

WATERSHED APPROACH

HELPS MEND WATERWAYS

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I want to be able to see my feet,”

declared former Maryland State Senator Bernie Fowler in 1988 as he stood chest high in the Patuxent River at Broomes Island, Maryland. He wanted to graphically illustrate the river's sediment problem.

Hundreds of people lined up along the shoreline and waded into the Patuxent River with Fowler to the point where he could no longer see the tops of his white sneakers. He then measured the water line on his overalls and documented it in the "Sneaker Index." "Although this is not a scientific measure, it puts restoring the river on a human scale," Fowler said.

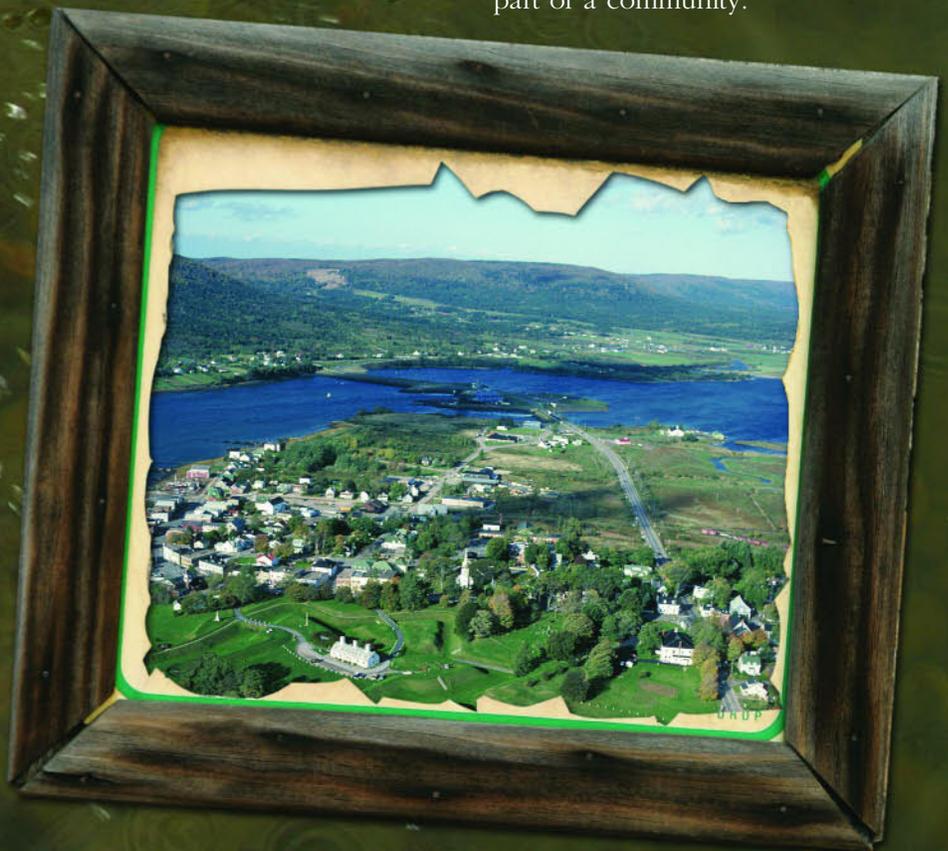
As a crabber and fisherman in the 1950s and 1960s, the six-foot-tall Fowler could see his feet, grass beds, and crabs while standing at shoulder depth in the Patuxent River. But this river, which flows through the middle of the Baltimore/Washington corridor and into southern Maryland, has suffered eutrophication from heavy and persistent loads of sedi-

ment and algal fertilizing nutrients, creating serious clarity problems over the past several decades.

Unbeknownst to Fowler, a leading voice on environmental issues, this "Wade-in," would become tradition in the Chesapeake Bay area. It has become so popular and successful in increasing public awareness about water quality problems in the Chesapeake Bay that similar wade-ins have been established in many of the more than 150 tributary basins throughout the 64,000 square-mile watershed.

What is a watershed?

