The Volunteer Monitor

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Issue Topic: Community Outreach

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The following articles appear in this edition of *The Volunteer Monitor*
(not all graphs and figures available)

Rotating co-editors

The Volunteer Monitor has a permanent editor and volunteer editorial board. In addition, a different monitoring group serves as co-editor for each issue.

This issue was co-edited by the Rivers Council of Minnesota, a new nonprofit organization dedicated to helping Minnesota's communities protect the state's 92,000 miles of streams and rivers. To achieve this goal, the Council helps communities develop and implement River Watch monitoring programs. Data from River Watch are used by the state in compiling its water quality report to Congress (the 305(b) report).

The National Newsletter of Volunteer Water Quality Monitoring
Vol. 9, No. 2, Fall 1997

From The *Editor*

Last Chance to get into the new National Directory

The last issue of this newsletter contained a survey form for the new *National Directory of Volunteer Environmental Monitoring Programs.* Apparently some folks didn't see it, though. So we've extended the deadline to give everyong one more chance. **Any surveys received by the end of the year can still be included in the Directory.**

The Directory is not just for groups that test water quality. It will include all types of watershed monitoring - land use surveys, habitat assessments, aquatic bird counts, raparian vegetation surveys, etc.

You can find the survey form in the Spring 1997 issue of this newsletter, if you have it. Otherwise, to obtain a form please call 415/273-5653 or fax 415/255-0199; or send an email to ellieely@aol.com. **Don't be left out!**

Next issue:Wetland Monitoring

Not as many volunteer groups monitor wetlands as monitor streams or lakes, probably because wetland monitoring is more complicated. In the next issue of *The Volunteer Monitor* some of the groups who have tackled wetland manitoring will describe their projects and the methods they use. Any group currently involved in monitoring wetlands (including coastal wetlands) is invited to contact the editor (address below).

The issue will be coedited by the Alliance for the Chesapeake Bay. As volunteer monitoring "old-

timers" know, it was the Alliance that produced the very first issue of *The Volunteer Monitor*, back in 1989.

Moving People from Belief to Action

by **Molly MacGregor**

We monitor water quality because we want to protect our streams. But it's a long step from the lab to the zoning office or the home dining room, where decisions are made about how to live with a stream or river.

How do we take that step? By being strategic about our communications. We communicate purposefully—not just to spread the word, but to make something happen. Volunteer monitors are interested in communication that changes behavior.

It's not enough to mail off 50 copies of a press release about your good work. It is far more effective to identify whom you want to talk to and what you want them to do, then shape your message so your audience hears it.

In Minnesota, those of us who do volunteer monitoring know something about who our audience is, and what kind of message works best when talking to them. We know because the McKnight Foundation, a private family foundation based in Minneapolis, conducted research among residents of the upper Mississippi basin, in both rural and urban areas of Minnesota, Iowa, and Illinois. In fall 1995, McKnight hired a market research firm, MacWilliams Cosgrove Snider Smith Robinson, which convened focus groups and conducted a telephone survey. The research investigated people's attitudes toward the Mississippi River, and identified activities and programs that build a sense of

commitment to the river. The results were published in a report titled "Upper Mississippi River Resource Book: A Survey of Research on Public Attitudes Toward the Environment," available from the McKnight Foundation (call 612/233-4220 and ask for Dan Ray or his assistant).

VOLUNTEER MONITORING IS AN ANTIDOTE TO APATHY

Although the research focused on residents of the upper Mississippi River basin, the findings provide useful insights for volunteer monitors working in any region of the country.

The environment: Support but no action

As the McKnight Foundation report points out, Americans today have a paradoxical attitude toward the environment. Poll after poll reveals that most consider themselves environmentalists and firmly believe in environmental protection. That's the good news. The bad news is that this support is matched by apathy; people don't act on their beliefs.

The survey respondents were no exception. Eight out of 10 called themselves environmentalists, and 56 percent described themselves as either "worried and concerned" or "angry and frustrated" about the future of the Mississippi River. Yet when shown a list of actions and asked which ones they would be likely to participate in, respondents clearly favored those that required very little time or money. The two top choices were "visit a nature center with my family" (44 percent) and "vote against elected officials who oppose tougher environmental regulations" (42 percent). Fewer than one in five selected activities like attending a rally, going to hear a speaker, or joining a campaign to call or write legislators.

Point: Building support for river protection is not as big a challenge as *engaging* that support.

People may feel overwhelmed by the scope of environmental problems. We have come to assume that it's the job of trained experts to fix the environment. One person in a focus group said, "There's this feeling I have that, gosh, this is so big, where do you start?" Another said, "I'm powerless as a person. I don't know that much about it . . . really, what can I do?"

Point: Volunteer monitoring gives people a place to start and the opportunity to become experts themselves.

