurisdiction by jurisdiction. This was the message presented by Jack Frye, Director of the Division of Soil and Water Conservation, at the December 12th meeting of the Commission.

Members of the Commission, and most vocally Senator Emmett Hanger (R - Mount Solon), questioned whether Virginia's patchwork of regulations is the best way to protect the Commonwealth's environment. While a major re-working of Virginia's stormwater laws appears unlikely for this session of the General Assembly, a Joint Legislative Audit and Review Commission (JLARC) study due in October of 2002 could set the stage for legislative action. The study (HJR 622 2001 General Assembly), among other issues, will examine the benefits and costs of extending the Chesapeake Bay Preservation Act to areas outside of "Tidewater" Virginia. A report by the Chesapeake Bay Local Assistance Department submitted to JLARC in November, 2001, suggests that extending the Act to all of Virginia's portion of the Bay watershed makes sense – though changes to the Act would be needed due to differences in topography and geology. In Northern Virginia, affected local governments would be Loudoun County, the cities of Manassas and Manassas Park, and the towns of Leesburg and Purcellville.

Although implementation of the Bay Act in Virginia has not been without its problems or detractors, a growing number of groups – including local governments – also question whether Virginia can meet its obligations under the interstate 2000 Chesapeake Bay Agreement without expanding stormwater management regulations. The Agreement commits Virginia to remove the Chesapeake Bay from the U.S. EPA's "impaired waters" list by 2010.

Because there is significant overlap between the Bay Act, the Erosion and Sediment Control Law, and the Stormwater Management Act, some legislators are also likely to

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faces in many of these subwatersheds could reach 40% and higher at build-out – making it difficult to protect, much less restore, aquatic habitats.

As a next step, the County is undertaking a Watershed Master Planning initiative, which includes mapping all perennial and intermittent streams. The result will likely be a significant increase in areas of the County protected as Resource Protection Areas under its Chesapeake Bay Preservation Ordinance. Similar efforts are happening in other local governments. Prince William County is now in the first stages of a stream assessment project, while Loudoun County has adopted more stringent stream corridor protection strategies as part of its 2001 Comprehensive Plan.

Severe erosion in a headwaters tributary of the Occoquan Reservoir.

NVRC, as part of its 2002 work plan, will undertake phase one of a two-phase watershed planning effort for the entire watershed. With the adoption of the interstate 2000 Chesapeake Bay Agreement, Virginia has committed to a goal of covering two-thirds of the Bay watershed with locally-supported plans by 2010. While many of the local governments in the Occoquan basin have developed components of a watershed plan, a watershed plan for the entire Occoquan does not exist. The intent of the NVRC effort is to coordinate and strengthen the individual local components and to fill in the gaps where necessary. ◆◆

Stormwater Management Likely to be a Key Environmental Issue in 2002 and Beyond

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press for streamlining and consolidating requirements. However, funding issues could easily derail these efforts even if there is wide support for stronger environmental protection. The Chesapeake Bay Foundation has estimated that it will cost approximately $6.7 billion to meet the nutrient and sediment pollution reduction goals of the 2000 Chesapeake Bay Agreement. Meanwhile, the Chesapeake Bay Local Assistance Department, despite increased responsibilities, received 7 percent less funding in 2001 than its peak over a decade ago. And, for the past two years, no funding has been included for implementing nutrient reduction technology in the Water Quality Improvement Fund.

