



Volunteer Monitoring

What is Volunteer Monitoring?

Across the country, private citizens are learning about water quality issues and helping protect our Nation's water resources by becoming volunteer monitors. Volunteers are analyzing water samples for dissolved oxygen, nutrients, pH, temperature, and a host of other water constituents; evaluating the health of stream habitats and aquatic biological communities; inventorying stream-side conditions and land uses that may affect water quality; cataloging and collecting beach debris, and restoring degraded habitats.

State and local agencies may use volunteer data to screen for water quality problems, establish trends in waters that would otherwise be unmonitored, and make planning decisions. Volunteers benefit from learning more about their local water resources, identifying what conditions or activities might be contributing to pollution problems, and working with clubs, environmental groups, and state or local governments to address problem areas.

What is EPA's Role in Volunteer Monitoring?

The U.S. Environmental Protection Agency (EPA) supports the volunteer monitoring movement in a number of ways. It sponsors national and regional conferences to encourage information exchange between volunteer groups, government agencies, businesses, and educators; publishes sampling methods manuals for volunteers; produces a nationwide directory of volunteer programs; and through its ten Regions, provides some technical assistance (primarily on quality control and lab methods) and Regional coordination. Grants to States that can be used to support volunteer monitoring in lakes and for nonpoint source pollution control are also managed by the EPA Regions.

How Many Programs Are There?

Every year, many new volunteer monitoring programs are formed in the United States. Some programs have as many as several thousand volunteers. Most programs, however, are small and often affiliated with neighborhood associations, schools or local environmental organizations. Today, there are literally too many to count.

The fast growth of the volunteer monitoring movement is clearly shown by increases in the number of programs that receive technical and/or organizational support from State water quality or natural resource agencies. In 1988, only 14 states supported such programs; by 1992, 32 states had programs and six additional states were planning to develop programs. Over 24,000 volunteers in these state-supported programs monitor more than 985 streams and rivers, nearly 2800 ponds, lakes and wetlands, and four major estuaries. In many cases, these waters would go unmonitored if volunteers were not involved.

Who Pays for Volunteer Monitoring?

Volunteer monitoring programs are funded through a variety of sources. In some cases, state water quality or natural resource agencies may actually sponsor the volunteers and contribute staff, equipment, and services such as data analysis. City and county governments do the same. Some programs are supported by federal agencies such as the EPA (primarily through pollution control grants to the States), the National Park Service, and the U.S. Forest Service.

In addition, many volunteer programs receive private support through foundations, universities and other research centers, or corporate sponsors. This support may include funding for a full or part time organizer, equipment, training workshops, or data analysis. In many programs, volunteers themselves also help pay for monitoring by purchasing their own equipment and hosting training sessions.

How Do Volunteer Monitoring Programs Improve Our Environment?

The following examples demonstrate the important improvements volunteer monitors have made to our environment.

Everett Streamkeepers Reclaim Pigeon Creek

Streamkeepers trained by the Adopt-A-Stream Foundation, of Washington, are literally reclaiming local water resources. For example, volunteers

- identified a former salmon stream, Pigeon Creek, in Everett Harbor that was a proposed dredging site
- raised salmon in an aquarium, with which they restocked the creek
- educated the community about protecting the creek's salmon
- persuaded the mayor and city council members to install a storm water drainage system that protects the creek's re-emerging ecosystem



Adopt-A-Stream Foundation Streamkeepers Training Program Significantly Improves Water Resources

The program began in 1981. Today there are 36 Streamkeepers, teachers and community group leaders who have adopted streams in Washington, Oregon, Idaho, Montana and British Columbia. Through the program, students and community groups maintain a stream and its tributaries, watching for pollution, erosion, and activi-



- a partnership among State agencies, citizens and private conservation organizations to develop water quality programs and promote wise use of state streams and rivers,
- a facilitating role among youth groups and private educational organizations to include river conservation in curriculum and youth activities.

Vermont Lay Monitoring Program

Over one hundred volunteers collect water quality data for chlorophyll concentration (EPA fluorometric method), total phosphorus, and Secchi disk transparency (a measure of water turbidity) from smaller lakes and 30 Lake Champlain monitoring stations. Volunteers also conduct user perception surveys. Their data helped the State:

- establish water quality standards for phosphorus in Lake Champlain and Lake Memphremagog;
- obtain a federal grants to conduct a lake studies;
- include information on the lakes in its biennial water quality inventory 305(b) Report to EPA.