A lack of connection

The people surveyed generally felt detached from the Mississippi River and were poorly informed about problems facing it. Most people's primary exposure to the river consisted of driving over it. This lack of connection and knowledge undoubtedly underlies much of the apathy revealed in the survey.

> **THE PEOPLE SURVEYED FELT DETACHED FROM THE MISSISSIPPI RIVER. MOST PEOPLE'S PRIMARY EXPOSURE TO THE RIVER CONSISTED OF DRIVING OVER IT.**

Point: Volunteer monitoring is an antidote to apathy. Monitoring connects people to the river through meaningful activities that help them understand what a river needs to be healthy.

Volunteer monitoring groups can also engage in additional activities that build a sense of connection. For example, the Mississippi Headwaters Board is publishing six full-color water trail maps highlighting beautiful places along the river that can be reached by water or by road. The maps educate visitors about specific locations while reminding them that this water is eventually used for drinking water by one-quarter of Minnesota's population.

Point: Build personal experiences with the river, but do so within the context of the river's varied uses—e.g., the Mississippi trail maps advise users that the water you paddle in today may be the water you drink tomorrow.

Strategies that work

What can volunteer monitoring groups do to move people in the community from apathy to connection and, ultimately, action? Based on the survey results, the researchers offer the following recommendations for outreach strategies that work:

1. Identify issues that resonate with the public.

- Drinking water/public health. When survey respondents were given a list of issues and asked about their relative importance, issues relating to drinking water

safety rose to the top.

Point: Volunteer monitors can build community support by emphasizing the connection between water quality monitoring and public health.

- Stewardship. People felt a responsibility to protect the river, both for our own enjoyment and recreation and for future generations.

2. Frame issues in terms of core values and offer balanced, positive solutions.

- Responsibility and accountability. "Responsibility and accountability are core values," states the McKnight report. "People . . . respond to the idea that we protect the Mississippi because it is our responsibility to do so, and those who do not live up to this responsibility must be held accountable."
- Balance. People want solutions that strike a balance between the environment and the economy. Respondents were put off by "alarmist" messages or "gloom and doom" scenarios.
- Positive actions. Respondents were most enthusiastic about actions with a tangible effect, such as cleanup days, storm drain stenciling, or tree planting. Actions like filing lawsuits or lobbying government had much less appeal.

Point: Volunteer monitoring is a tangible action that provides information about the river's health. It's a good next step for folks who have stenciled their drains or planted trees near their river, and now want to be sure the river they have helped is staying healthy.

3. Use language that conveys the message effectively.

- Understandable terms. Volunteer monitors may be surprised to learn that some words near and dear to our hearts, including the word "watershed," are not widely understood (see box below).

The Mississippi Headwaters Board adopted "River Watch" as the name of our volunteer monitoring program because it suggests, like "Crime Watch," observation of a home place in order to protect it. We have learned to avoid bureaucratic language. A statement like "Our objective is to enhance stewardship of our watershed resources" sounds soulless. Worse, it is exclusionary, because it uses words that are not commonly understood. The public may not understand what you are saying, but they understand what you are doing: talking around or over them—in short, not talking to them.

- "Hot-button" words. The researchers found that the terms "pollution" and "pesticide," particularly when coup-led with the issue of drinking water safety,

evoked the most powerful response.

What have we learned?

The McKnight Foundation report underscores the point that different people will value a river for different reasons. Many of us who monitor rivers do so because we love the environment and feel the need to be stewards of our piece of the planet. But our enthusiasm for environmental protection may be a barrier to our working with people who have different values. These folks may love the river as much as we do, but for different reasons. People may love the river because it is where they learned to fish, or taught their children to fish; or because of its beauty and its history; or because it is the place their great-grandparents first farmed; or because they recognize that it is the source of drinking water for themselves and their children.

DIFFERENT PEOPLE VALUE A RIVER FOR DIFFERENT REASONS

Each of these people wants to preserve what is important. The challenge that we as volunteer monitors face is to help individuals make the connection between their values and the actions they can engage in as citizens of the watershed. Volunteer monitoring is the perfect tool to transform concern for the river into stewardship. If we want our outreach efforts to move people from belief to action we must focus on what brings us together—our love for the river.

Molly MacGregor is the Executive Director of the Rivers Council of Minnesota, P.O. Box 1107, Walker, MN 56484; 218/547-3675; and former Director of the Mississippi Headwaters Board, a coalition of counties charged with river protection. The Rivers Council of Minnesota is the coediting group for this issue of The Volunteer Monitor.