No matter where you are, you are in a watershed. "A watershed is the area of land where all of the water that is under it or drains off of it goes to the same place," says Dale Kemery, press officer, U.S. Environmental Protection Agency (EPA). "John Wesley Powell, scientist geographer, put it best when he said that a watershed is 'that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community.'"



Watersheds include lakes, rivers, estuaries, wetlands, streams, and surrounding landscape; They come in all sizes and shapes, are found in all types of landscapes, and can cross county, state, and national boundaries. They supply our drinking water, provide a habitat for plants and animals, and provide water bodies for recreation and relaxation.

Causes of Watershed Pollution

Since the 1970s, many rivers have experienced the same water quality problems that the Patuxent River has experienced, and despite the successes of the Safe Drinking Water Act and the Clean Water Act, our nation's waters continue to be polluted. The *National Water Quality Inventory: 2000 Report* reported that half of the streams, lakes, and estuaries assessed were still not clean enough to support fishing and swimming.

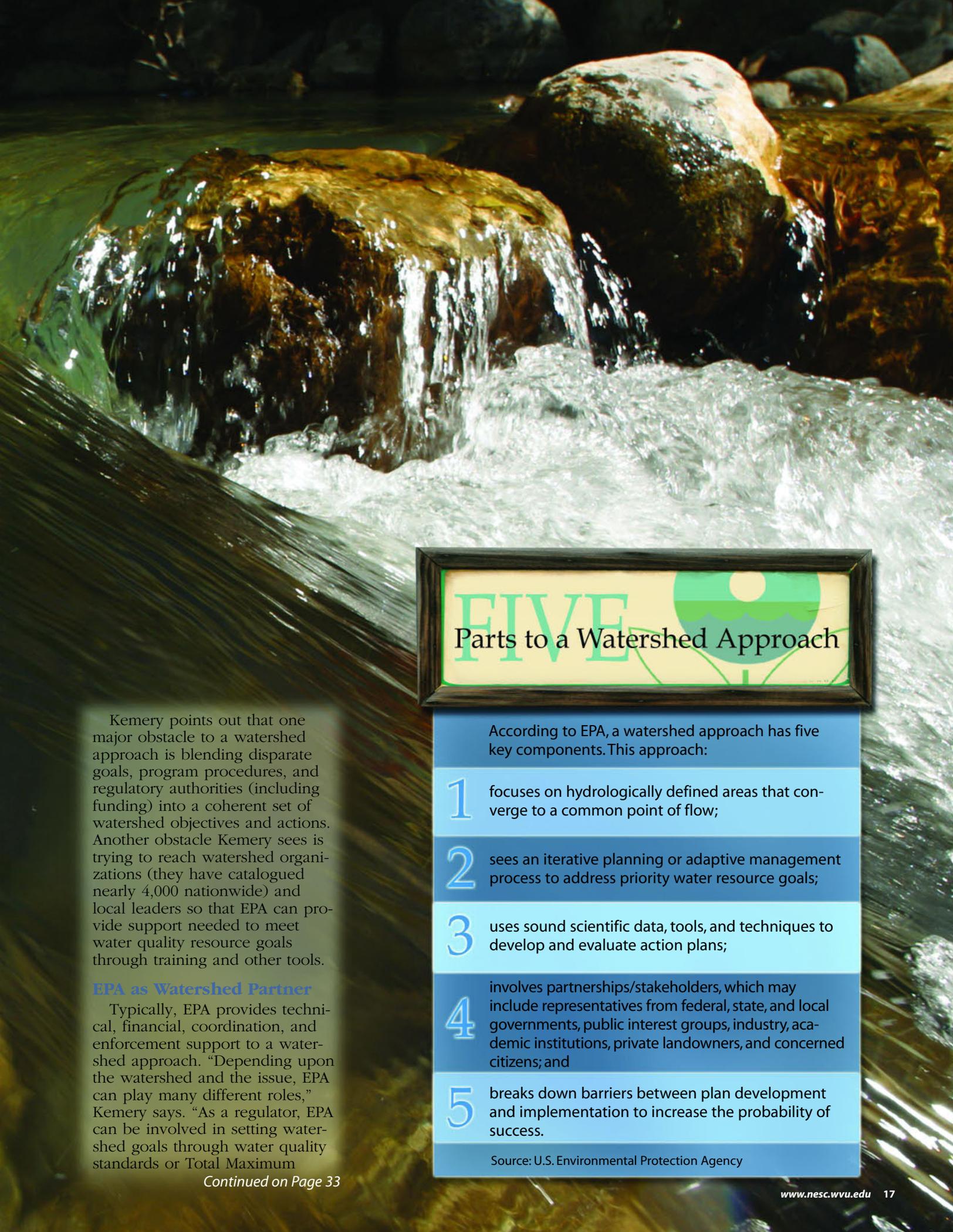
In the past, most water quality problems were traced to point-source pollution, such as a pipe or disposal site. Technical and regulatory methods have been used to detect and control these problems over the past 30 years, yet the water quality in our watersheds continues to decline because of the cumulative effect of nonpoint source pollution. Runoff of lawn fertilizers and pesticides, drainage of farm and factory waste, oils and pollutants from roadways, failing septic systems, and construction sites are just some of the practices that can directly affect the physical, chemical, and biological health of a watershed.