Volunteer Lake Monitoring Program Benefits Illinois

Every year in Illinois, 270 volunteers donate 2,400 hours of their time to monitor 150 lakes. Data on parameters such as water transparency, nutrients and suspended solids are used in:

- planning and implementing over 30 lake and watershed management projects, such as a watershed cost-sharing project between farmers and a lake association to implement safe and effective use of agricultural chemicals;
- determining water quality trends and the effectiveness of lake and watershed management projects;
- preparing the State's water quality report to EPA.



Volunteers Support Jug Bay Wetlands Sanctuary

The Jug Bay Wetlands Sanctuary's more than 125 volunteers assist with ten staff-conducted studies as well as numerous public events. Besides conducting water quality monitoring,

volunteers help with other efforts to protect and preserve habitats in the Patuxent River watershed. For example, volunteer monitors:

- participate in a comprehensive school program that brings several thousand pre-school through college students to Jug Bay for a variety of programs (e.g., marsh studies, water quality studies, and forest ecology);
- assist ecologists and university interns conducting research;
- teach educators about wetlands ecology, natural history and environmental issues.

Trout Unlimited

With 70,000 members in 450 local chapters, Trout Unlimited (TU) is a nonprofit cold water fisheries conservation organization. TU provides technical assistance to many of its chapters which participate annually in dozens of on-going water monitoring and river restoration projects. TU's chapters recently:

- constructed (with assistance from Chevron Corporation) a barbed-wire fence along California's Trout Creek in the Shasta-Trinity National Forest to prevent cows from damaging the riparian zone and fish habitat;
- restored fish habitat on Spring Creek in Missouri's Mark Twain National Forest by planting over 20,000 trees along a six mile segment of the creek, restoring the creek's banks, and reclaiming its natural Ozark vegetation.



Center for Marine Conservation Program Contributes to New Laws

More than 160,000 Center for Marine Conservation volunteers in 32 states and 35 foreign countries collect and catalog tons of trash from beaches. Their efforts along Texas beaches produced data that contributed to:

- Congressional ratification of an international agreement banning ocean-going ships from dumping plastic debris;
- Passage of the Marine Plastic Pollution Research and Control Act of 1987, which implemented this agreement in U.S. waters.

ties that might disrupt fish spawning. County employees help residents protect and rehabilitate local streams. Volunteers, working together,

- initiated more than 200 watershed restoration and enhancement projects, and
- opened over 30 miles of restricted salmon and steelhead trout spawning and rearing habitat.

Projects included building fish ladders, clean-ups, fencing cattle out of streams and becoming active in local land use decision making processes.



Neighborhoods United: Protecting the Cold Stream

With only 13 members, Neighborhoods United is protecting the Cold Stream in Cedar Rapids, Iowa. Started only three years ago to save the urban stream, the program:

- organized city-wide cleanup days to collect several commercial truck loads of garbage from the stream, dramatically reducing the stream's solid waste content;
- identified a sewer overflow, which was subsequently repaired by the city after Neighborhoods United presented city officials with a video tape of the problem;
- involved children and adults in regular biological monitoring of the stream.

Missouri Stream Teams: Catalyst for Environmental Partnerships

One of the principal objectives of Missouri Stream Teams is to promote water quality monitoring of the State's streams. However, the program, now 4 years old, also addresses fish, forest and even wildlife problems associated with Missouri's streams. The efforts of about 12,000 volunteers were the catalyst for establishing:

- the Ozark Greenway Association, an independent not-for-profit organization that buys land to convert to greenways;
- rural landowner groups that try to reclaim local streams and rivers in order to rejuvenate the economic life of rural communities.



GREEN Project Empowers People to Improve Water Quality Around the World

The Global Rivers Environmental Network (GREEN) is affiliated with the School of Natural Resources and Environment at the University of Michigan in Ann Arbor. GREEN is an international network of active schools and communities in over 50 nations and every state in the United States. The Central Office is also a clearinghouse of teaching and monitoring strategies to study water quality. GREEN provides materials and ideas for people interested in evaluating and improving local water quality through hands-on monitoring and problem-solving. Some examples of student actions arising from GREEN's water monitoring programs are listed below.

- In Swaziland, students reduced the number of incidents of a tropical disease caused by the infestation of parasitic worms by locating an alternative site on a river for washing clothes, and providing basins and water pumps at the new site.
- In Australia, students and teachers identified partially treated sewage near public beaches and appeared on national television to advise the public of the danger.
- In Detroit, Michigan, students found that a municipal sewage treatment station was operating improperly and emptying raw sewage into the Rouge River. The city immediately repaired the station's equipment.

For More Information

The U.S. EPA has a number of resources available for people interested in learning more about volunteer monitoring and how they can participate. For information, contact:

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