

WATERSHED LESSON #9: *Education and Involvement Drive Action*

“Education can help create support for the watershed effort...landowners would have been more receptive to the watershed effort and more involved in projects if there had been better education.”

- The Watershed Source Book,
University of Colorado Natural Resources Law Center, 1-43

Earth Day, 1970, and the resulting actions taken by government demonstrated that public support is the engine that drives protection of the environment. But public support depends upon public awareness, involvement, and education. Watershed awareness campaigns and education programs can help people who live, work, and recreate in a watershed understand what the problems are and how they can help remedy them. Based on lessons learned by watershed educators, effective watershed communication involves: **understanding one’s audience, being careful with terms, and knowing how the target audience likes to receive its information.** Further, one should be ready to **explain how that particular audience can help remedy the problems - what actions they can take.**

When it comes to creating awareness in the general public, watershed coordinators have used many different mechanisms, including highway signs, bumper stickers, billboards, awards, field trips, newsletters, and newspaper inserts as well as cutting edge approaches such as the internet. A large number of people have also been reached through public service announcements, license plates, storm drain stenciling, peer to peer communication, and community events.

Educating a community for the purpose of stimulating voluntary action means targeting groups from all walks of life: farmers, businessmen, school children and teachers, local government officials, homeowners, and the like. Well designed education programs can lead to tangible results, especially when they get participants out in the field, are delivered in an effective way, and encourage action and reflection. Some local watershed groups have had a lot of success in awarding small contracts to key constituency groups under which they themselves are charged with carrying out education programs. Such programs have been quite effective in encouraging the voluntary adoption of best management practices.

Watershed practitioners have learned that who delivers the information is important, as well. In general, peer to peer communication or communication by a neutral source is best. Community members, such as students, are often better received than a government official.

Lake Pontchartrain Basin Foundation, Louisiana Alligators Are Part of the Lesson Plan

Anne Rheams, Education Coordinator of the Lake Pontchartrain Basin Foundation, has developed a strong education/outreach program which consists of field trips, festivals, videos, and an excellent curriculum guide. Based on her experience, she believes that *getting people out in the field is the key component of watershed education.*

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The Foundation does a lot of work with inner city children, who have very little experience with nature. “When they see a wetland system for the first time”, Rheams says, “they are a little scared and think that an alligator will eat them. However, over time, they come to understand that wetlands are beautiful systems that need to be protected.” The Foundation’s work has also led to action. For example, Holy Cross High School students have pulled together a collection center where residents can bring their empty oil cans for recycling. In addition, students have stenciled storm drains to educate citizens about the biggest source of pollution in the watershed, *urban runoff*.

A key component of the Foundation’s education effort is a curriculum guide, “Lessons on the Lake,” designed specifically for Lake Pontchartrain. In developing the guide, the Foundation assembled a group of teachers to advise them on how to best reach youth ages 4-18. Every effort was made to assemble the best and most committed teachers--one of them, Sue Ellen Lyons, was selected in 1996 to receive the National Wetlands Award for her outstanding work. Most importantly, the curriculum accounts for the different ways that youth learn: some through visual means, others through music, and still others through touch or action.

Another component of the Foundation’s outreach effort is a grants program under which teachers can receive up to \$500 for implementing watershed projects in their classrooms. The Foundation has also awarded a grant to the Louisiana Children’s Museum for an exhibit on the impact of urban runoff on the lake. An estimated 225,000 people visit this local museum annually.

For more information: contact Anne Rheams, (504)836-2238, (504)836-7283 (fax)

Raising Awareness in the Community Students Travel Down the Kingfisher Canoe Trail

In addition to carrying out less strenuous awareness raising activities (such as slide shows), the Anacostia Watershed Society offers a “Day on the River” learning program to Washington, D.C. metropolitan area youth. The watershed covers 170 square miles

and includes portions of two Maryland counties as well as the eastern half of the District of Columbia. In 1996, 374 students from eight different schools in the watershed took part in the program.

“Day on the River” begins with an introductory slide presentation. Students then embark on a five mile canoe trip down the Anacostia’s “Kingfisher Canoe Trail.” They disembark twice along the way, at the recently restored 60 acre Kenilworth wetland and at the National Park Service’s Kenilworth Aquatic Gardens. Here, they engage in identifying the flora and fauna and in monitoring water quality. They discuss their observations with the group and consider what effects land use practices have had on the river. Journal writing is featured during the expedition.