Effective Language

What words work best in talking with the public? The McKnight researchers investigated reactions to various terms and phrases. Here's a sampling of their findings:

- **Watershed** was seen as a specialized word understood only by experts. Definitions offered by respondents included "building dikes," "a reserve," and "the Continental Divide." Better-understood ways to express this concept are "the river and its tributaries" or "river drainage."
- **Ecosystem** was associated with science class and scientists. A more widely understood expression is "web of life."
- **Watch dog** meant different things to different people. It was variously associated with the Corps of Engineers, the people who operate locks and dams, and environmentalists.
- **"The river is at risk"** was viewed by many as too alarmist. One person said, "It sounds like if we don't do something now, it's not going to exist or it's going to be a dead river . . . and that's not going to happen."
- Rather than talking about environmental **regulations**, people preferred the terms "guidelines" or "safeguards."
- **Biological integrity** was another overly technical term. Try substituting "a healthy place for people and animals."

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Community Outreach Ideas

Focusing on Families

There are so many working parents—families are really busy these days," says Susie Vanderburg, Coordinator for Thurston County Stream Team in Washington State. Recognizing that parents and kids need more opportunities to do things together, Vanderburg worked with Stream Team coordinators in three neighboring communities (Olympia, Lacey, and Tumwater) to design a workshop specifically for families.

The two-hour workshop was held on a Wednesday evening. "We wanted something short, structured, and fun," says Vanderburg. The evening began with a slide show about a local creek. After that, family members could choose from five interactive stations, each offering a lively hands-on activity.

At one station, participants arrived to see a model stream flowing between bare banks of green clay. "Would this be enough to support salmon?" Vanderburg asked. Adults and kids worked together to create a healthy habitat: gravel to give fish a place to lay their eggs and aquatic insects a place to live; logs to create pools and provide hiding spots for fish; and plenty of trees, to give shade and food (tree leaves that fall into the stream become food for insects).

At another station, participants looked at aquatic insects under microscopes, then made their own clay models of the bugs they saw. Other stations offered a chance to observe a model fish ladder provided by Trout Unlimited, paint a giant salmon, and use a

watershed model to learn about pollutant pathways.

Reaching Out in Many Languages

Even though fish in San Francisco Bay are contaminated with toxic chemicals, thousands of people regularly fish the Bay for food. A survey of Bay fishers conducted by Save San Francisco Bay Association (Save the Bay) concluded that "people of color, many of whom are limited or non-English speakers, are disproportionately affected by contaminated fish. They are the majority of people fishing from piers and shorelines, are more likely to eat their catch, are more likely to eat the most contaminated parts of the fish, and are less likely to be aware of . . . health warnings."

In response to these findings, Save the Bay embarked on a campaign to spread the word about contaminated fish to low-income and immigrant communities. Kristine Wong, Director of Save the Bay's Seafood Consumption Information Project (SCIP), conducted some 40 workshops at community centers, health clinics, and classes in English as a Second Language. In addition, SCIP produced brochures and a poster in seven languages, as well as a video.

SCIP's workshops and educational materials explain the health risks of eating Bay fish and offer consumption guidelines. In addition, they demonstrate simple cooking techniques—such as cutting away fat, cutting out organs, and poking holes in the skin to let fat drip off—that reduce the levels of toxins.

"Some people have criticized me for showing people how to cook fish that contain chemicals," says Wong. But Wong believes it is unrealistic to expect people to completely give up their low-cost food source. "Even after you tell them about the toxics," she says, "they're still going to eat the fish. We believe it empowers people to give them options."

The SCIP materials have been enthusiastically received by the targeted communities. For example, one news story in a prominent Vietnamese newspaper brought in 75 requests for brochures and videos. Articles also appeared in Spanish, Chinese, and African-American papers.

SCIP's ultimate goal is a clean Bay whose fish can be eaten without health risk. Toward this end, SCIP has been organizing the Bay fishing community, as well as recreational users, to pressure the state to identify, rank, and clean up toxic hot spots. "We brought people to a state Water Resources Control Board meeting to testify about how they use the Bay and how the contaminated fish and dirty water will affect their health," says Wong. SCIP also organized a petition and letter-writing campaign.

Watershed Tour

Wildcat Creek, in the San Francisco Bay Area, has sometimes been thought of as a flood hazard or a place of crime, particularly where it flows through low-income, urban areas. To give residents a fuller picture of the creek, its wildlife, and its place in the community, the Wildcat Creek Watershed Council and Wildcat Creek Water Monitoring Project staff organized a tour of the watershed.

The tour was free and offered a novel, educational activity for families on a beautiful Saturday morning. Over 100 people, mostly families with children, attended. At the end of the tour, participant Henry Clark said, "I was born and raised in the North Richmond area, and I never before got the full story of where the creeks started and how they flowed through North Richmond to the Bay. It's been an incredible experience for me."