Historically, approaches to water problems have been divided among multiple agencies.

For the past decade, though, EPA has endorsed a watershed approach to restoring and protecting the nation's waters. According to EPA, a watershed approach is a community-based, consensus-building framework for decision making instead of the traditional agency-based command-and-control approach. This strategy depends on a broad coordinating process for prioritizing water resource problems, addressing not only water quality standards but also addressing pollutants that do not have numeric standards (including nutrients and clean sediments), healthy aquatic habitats, coastal and marine waters, and invasive species and other stressors.

According to the EPA, the benefits of a watershed approach include:

- Effectiveness and efficiency—encompassing the full range of problems in a cluster of impaired waters so that costs can be streamlined and core clean water programs can be delivered more efficiently (e.g., monitoring, TMDLs, permits, and nonpoint pollution control).
- Program integration—opening opportunities for cross delivery of water programs, including coordination of clean water programs with wetlands protection and other related efforts.
- Drinking water coordination—providing an opportunity to coordinate surface water protection with efforts to protect sources of drinking water to attain drinking water standards.
- Intergovernmental cooperation—creating opportunities to coordinate with watershed programs in other federal agencies (e.g., the U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration).
- Sustainable improvements—looking at groups of problem waters rather than individual waters so that pollution from a single water body is not carried downstream to restored waters.
- Innovations—investigating innovative approaches such as watershed trading and issuing coordinated permits on a watershed scale.
- Public involvement—promoting the full involvement of the public in clean water programs.
- Public communication—giving the public more meaningful information than they would have from single water body restoration.
- Maintaining clean waters in the watershed—helping to maintain the quality of all waters in the watershed, including clean waters.
- Early identification of additional impaired waters—using a coordinated effort to identify and solve impaired water problems.



FIVE Parts to a Watershed Approach

Kemery points out that one major obstacle to a watershed approach is blending disparate goals, program procedures, and regulatory authorities (including funding) into a coherent set of watershed objectives and actions. Another obstacle Kemery sees is trying to reach watershed organizations (they have catalogued nearly 4,000 nationwide) and local leaders so that EPA can provide support needed to meet water quality resource goals through training and other tools.

EPA as Watershed Partner

Typically, EPA provides technical, financial, coordination, and enforcement support to a watershed approach. “Depending upon the watershed and the issue, EPA can play many different roles,” Kemery says. “As a regulator, EPA can be involved in setting watershed goals through water quality standards or Total Maximum

- According to EPA, a watershed approach has five key components. This approach:
- 1 focuses on hydrologically defined areas that converge to a common point of flow;
 - 2 sees an iterative planning or adaptive management process to address priority water resource goals;
 - 3 uses sound scientific data, tools, and techniques to develop and evaluate action plans;
 - 4 involves partnerships/stakeholders, which may include representatives from federal, state, and local governments, public interest groups, industry, academic institutions, private landowners, and concerned citizens; and
 - 5 breaks down barriers between plan development and implementation to increase the probability of success.