Both classroom and outdoor activities are designed to exercise students in science, math, English, and history

The program provides teachers with classroom follow-up activities that reinforce lessons learned on the river. Both classroom and outdoor activities are designed to exercise students in science, math, English, and history, as well as introduce them to the principles of ecology and watershed protection. The program emphasizes the student’s connection to the natural world -- how lifestyle choices affect the environment, and how the environment, in turn, affects their neighborhood and quality of life.

For more information: contact Anacostia Watershed Society, 301-513-0316, 301-513-9321 (fax), <http://www.gmu.edu/bios/anacosti/aws/>

***Students Taking Action in Detroit
GREEN Students Uncover a Malfunctioning Pump***

Volunteer monitoring presents a great opportunity for people of all ages to learn more about their watershed. Students in the Global Rivers Environmental Education Network (GREEN) program at North Farmington High School near Detroit analyzed data that they and students from other schools had collected and discovered bacterial contamination down river from a city sewage pumping station. They presented their findings to the City Engineer, who then took action -- he repaired a malfunctioning pump. The students not only honed their skills in various disciplines, such as language arts, civics, science, and math, but they linked data to a process for effective problem-solving.

For more information: contact Larry Price, GREEN, (313) 761-8142, 206 South Fifth Avenue, Suite 150, Ann Arbor, MI 48104, www.econet.apc.org/green/

***Tiburon Golf Course, Omaha, Nebraska
Novel Approach to Reach Busy People***

The Wehrspann Lake Watershed Project has organized several “Water Quality Opens” at a local golf course in Omaha, Nebraska. Entrants enjoy 18 holes of golf for a modest fee while learning about measures the golf course is taking to protect water quality in the Lake and about related steps being taken elsewhere in the watershed.

Water Quality is central to the theme of each tournament, and golfers engage in active learning exercises as they make their way around the course. For example, prizes are given to those who drive their ball closest to, but not into, the water. Golfers are also provided with a list of “10 Things Golfers Can Do To Help.”

A unique educational feature of the tournaments lies in the fact that people from all walks of life are brought together in a casual environment that is also conducive to learning about nonpoint source pollution. The 48 participants are scrambled into teams, thereby facilitating interaction among the broad spectrum of professionals who participate: clergy, attorneys, elected officials, farmers, developers, engineers, and government employees.

***Clergy, elected officials, farmers, and developers
overwhelmingly expressed a desire to leave the cattails in place***

At the end of each tournament, golfers were asked to complete a simple questionnaire. In 1996, 64 percent of respondents were able to list something new they had learned about water quality as a result of playing in the tournament, and 88 percent were able to correctly identify a source of nonpoint source pollution and a prevention method. The tournaments also helped to stimulate discussions between the golfers and the golf-course superintendent about management practices. In 1995, golfers were asked how to solve the “perceived” cattail overpopulation; they overwhelmingly expressed a desire to leave the cattails in place, thus recognizing their water quality benefits.

For more information: contact Diana Allen, Lower Platte South Natural Resources District, 3125 Poria Street, Box 83581, Lincoln, NE 68501-3581, 402-476-2729, 402-476-6454 (fax), dallen@nrdec.nrc.state.ne.us.

Key Contacts and Resources

FINANCIAL SUPPORT:

- ***National Fish and Wildlife Foundation***, 1120 Connecticut Ave., NW, Suite 900, Washington, DC 20036, 202-857-0166, 202-857-0162 (fax), www.nfwf.org. Contact: Kathleen Pickering. Since 1990, this group has invested more than \$1 million in federal matching funds toward formal and informal watershed education programs for youth, teachers, and other community members. They also hosted in 1996 ***Watershed Education: Goals and Strategies for Training, Communication and Partnerships*** where approximately 60 key watershed educators gathered. Summary of session is available.

- **National Environmental Education and Training Foundation**, uses federal funds to award one-year competitive challenge grants for environmental education projects that are scientifically and educationally valid; permanently improve a grantee organization's ability to achieve its mission; and work through broad-based public/private partnerships. The program is currently focused on public health, safe water, and environmental education excellence. In the area of water, The Foundation supports environmental education projects that help people make the connection between their water source and their water faucet. Programs that promote community-wide understanding of water sources, quality, treatments, protection strategies, costs, options are a priority. The Foundation annually awards \$500,000 - \$600,000 in matching grants. Kevin Coyle and Michelle Harvey, 734 15th Street, N.W. Suite 420, Washington, D.C.20005-1013, 202-628-8200, 202-628-8204(fax). **Note:** Kevin Coyle was the principal author of the Swift River Principles (see Appendix 1).