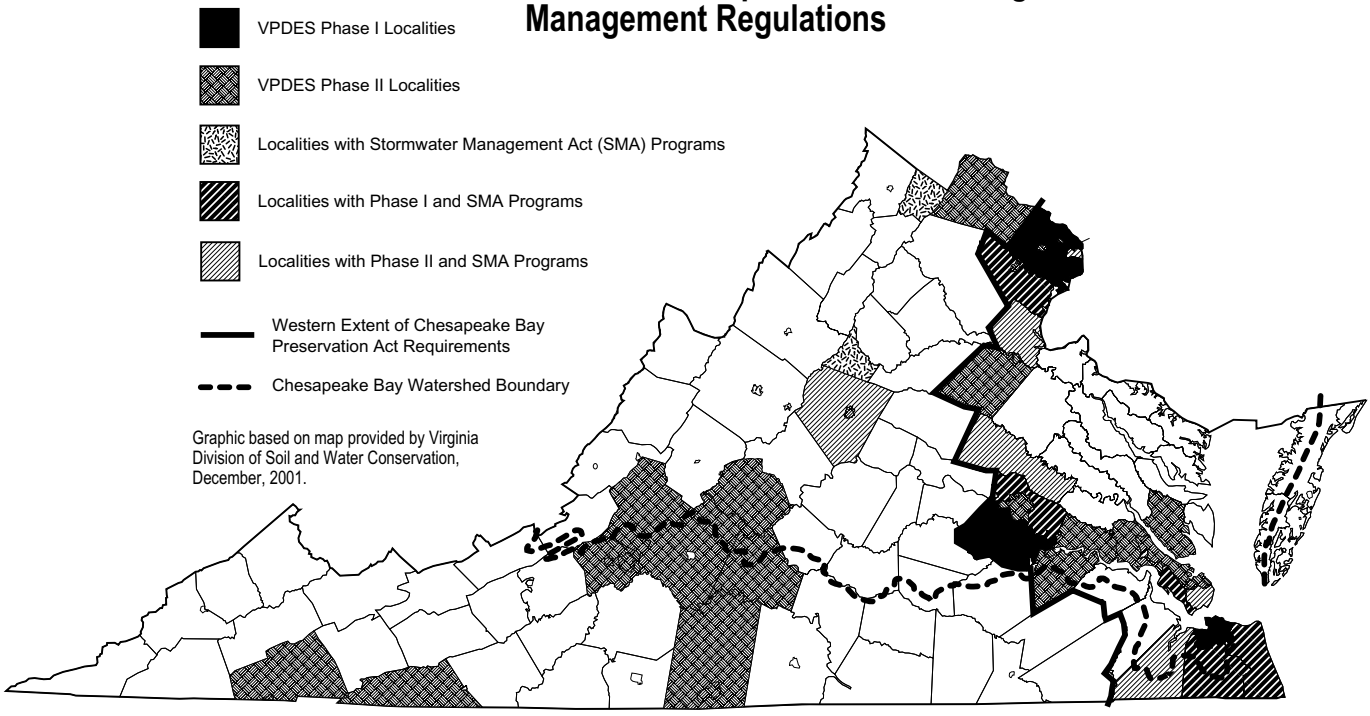
Virginia's regulations dealing with aspects of stormwater runoff include the Erosion and Sediment Control Law, the Chesapeake Bay Preservation Act, the Stormwater Management Act, and the Virginia Pollution Discharge Elimination System (VPDES) permit program. The Erosion and Sediment Control Law is the only program that is mandatory State-wide. However, the law primarily regulates construction activities, and only minimally touches on post-construction stormwater management.

The Chesapeake Bay Preservation Act is mandatory for local governments in the Tidewater portion of Virginia. The law requires local governments to implement relatively stringent stormwater quality criteria, but does not directly address the impacts of increased stormwater volume on natural streams and other water bodies.

The Stormwater Management Act allows local governments to adopt comprehensive stormwater management programs that integrate water quality and volume concerns as well as flood control and stream bank protection. However, implementation is voluntary and only 17 localities have adopted programs.

VPDES MS4 (Municipal Separate Storm Sewer System) permits are required in most urban areas, and apply to a local government's storm water conveyance system. While not necessarily required, the six general requirements of an MS4 permit are difficult to implement without adopting some combination of Chesapeake Bay or Stormwater Management Act requirements. ◆◆

In and Out – Implementation of Virginia's Stormwater Management Regulations



TWO REGULATIONS TO WATCH

Proposed Water and Waste Rules Could Significantly Impact Local Governments

No "Small" Surprise – Some Public Entities May be Caught Off-Guard by New Stormwater Regulations

An estimated 500 to 1,000 public entities which own or maintain a storm water conveyance system – including school systems, homeowners associations, and hospitals – might be due for an unexpected surprise in 2003.

Most small urban municipalities (those under 100,000 population) have long anticipated being regulated under the Municipal Separate Storm Sewer System (MS4) permit requirements of the Clean Water Act National Pollution Discharge Elimination System (NPDES). The permit essentially treats a public storm sewer system as a "point source" of pollution because stormwater is discharged via a storm pipe to State waters. Each permittee is required to obtain a General Permit to reduce pollution to the "maximum extent practicable."