Source: U.S. Environmental Protection Agency

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Daily Loads and in implementation through National Pollutant Discharge Elimination System permits. As a partner, EPA can provide technical expertise on best management practices, water quality modeling, or monitoring. EPA also develops tools and training to support local watershed organizations and provides financial help to states through its Section 319 Nonpoint Source Program grants and its Targeted Watershed Grants Program.”

EPA's Targeted Watershed Grant Program

EPA has awarded more than \$40 million to various watershed organizations across the country since the Targeted Watershed Grant program began in 2003. Organizations were selected based on work plans that were most likely to quickly achieve environmental results.

In 2005, more than \$9 million was awarded to 12 of the nation's most outstanding watershed coalitions for the following watersheds: Skagit River in Washington, Willamette River in Oregon, Trinity River/Lower Klamath in California, Upper Sevier River in Utah, Vermillion River in Minnesota, Huff Run in Ohio, Tuttle Creek Lake in Nebraska and Kansas, Lake Hopatcong in New Jersey, Cheat River in West Virginia, Little River in Tennessee, and Tangipahoa River in Louisiana.

The award to these 12 organizations brings the total number of watershed organizations given awards through the program to 34.

Watershed Groups

EPA's *Surf Your Watershed* Web site currently lists 6,615 watershed groups across the country that work to protect the nation's 3,059 watersheds. Some of these water-



Steps to Protect your Watershed:

- Prevent pollution from entering waterways by planting trees, especially along streams and shorelines.
- Conserve electricity and water and reduce the number of miles you drive.
- Plant native vegetation that requires the use of less fertilizer, pesticides, and water.
- Limit your use of fertilizer and apply at appropriate times.
- Use safer, nontoxic alternatives for cleaning and controlling pests and weeds.
- Properly dispose of household hazardous waste, antifreeze, oil, and boat waste.
- Prevent pollution by reducing, reusing, and recycling.
- Get involved in community groups and watershed organizations to develop and implement watershed management plans.

Source: U.S. Environmental Protection Agency

shed groups are fluid—they exist for a specific purpose, and once that purpose is accomplished, they disband. Other watershed groups are in for the long haul, some even taking a parental role with smaller watershed groups.

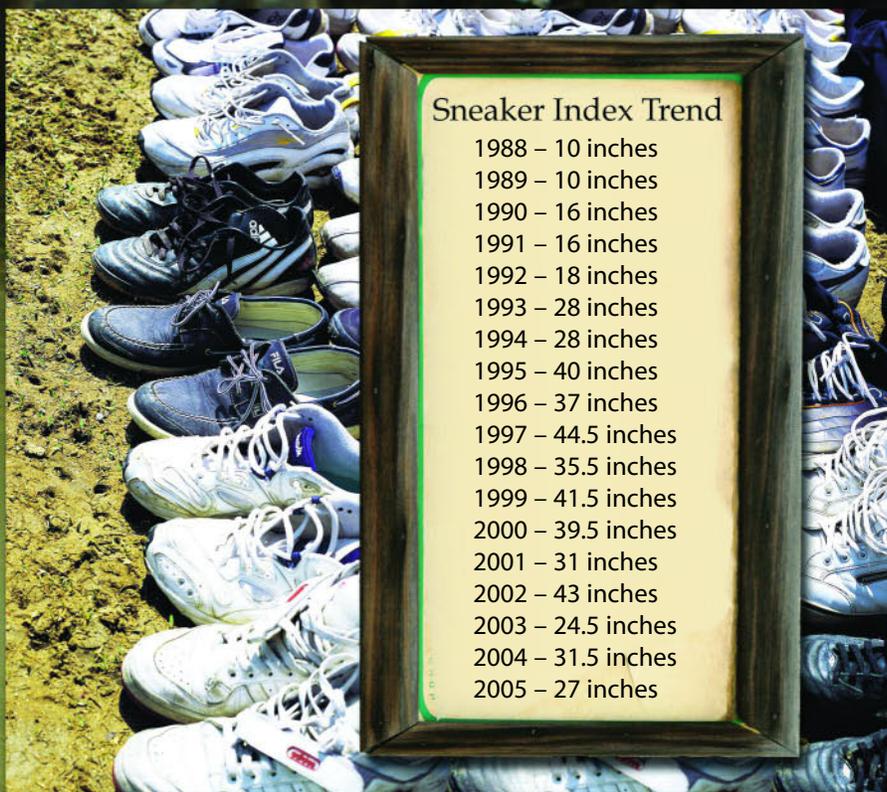
Founded in 1988, River Network began with the belief that every river and stream needs a group of local citizens organized to protect it. Since that time, River Network has emerged as a national leader