Key factors in the tour's success were:

- Laying the groundwork. Many families were already aware of the creek because their children were involved in the Wildcat Creek Water Quality Monitoring Project. In addition, an Art and Poetry Contest on creek topics was held in schools a month ahead of time. The contest awards were presented during the tour, at a lunchtime ceremony.
- Concerted community effort. Local cities, the East Bay Regional Parks District, teachers and students, and community groups all contributed people-power and creative ideas. The tour included students' presentations of their monitoring and revegetation work in the creek.
- Publicity. A flyer highlighting the tour's attractions was distributed at schools and community meetings, posted at community centers and parks, and sent out via mail.
- Free food and transportation. Tour participants enjoyed coffee and pastries in the morning and a barbecue at lunch. Two buses supplied by the Parks District provided transportation, making the day pleasant and carefree.
- Planning and logistics. Careful attention to detail ensured that the tour went smoothly. For example, because of the large number of children, monitors checked off each person on a list as the group returned to the buses after each stop.

Presentations at Fairs

Every year for the past three years, students from the Fortuna Union High School Creek Restoration Project in Fortuna, California, have created a booth for the local Apple Harvest Festival. At the booth, students tell visitors about their work monitoring and restoring local creeks and hand out a brochure (written by the students) on Fortuna's

creeks and how to care for them.

For Georgia Adopt-A-Stream, festivals and events are an important way to recruit new groups to adopt streams. Recently, Adopt-A-Stream brought their display to the Annual Boy Scout Jamboree, which is attended by thousands of boys from all over the Southeast. According to Eve Funderburk, Georgia Adopt-A-Stream Coordinator, the jars of preserved macroinvertebrates were a big hit with the Scouts. "More than one Cub Scout offered to buy a dragonfly nymph from us!" she says.

Creek Signage

"A creek gets more respect if people know its name," says Joan Martin, Director of the Huron River Watershed Council's (HRWC) Adopt-A-Stream Program. Frequently the creeks of Ann Arbor, Michigan, are not only anonymous but also invisible as they wind their way between buildings and under roads. So in 1992 HRWC volunteers erected 28 signs at road crossings over the five above-ground creeks around the city.

Before the signs went up, Ann Arbor's major free-flowing creek was generally known as the "Pittsfield-Ann Arbor Drain"—not a very inspiring name to put on a sign. High school student Erika Noel studied old maps and surveys to discover the historical name—Mallet's Creek—and the city council was happy to make the old name official.

Commercially manufactured signs cost between $30 and $60, says Martin, adding that some cities might be willing to make the signs in their road-sign shop. The hardest part, she says, is getting through the red tape to get permission to place the signs, since the right-of-way alongside a road is filled with buried pipes and cables owned by various agencies. Martin also advises finding out whether there are local requirements for road sign posts (i.e., shape, material) before buying them.
 "Many people have told me how much they appreciate the signs," says Martin. "They really like knowing where those hidden creeks are."

River Mural

The Mystic River is the largest open space in the city of Somerville, Massachusetts. Yet most residents never enjoy it—and no wonder, for the river is divided from the community by a six-lane interstate highway. Although an underpass does provide access to the river and a riverside park, few people even realize that this route to the river exists.

Last year the Somerville Arts Council came up with an idea to make the river access more inviting while at the same time providing meaningful jobs for young people. The

plan: have participants in the Council's Teen Mural Project (a summer job program for low-income teenagers) create a mural for the site of the underpass, to serve as a landmark for the access route.

Thirteen local teenage artists were recruited to work on the Mystic River Mural. They spent the month of July exploring the river with biology teacher Scott Carpenter—studying the wildlife and plants, taking photographs, and making sketches. In August, working under the direction of muralist David Fichter, they painted a series of panels. The panels were installed on the concrete wall at the underpass, forming an 80-foot mural that marks the access point. This summer, a second group of teens created additional panels, extending the mural another 80 feet.

In honor of this work, American Rivers presented the Council with a National Urban Rivers gold award in 1997.

Outreach Support Group

A number of volunteers involved with the Huron River Watershed Council's Adopt-A-Stream Program wanted to involve the community in protecting their adopted stream sites, but no one knew quite where to start. So Joan Martin, the Adopt-A-Stream Program Director, convened a "community outreach support group." The group started off with an exercise in which people wrote down responses to the following:

1. What I want to do
2. What stops me
3. What I'm afraid of
4. What I need to do next

Out of that exercise, the group discovered that their two most common fears were "not knowing enough" and "not having enough time." "The solution," says Martin, "was to help each other with our projects." Members brought their ideas to the group, and others pitched in to help carry them out. A member who lives on a creek hosted a "Meet Your Creek" lawn party in her back yard. Another person organized an exploration of her creek site, inviting the entire township. Others took a display about their creek, along with some live creatures in a "Carry Creek" model, to the local festival. [Editor's note: For more on the Carry Creek model, see page 17.]

"We were all very pleased," says Martin. "The people who came to our events had fun and were amazed to find out how many small creatures were living in their local creeks. The creeks seemed to come alive for them."