Track proposed regulatory changes at:

The Virginia Regulatory Town Hall

www.townhall.state.va.us.

Arlington, Prince William, and Fairfax counties, which are designated as medium to large municipalities, have already been granted permits under Phase I of the program. Northern Virginia local governments that will be affected by Phase II include the County of Loudoun, the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park, and the towns of Herndon, Vienna, and Leesburg. The national list is likely to expand somewhat after an analysis of 2000 Census data.

The surprise comes by what is considered a "small" MS4. By definition, any conveyance that is owned or operated by a "public entity" must apply for a permit. While the regulations exclude single facility systems, the Virginia Department of Environmental Quality interprets the definition to include not only traditional local governments, but also any public body that is responsible for maintaining its own stormwater management infrastructure. Those affected would include public bodies located in a large or medium MS4 locality that are not covered under a Phase I permit.

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Proposal Would Cap Waste Disposal Capacity at 20 Years

How to reverse Virginia's status as the second largest importer of trash in the United States was hotly debated in the late 1990s. Now, proposed changes to Virginia's Waste Management Regulations might do what numerous legislative attempts failed to do – but with a potentially high price for local governments.

Most legislative attempts to control importation of trash into Virginia have failed or been rendered unconstitutional. However, the Department of Environmental Quality has proposed to incorporate a regulatory requirement that would limit permitted capacity in Virginia to 20 years. Any new facility would be required to meet one of two criteria; (1) the available permitted disposal capacity for the state must be less than 20 years; or (2) the available permitted disposal capacity must be less than 20 years in either the planning region

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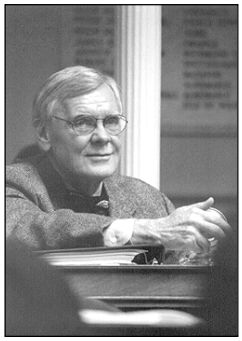
MURPHY APPOINTED SECRETARY OF NATURAL RESOURCES; BURNLEY DEQ DIRECTOR

Governor Mark Warner has appointed former Delegate Tayloe Murphy as the Commonwealth's Secretary of Natural Resources – a position which oversees Virginia's environmental agencies and sets the tone for overall environmental policy. Mr. Murphy represented the Northern Neck area for 18 years in the General Assembly until his retirement in 1999 and has served three times as chairman of the interstate Chesapeake Bay Commission. Mr. Murphy was integral to the passage of the Chesapeake Bay Preservation Act and the Water Quality Improvement Act.



Hon. Tayloe Murphy

Robert Burnley

Governor Warner has also selected Robert Burnley as Virginia's Director of the Department of Environmental Quality. Mr. Burnley most recently worked as the Director of Information Technology and Technical Services at the Virginia Economic Development Partnership. Until 1997, he served as DEQ's Director of Program Support and Evaluation. Before that, he spent a number of years as the Director of the DEQ Water Division. ◆◆

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immediately contiguous to the host community or the facilities within a 75 mile radius of the proposed facility.

Under the proposal, local governments could potentially lose the ability to take responsibility for local waste management. For instance, if a local landfill were to reach capacity, but capacity in the region remained above the 20 year level, a local government would have no choice but to transfer waste to another facility. This could be regardless of whether a local government found it to be more cost-effective, or environmentally sound, to manage waste close to its source of generation. The proposal could also be problematic if competition is limited to one or two large facilities within a region – setting up a potential monopoly situation.

According to Jeff Smithberger, Fairfax County staff and Solid Waste Association of North America Virginia Chapter President, the Technical Advisory Committee formed to provide input into development of the regulations has "urged DEQ to follow local and regional waste management plans – rather than to apply arbitrary restrictions." Currently, the State does not have a State-wide waste management plan, but simply relies on the sum of local plans. Some areas of Virginia have very good management plans, while others have allowed for much more capacity than needed locally – opening the door to importing of out-of-state trash. An alternative to the proposed regulations could be the development of a State-wide strategic plan.

The proposed regulations will be considered by the Virginia Waste Board and then released for a public comment period. ◆◆

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According to unofficial DEQ estimates, the number of permits that will need to be issued will likely range from 500 to 1,000. Applications for these permits are due by March 10, 2003. While DEQ anticipates requesting additional staff to conduct outreach and handle the influx of permit applications, nothing is guaranteed in Virginia's current budget situation. The regulations do provide applicants an opportunity to ride a local government permit; however, doing so raises several issues including whether a locality would need to assume responsibility for maintaining a system before a permit could be granted.