in the river and watershed conservation movement and has assumed primary responsibility for building and supporting the river and watershed movement, which has grown from just a few hundred groups a decade ago to more than 4,000 organizations today. River Network has even been recognized by former President Jimmy Carter as some of the “unsung heroes of America's rivers.”

"We are the only national group that supports local, state, and regional river groups throughout the country," says Katherine Luscher, River Network partnership program director. River Network works closely with local watershed protection groups, state river conservation organizations, Native American tribes, schools, and water-quality related organizations and agencies. "We provide our conservation partners with information, training, consultation, grants, and referrals to other service and peer organizations," she says.

After Hurricane Katrina, River Network is helping environmental groups rebuild through a grant program it established. The *New York Times* showcased this grant program, called River Network's Gulf Coast Watershed Recovery Fund, in its annual Giving Section. "The fund will make grants to groups that need to replace office space, and to support longer-term objectives, like monitoring water quality and advocating for a wetlands restoration effort to help safeguard against future hurricane destruction."

In a November 16, 2005, River Network news release, Don Elder, president of the River Network, says, "The post-hurricane needs of the region's community-based conservation groups vary widely. We are helping these groups get back on their feet by assessing their needs, providing direct assistance, and investing in their recovery. The Gulf Coast Watershed Recovery Fund will help the region's conservation leaders address the myriad of immediate, water-related post-hurricane issues and chart a better course for watershed management in the region for the future. It will secure enormous benefits for water, people, and wildlife for generations to come."



For more information about recovery efforts in the Gulf Coast region, see the article "Massive Recovery: Small Towns Still Rebuilding After 2005 Hurricanes" on the NESC Web site at www.nesc.wvu.edu.

Water Quality and the Watershed Approach

Clean Water Act programs administered by EPA are largely delegated to states and tribes. "Of the assessed waters, states are reporting 40 percent as meeting water quality standards," Kemery says. "It is not statistically possible to conclude that implementing watershed approaches has improved water quality, since the information that states report varies. What we can say, though, is that watershed approaches offer anecdotal evidence that these approaches provide innovative and more efficient and cost-saving means to address water quality problems and engage the many stakeholders at the local level in these decisions and actions."

To learn more about watersheds, visit the River Network Web site at www.rivernetwork.org and the Chesapeake Bay Web site at www.chesapeakebay.net.

The U.S. Environmental Protection Agency Web site has information about various aspects of the watershed approach:

- **Funding**—
www.epa.gov/owow/funding.html
- **A discussion forum**—
www.epa.gov/watershed/forum/
- **Tools**—
www.epa.gov/owow/watershed/tools/
- **Training**—
www.epa.gov/owow/watershed/wacademy/
- **Targeted Watersheds Grants Program**—
www.epa.gov/owow/watershed/initiative

Other Watershed Web sites are featured on pages 11 and 12 in this On Tap. 💧



A member of NESC for more than eight years, **Caigan McKenzie**, has had a number of her water and wastewater articles reprinted in a variety of publications.