Water Festival How-To

A water festival is a great way to educate adults and children about water and water-related resources. Making Waves: How to Put On a Water Festival provides ideas for organizing a water festival in a school or community. The book includes sample fundraising letters and news releases. Call the Groundwater Foundation at 800/858-4844 to order a copy ($12); or visit the Foundation's web site, http://www.groundwater.org.

Crafting Your Message

by **Kevin J. Coyle**

(Note: A longer version of this article appeared in the Spring 1996 issue of "River Voices," the quarterly newsletter of River Network. River Network is a national organization for river protection and restoration. For information, please call 503/241-3506.)

Imagine this scene: You're at a public hearing on water pollution. A young environmentalist is up protesting about "poultry operators along the river not adhering to on-site retention plans under best management practices."

"What did he say?" asks a senior citizen from the back of the hearing room. A town official translates: "He's upset that the chicken farmers along the river are letting the chicken manure wash into our drinking water." "Why didn't he say so?" asks the senior.

Why, indeed?

I believe that most conservationists have lost the ability to speak to everyday people. We are so used to our technical jargon that we blissfully use such terms as "nonpoint," "riparian," or "instream" without realizing that they are pretty much opaque to the public. Below are some guiding principles to help you get a clear message out, get good press coverage, and persuade decision makers.

1. You must be able to explain the problem to your Mom.

My mother is a teacher. One day while I was describing my work to help organize the watershed movement, she stopped me and asked me to explain "watershed."

"I am the majority in this country," she pointed out. "I am who you have to get through to."

I started over, beginning with rainfall. And that is when I adopted the most incontrovertible rule of message development: to be successful, you must be able to explain to your mom what you are doing.

2. It's about people.

Most river conservationists I know work to conserve the natural values of rivers. This makes perfect sense to us because rivers are at the core of most of our major ecosystems. At American Rivers (where I worked for 8 years), protecting ecosystems was our basic message to the media and the public.

Then one day a board member who is an executive with a major advertising firm suggested that we were focusing a bit too much on the "riverness" of rivers—their natural qualities. He had a hunch we needed more "peopleness" in our message.

We had a survey done, and found some startling facts. Only about one-third of the people surveyed were "very concerned" or "somewhat concerned" about habitat quality in rivers, but 94 percent were concerned about drinking water pollution. We began to use the catch phrase "watershed to water tap" as a banner for this issue.

3. Look for the "Bob" response.

I have a friend I use as a barometer for what issues are likely to resonate with the public. Let's call him Bob. He's a conservative Republican, but he usually supports river conservation wholeheartedly due to the "Bob response." Talk to Bob about the Corps of Engineers channelizing a river, then getting even more money to put it back in its natural meanders, and he goes nuts.

I think every conservationist needs a Bob. Bob gets mad over such issues as:

a. dumb government
b. tax waste
c. fat cats getting favors
d. threats to property values
e. passing our mistakes on to our children

4. Frame your issue for action—and hope.

River conservationists I've worked with tend to identify a topic—runoff pollution, riparian habitat, instream flow—and treat it as though it were an issue. Issues are actionable; topics are not. If riparian loss is the topic, the issue is what actions can be taken to stop the loss and restore the area.
 Be sure to frame the issue so people can see hopeful actions. People are tired of too much bad news, and the average American believes we should be able to find common-sense solutions to most of our problems.

5. Distill your message into a catchy slogan.

Let's say the topic is nonpoint pollution from poultry waste. The issue is whether actions can be taken to stop the pollution of the city's drinking water. The message is that farmers are carelessly threatening our drinking water and they expect us to pay to clean up their mess. (This would make Bob mad.) For the slogan or "catch phrase," we could try something like "from the henhouse floor to what you pour."

6. Get through the background noise.

So now you've identified a people-oriented issue that is actionable. You've shaped your message and created a memorable slogan. The last step is to deliver the message, not just once or a few times but over and over again. Repetition is a basic rule of advertising, and it is a basic rule of message development.

Kevin J. Coyle is President of the National Environmental Education and Training Foundation, 734 15th Street, NW, Washington, DC 20005; 202/628-8200.

"River Voices"

Several recent issues of River Network's quarterly newsletter, "River Voices," have provided excellent coverage of topics related to community outreach. The Summer 1996 issue focused on producing outreach materials; Spring 1996, on message development; and Fall 1994, on working with the media. Available from River Network, 503/241-3506; rivernet@igc.apc.org; $6 for the first issue, $1 each additional issue.

Water Quality Monitoring in Native Alaskan Communities

by Bob Shavelson and Steve Hackett

Cook Inlet Keeper recently established the first comprehensive, volunteer-based monitoring program in Alaska. The harsh climate combined with short winter days presents some unique obstacles for a citizen-based monitoring program—but that's a story for a future issue of *The Volunteer Monitor*. This article focuses on another distinctive element of our program: the participation of Native Alaskans throughout the sampling area.