CURRICULUM AND ACTIVITY GUIDES:

- **Lessons on the Lake: An Educator's Guide to the Pontchartrain Basin** is a good example of a locally-based education guide-- grades 5-12. Developed by Lake Pontchartrain Basin Foundation, Three Lakeway, Suite 2070, 3883 N. Causeway Boulevard, P.O. Box 6965, Metairie, LA 70009-6965, (504)836-2238, (504)836-7283 (fax), Anne Rheams, Education and Outreach Coordinator.
- **Project WET Curriculum and Activity Guide**, 201 Culbertson Hall, Montana State University, Bozeman, MT 59717-0570, Dennis Nelson, Director, (406) 994-5392, (406) 994-1919 (fax) <http://www.montana.edu:80/wwwwet/>. **Discover a Watershed: The Everglades** is the first in a series of curricula and associated workshops developed specifically for major North American watersheds.
- **Sourcebook for Watershed Education** contains examples of watershed curricula as well as select watershed activities from across disciplines. It is based on the collective experience of watershed educators and community leaders from five watershed education programs. Developed by Global Rivers Environmental Education Network, 206 South Fifth Avenue, Suite 150, Ann Arbor, MI 48104, www.econet.apc.org/green/ (313) 761-8142.
- **Adopt-A-Watershed**, P.O. Box 1850, Hayfork, CA 916-628-5334, 916-628-4212 (fax). www.tcoe.trinity.k12.ca.us/aaw/adopt.html. Science-oriented curriculum for k-12 using all aspects of the local watershed as a classroom. Encourages community action projects including field studies and restoration.
- **Educating Young People About Water: A Guide to Goals and Resources** includes 100 reviewed youth water education curricula. The guide along with 2 other resources are found on the World Wide Web at www.uwex.edu/erc/ywc, and searchable by water topic. University of Wisconsin, 216 Agriculture Hall, 1450 Linden Drive, Madison, WI 53706, (608) 262-2031 fax, erc@uwex.edu, 1-800-WATER20, Elaine Andrews or Kelly J. Warren, 608-262-0142.

VOLUNTEER MONITORING:

- **A Citizen's Streambank Restoration Handbook** is available for \$15.00. <http://www.iwla.org/iwla/jump6/index.html> Developed by Save Our Streams, Izaak Walton League, 707 Conservation Lane, Gaithersburg, MD 20878-2983, Karen Firehock,

301-548-0150, 301-548-0146 (fax). Also, see their *macro invertebrate on-line resource*. Kids love it! Click on “The SOS Macro invertebrate Key”

- **National Directory of Volunteer Environmental Monitoring Programs**, US EPA, January 1994, EPA 841B94001. Available on the internet at <http://www.epa.gov/OWOW/monitor/dir.html> or from NCEPI at 1-800-490-9198. See Appendix 3 for information on **Volunteer Monitor** newsletter. School-based monitoring issue from Spring 1993 was very popular. Alice Mayo, EPA, 202-260-7018. http://www.epa.gov/owow/monitoring/volunteer/vm_index.html

EDUCATIONAL TOOLS:

- **Water Quality Standards Academy**, key educational workshop that helps managers, staff, and citizens understand the cornerstone authority of the Clean Water Act. Contact: Frances Desselle, 202-260-1320, desselle.frances@epamail.epa.gov Note: 10+ videos have been developed on various aspects of water quality standards and are available on loan from the *EPA Water Resource Center*, 202-260-7786. The one on wetlands is available from the *EPA Wetlands Hotline* at 1-800-832-7828.
- **Surf Your Watershed**, US EPA, 401 M Street, 4503F SW, Washington, DC 20460, Karen Klima, 202-260-7087, www.epa.gov/surf. Internet tool for managers and citizens to locate watershed information.
- **Terrene Institute Environmental Products Catalog**, 4 Herbert Street, Alexandria, VA 22305, Judy Taggart, 703-548-5473, 703-548-6299 (fax), www.terrene.org contains many useful watershed-related outreach items including a **Citizen's Guide to Watershed Protection** and the popular ENVIROSCAPE table-top watershed education model (many States have purchased and lend this out to watershed groups).
- **USGS Water Poster Series**, Box 25046, MS 406, Denver, CO, 80225, Steve Vandas contact, <http://h20.usgs.gov/public/outreach/OutReach.html>, 303-236-5950 x221, good education tool for grades k-8. Developed in partnership with the National Science Teachers Association.
- **What is a Watershed?** NRCS Program Aid 420. Call 1-800-THE-SOIL to obtain a copy. Watershed practitioners have found this piece useful in explaining the basics of watersheds.
- **SPLASH** CD ROM, interactive, multi-media educational tool on nonpoint source pollution. Includes “voices of the community” and allows users to enter urban, rural, and suburban environments and see the difference between when it rains with and without best management practices in place. Produced by Diana Allen, Lower Platte South Natural Resources District, 3125 Poria Street, Box 83581, Lincoln, NE 68501-3581, 402-476-2729, 402-476-6454 (fax), dallen@nrdec.nrc.state.ne.us.
- **Farm-A-Syst/Home-A-Syst**, Gary Jackson, 550 Babcock Drive B142, Madison, WI, 53706-1293, (608) 265-2773, (608) 265-2775 (fax), <http://www.wisc.edu/farmasyst/>, self-assessment programs for homes and farmsteads. Most states have modified the program for their purposes.
- **National Watershed Library** - lists many education, outreach and resource tools for specific audiences like teachers, farmers and homeowners. <http://www.ctic.purdue.edu/KYW/KYW.html>
- **Project NEMO** (Nonpoint Education for Municipal Officials) uses GIS technology to