Regardless, the cost for local governments to comply with Phase II requirements could be considerable. U.S. Environmental Protection Agency draft regulations anticipate implementation to cost from $1.23 to $7.83 annually per capita for new items – depending on how developed the local program is already. Consequently, a larger locality like Loudoun County could be expected to spend an additional $208,606 to $1,327,906 per year. A smaller locality such as Manassas Park could be expected to spend an additional $12,656 to $80,570 per year.

Whether and to what degree the Commonwealth will provide funding for Phase II implementation is unclear. The Commission on the Future of Virginia's Environment discussed but did not act on a proposal to include funding for Phase II in its proposed Conservation and Natural Resources Bond. NPDES MS4 permits are federally enforceable, and violators are subject to federal and state enforcement actions of up to $25,000 per violation per day. A public comment period is expected to begin in February, 2002. ◆◆

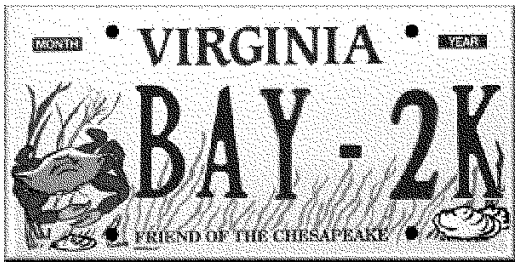
NVRC AWARDED FUNDING TO PROMOTE ECO-FRIENDLY LAWN CARE BUSINESSES

Several Other Groups Provided Chesapeake Bay Restoration Funds for Local Water Quality and Habitat Projects

The Virginia Chesapeake Bay Restoration Fund Advisory Committee has awarded a grant to the Northern Virginia Regional Commission to develop and implement a program to identify and promote water quality friendly lawn care contractors. The grants are funded with monies from the sale of special "Friend of the Chesapeake" license plates. Since 1996, nearly $2.2 million has been awarded. The amount awarded for 2002 is $444,242. The Governor must approve the Committee's recommendation.

Other Northern Virginia grant recipients include:

- Town of Herndon to expand current nature programs
- Prince William SWCD to publish a "Horse Owners Guide to Water Quality Protection" and a "Citizens Action Directory for Water Quality"
- Alexandria Seaport Foundation for cleaning and stabilizing wetlands and shorelines
- Audubon Naturalist Society for engaging residents of Donaldson Run and Little Rocky Run in watershed restoration and leadership efforts
- North Fork Goose Creek Watershed Committee to implement a Community Watershed Education Program
- Friends of Bull Run for stream monitoring.
- City of Falls Church for Crossman Park demonstration project
- Prince William County for a better site design workshop and training
- Potomac Conservancy for riparian habitat and water quality enhancement
- Floris Elementary School (Fairfax) to monitor Horsepen Creek and Frying Pan Creek
- Fairfax County Public Schools for training to increase teacher awareness of Bay issues
- Annandale Terrace Elementary School (Fairfax) for creation of a garden habitat ◆◆



Source Water Protection and Water Supply Education Grants Available

The Fairfax County Water Authority is offering Watershed and Water Supply Education Grants to support citizen source water protection efforts and community activities related to water supply.

Local government education agencies, state government education environmental agencies, homeowners associations, civic groups, or not-for-profit organizations may apply for up to $5,000 in direct funding, technical services or equipment.

Grant requests must address water supply or watershed issues within the Water Authority's service area or watershed area in Fairfax, Loudoun, Prince William, or Fauquier counties. Eligible projects include:

- **Education Efforts**. Seminars, programs, or tours aimed at educating the public on water supply issues. Topics may include, but are not limited to, hydrology, water treatment processes, distribution, watersheds, non-point source pollution, erosion and sediment control, and water quality monitoring.

- **Source Water Protection Projects**. Stream restoration projects, non-point source pollution management projects, or other activities aimed at improving water quality within the Occoquan Watershed or Potomac River Basin.

Applications will be available in January. To receive an application, contact Traci Kammer Goldberg, Water Resources Engineer, by telephone at (703) 289-6306 or by e-mail at tgoldberg@fcwa.org. Applications will also be available on-line at www.fcwa.org. The deadline for filing an application for grants is May 15, 2002.

NVironment

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