Alaska's Kachemak Bay is a rich and productive estuary in south central Alaska which is home to Native Alaskans in the communities of Port Graham, Seldovia, and Nanwalek. For thousands of years, Native Alaskans have relied on the plentiful marine resources in Kachemak Bay to lead successful subsistence lifestyles. Despite the encroachment of Western cultures, subsistence lifestyles remain alive and well today in Kachemak Bay. A successful subsistence lifestyle includes healthy and plentiful salmon, mussels, clams, seaweed, and other resources. As a result, Native Alaskans have an intimate relation with the water, and a strong desire to see it stay healthy and productive.

Working with Native Alaskan communities—like working with any group or culture different from one's own—requires clear communication, due respect, and patience. From our program, we have identified the following points which can be applied to any

number of different cultures and groups:

- By far the most important element of a successful relationship is respect for different cultures. This means not only understanding different cultural beliefs and practices (including the timing and meaning of holidays and religious ceremonies, etc.), but also appreciating the subtle behavior differences between cultures (food preferences, linguistics, body language, etc.).

- Listening and observing are perhaps the most important skills available to any monitoring coordinator working with a different culture. Many Native cultures—including those in Kachemak Bay—value the deliberative process of silence, and they have no need to pepper that silence with idle chatter. In short, speech is a valuable commodity not to be wasted. When many Native Alaskans speak, they often use few words which carry a lot of meaning (we have one Board member who will remain silent during an entire four-hour meeting, then speak five or ten words that accurately sum up the whole meeting).

- Never underestimate the value of native and other groups' traditional knowledge. Western science simply cannot explain many of the phenomena known to occur in the complex dynamics of our estuarine and marine systems, and traditional knowledge often fills important information gaps (such as when or why certain fish run, reasons for different behaviors in marine mammals, how weather affects fish and birds, etc.). When dealing with different cultures, NEVER presume your "science" is better than another.

- Recognize that different cultures have different governing bodies and develop a rapport based on mutual respect. Approach the relevant governing body through the appropriate channels. For example, if a tribal council or native corporation is the primary body in the area, start by talking informally with individual members of the council or corporation. Make sure you develop a relationship with—and support from—those members before presenting your monitoring proposal to the full governing body. Building support in any community is necessarily a slow and deliberative process; due to long histories of Western oppression and other problems in Native communities, it is especially important to build a solid, well-informed base of support prior to moving the proposal before the community's governing body.

- Cultures leading subsistence lifestyles often have very busy schedules during subsistence seasons. Make sure you know when the critical subsistence harvest times are, and plan to have replacement monitors available if needed. In our program, we rely on non-Native monitors to serve as replacements when the primary monitors are unavailable due to subsistence harvesting, cultural events, or other reasons.

- Make the connection between water quality monitoring, sustainable economic activities, and healthy communities. It's always important to make this connection, but especially in villages and towns that have few sources of income and that rely on marine or estuarine resources for survival. For example, in several Native villages in Cook Inlet, logging is an important income-generating activity. However, logging can also impact salmon and other subsistence resources that depend on clean water. It's important to draw the connection between successful subsistence lifestyles (i.e., healthy and plentiful resources) and ecologically sustainable economic activities (i.e., logging using state-of-the-art management practices that minimize water quality impacts). Because water quality monitoring is the front line for assessing impacts, monitoring is a powerful way to demonstrate the link between income-generating activities and the maintenance of subsistence resources.

- Because some cultures remain relatively isolated from the hustle and bustle of 20th-century life, be sensitive to their unique needs for transportation, heating fuel, and other supplies. For example, if the weather turns in Kachemak Bay, it can be days before a skiff or plane can get people or supplies in or out of one of the villages. To address these concerns, we stockpile supplies that are likely to run out, and we are prepared to reimburse costs for fuel needed to power vessels and planes.

Bob Shavelson is the Cook Inlet Keeper and Steve Hackett is Environmental Monitoring Coordinator. They may be reached at Cook Inlet Keeper, P.O. Box 3269, Homer, AK 99603; 907/235-4068; keeper@xyz.net.

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Water Snapshot

Finding What Monitoring Programs Are "Out There"

*by **Richard Albert and Peter Weber***

Who monitors water quality in your watershed? In a large watershed, that question might not be easily answered. Our watershed, the Delaware River Basin, covers 13,000 square miles, including major portions of four states—New York, New Jersey, Pennsylvania, and Delaware. It contains hundreds of smaller watersheds that feed the 331-mile long Delaware River and Bay. Numerous organizations and agencies conduct water quality monitoring within the Basin. Where do volunteer monitors fit in?

In the fall of 1995, representatives of EPA Regions II and III, the states of Delaware and Pennsylvania, the Delaware River Keeper Network (a citizen monitoring program), and the Delaware River Basin Commission (an interstate water resources agency) met to discuss ways of promoting volunteer monitoring programs in the Basin. Due to the recent rapid growth in volunteer monitoring, a major question that needed answering was "Who is out there collecting data?"