educate landowners and municipal officials about nonpoint source pollution and watershed protection. University of Connecticut Cooperative Extension, Chester Arnold, 1066 Saybrook Road, Box 70, Haddam, CT 06438-0070, (860) 345-4511, (860) 345-3357 (fax), www.lib.uconn.edu/CANR/ces/nemo/

- ***Getting in Step: A Pathway to Effective Outreach in Your Watershed***, workshop that provides the building blocks to develop an outreach strategy, tips and tools to produce eye-catching materials, and methods to effectively use the media to get your message out. Kristen Martin, U.S. EPA, 401 M Street, S.W., 4503F, Washington, D.C., 202-260-7108.

MODEL PROGRAMS:

- ***Anacostia Watershed Society Web Site***, Robert Boone, Executive Director, <http://www.gmu.edu/bios/anacosti/aws/>, 301-513-0316, 301-513-9321 (fax) good example of a local outreach program.
- ***Water Works: Your Neighbors Share Ideas on Working in Partnership for Clean Water***, Tennessee Valley Authority, March 1997. Useful guide. Kathleen O'Brien, editor, 423-632-8502, 423-632-3188 (fax). See stories of Brad Bole and Peg Beute.
- ***Watershed Restoration: A Guide for Citizen Involvement in California***, December 1995, US Department of Commerce, National Oceanic and Atmospheric Administration, Coastal Oceans Office, 1315 East West Highway, Silver Spring, MD 20910, 301-713-3338, 301-713-4044 (fax). While developed for California, this well-constructed guide may spark ideas for other watersheds.
- ***Educating for Action: More Success Stories from Puget Sound***, June 1993, Puget Sound Water Quality Action Team, P.O. Box 40900, Olympia, WA 98504-0900 (1-800-54-SOUND). Describes many education success stories funded through the Public Involvement and Education program where small contracts were awarded to community groups to undertake education. Includes description of products, target audience, and results. Well organized and very helpful for prompting ideas. Contact: Kathy Minsch, 360-407-7320, 360-407-7333 (fax).
- ***Chesapeake Bay Communities: Making the Connection, A Catalog of Local Initiatives to Protect and Restore the Chesapeake Bay Watershed***, EPA 903-R-95-108, April 1996, presents many outreach examples including "Landscapes" Public Awareness Program in Chester County Pennsylvania where public opinion was solicited regarding the issue of sprawl. The results showed an overwhelming desire to change the current pattern of sprawl. 1-800-YOURBAY.
- ***Nonpoint Source Pollution Information/Education Programs: National Conference Proceedings***, October 22-24, 1996, includes over 30 papers many of which include lessons learned. Copies of proceedings can be obtained from Illinois Environmental Protection Agency, Division of Water Pollution Control - Planning Section, P.O. Box 19276, Springfield, Illinois 62794-9276, 217-782-3362, 217-785-1225 (fax).
- ***Groundwater Guardian*** focuses on recognizing community efforts to protect the resource. Started in 1994, and as of June 1997, had 173 communities in 43 states participating. Developed by the Groundwater Foundation whose goal is to educate and motivate people to care about and for groundwater and watersheds. They have activity and community guides related to groundwater, Susan Seacrest, President, P.O. Box 22558, Lincoln, NE 68542, 402-434-2740, 402-434-2742 (fax), www.groundwater.org

Email: info@groundwater.org See “***Developing a Results-Oriented Approach For Water Education Programs***” published in the *Journal of American Water Resources Association*, April 1997, Volume 33, Number 2.