Several suggestions were made. Why not have every monitoring program operating in the Basin, whether volunteer or professional, collect data during the same time period? Why not have this event occur during the week of Earth Day as a demonstration of the massive commitment to clean water in the Basin? Conducting the event in April also

meant that schools could participate. Ideally, this communal monitoring activity would reach into every nook and cranny of the Delaware River Basin, thus generating useful scientific information.

Since all the data would be collected during a single short period, we decided to call the event Water Snapshot '96. We scheduled it for April 20 – 28, including two weekends for the convenience of volunteer monitors. A Water Snapshot planning committee was formed, with the Commission serving as the lead agency for a consortium of sponsoring organizations from the four Basin states.

Getting the word out

Publicity for Water Snapshot was obtained in several ways. One of the most successful was the use of press releases. Dozens of newspapers ran the press release or published related articles, and the interest generated was immediately noticeable. An equally effective method was sending flyers to the hundreds of organizations on the sponsors' various mailing lists.

Less effective, but still worth doing, was having the event mentioned in the numerous environmental newsletters published periodically in the watershed. One problem was that newsletter publication dates frequently conflicted with the timing of Water Snapshot publicity.

A special Water Snapshot web site attracted various "hits" (including two inquiries from Texas), but its effectiveness was limited.

The event

To encourage participation, we designed a single-page form that was easy to use and mail. Groups were asked to fill in site information, visual observations, air and water temperature, dissolved oxygen, pH, nitrate, phosphate, and—most importantly—their names, addresses, and phone numbers.

Water Snapshot '96 generated data on 335 locations on 174 waterways. Over 70 organizations, schools, agencies, and private companies took part. All the data received was "democratized"—that is, mixed together without regard for the sophistication of methods or analysis—and entered into a computer spreadsheet.

The Commission published its report in the form of a colorful booklet that presents the data graphically and explains the findings in nontechnical language.[1] The booklet includes participants' names and addresses, and an alphabetical list of water bodies showing which sites were tested and by whom. This report has proved invaluable both

as a directory of monitoring organizations and as a guide to what ranges of water quality values might be expected in different parts of the region.

The aftermath

Watershed Snapshot '96 was undeniably a success. It was also—like most first-time events—very much a learning process for all participants. Planning for the 1997 Snapshot was guided by the following lessons learned "the hard way" in 1996:

1. The number one mistake of 1996 was the failure to provide a cutoff date for accepting data. Although sampling ended on April 28, data forms were still dribbling in by mid-August. Each new set of data required re-running the statistics and modifying the text of the report. Data received after mid-August—including a large data set submitted in October—were not used. For Water Snapshot '97, this problem was eliminated by announcing a June cutoff date.

2. A second mistake was underestimating the amount of staff time needed, particularly for publicity and data management. Lesson learned: Doubling or tripling the estimated amount of time involved is a good rule of thumb! The problem was alleviated in 1997 by having a VISTA volunteer coordinate the event.

3. The third lesson was that clear-cut responsibilities for producing the report need to be established early on. In particular, the planning committee needs to decide what quality of report is envisioned and who will pay for it. Lack of such planning resulted in the Water Snapshot '96 report coming out about five months late.

Participation increased in 1997, with 78 organizations collecting data at 383 sites on 195 waterways. At the same time, Pennsylvania coordinated a statewide Water Snapshot that included numerous watersheds besides the Delaware. Reports on both events are currently under way, and planning for 1998 is about to begin.

Richard Albert is Supervising Engineer with the Delaware River Basin Commission, P.O. Box 7360, West Trenton, NJ 08628-0360. Peter Weber is the EPA Region III Volunteer Monitoring Coordinator. Questions on Water Snapshot should be directed to Peter Weber at 215/566-5749 or weber.peter@epamail.epa.gov.

[1] The report, Water Snapshot '96, is available from the Delaware River Basin Commission, P.O. Box 7360, West Trenton, NJ 08628-0360; ph. 609/883-9500. (The 1997 report will be available in early 1998.)

Environmental Education Journal

"Clearing: Environmental Education in the Pacific Northwest" offers a wealth of classroom activities, thought-provoking essays, news items, and useful resources. Don't be misled by the "Pacific Northwest" in the title—this publication is useful for any environmental educator, and particularly classroom teachers. Though monitoring is not a specific focus, the journal frequently contains stories about school-based environmental monitoring projects.

A one-year subscription (five issues) costs $15. To subscribe, or for a sample issue ($3), contact Larry Beutler at 503/656-0155; clearing@teleport.com.

Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

Clean Carpets, Clean Creeks

Listening. It's so simple, so undramatic, so . . . quiet. Could it really be that important?

Dennis Bowker, Resource Conservationist for the Napa County Resource Conservation District (RCD), likes to tell the following true story to illustrate the power of listening. In the early 1990s, a city was developing a stormwater management plan as part of the requirements for its NPDES permit. (NPDES, or National Pollutant Discharge Elimination System, is a federal program that regulates stormwater runoff.) The city's Public Works Department spent over $200,000 on public outreach brochures and videos, but the materials were not well received or widely used. So the Department called the RCD for advice.

"Their promotion was technically well done," recalls Bowker, "but the message was not something that grabs people's interest." The materials presented the basic facts—i.e., that sediment, nutrients, and pesticides in stormwater were decreasing water quality in streams—but not in a way that related to people's lives or concerns.

"We reframed the whole approach," says Bowker. "We said, 'Why don't we go out first and find out what the community's interests are.'"

So Public Works Department staff members started attending meetings of all kinds of community groups—churches, homeowner associations, trades councils, service organizations. They listened more than they talked. And what they heard was that people were upset about the reddish mud that was staining their sidewalks and car

interiors and ruining the carpets in their homes. Then, Bowker says, "they came up with a new message—'We can help you keep your carpets clean!'"

The city produced new brochures that explained ways to keep sediment off sidewalks, such as placing 4" silt fences around lawns, planting nonvegetated areas, and installing filter strips. Materials for these projects were supplied free to homeowners.

The program generated broad community participation. As sidewalks and houses got cleaner, so did streams. "Rather than telling the community what was in their best interests," says Bowker, "agency staff actually learned what those interests were."

Creek Demonstration Model

Carry Creek ("the creek you carry with you") is a creek model featuring three nesting troughs of clear acrylic supported on a stand. A submersible pump circulates water through the model. The "creek" is stocked with small fish, aquatic insects, other small aquatic animals, plants, and rocks from local creeks. It may be maintained in a classroom throughout the school year. For use at fairs and other events, the model is easily set up and disassembled.
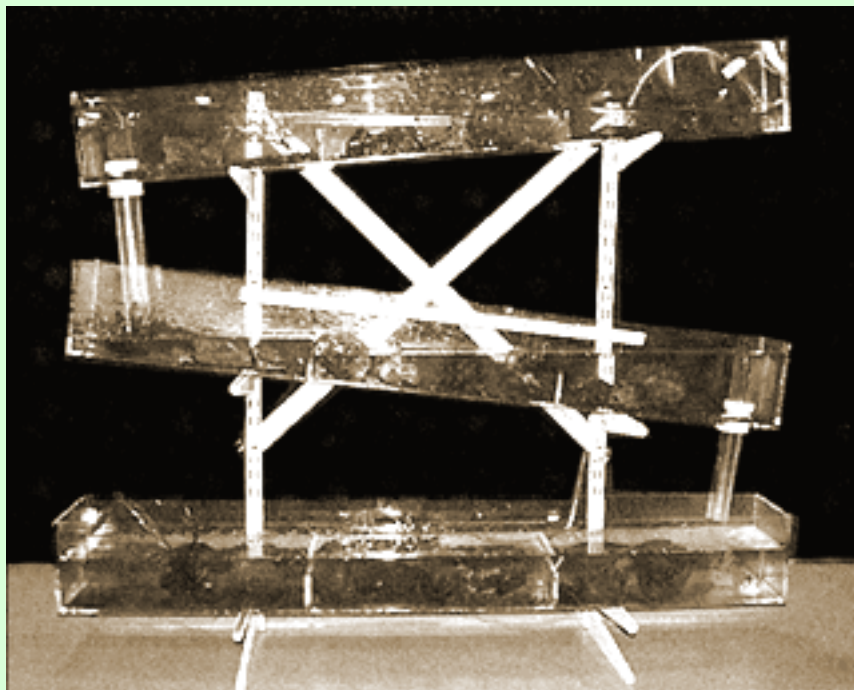
Carry Creek can be used to demonstrate:

- different kinds of river animals: how they live, what they eat, where they hide
- aquatic insect life cycles
- how soil can fill in rocky spaces and destroy habitat

The "basic" or "school" model (three troughs, stand, pump; edges not

buffed) costs $380 and the "deluxe" model (same as basic, but with edges polished to a high shine) costs $430. A set of instructions for building the model yourself is also available (note: recommended only for people experienced in working with Plexiglas). For further information, or to place an order, please contact Wade's Carry Creek, 6113 Midwood Avenue, Monona, WI 53716-3435; ph. 608/221-1760.

Volunteer Monitoring Software

RiverBank, a software program for storing and analyzing monitoring data, was developed by GREEN (Global Rivers Environmental Education Network) and the University of Michigan. Although RiverBank was designed for teachers and students to use in con-junction with GREEN's *Field Manual for Water Quality Monitoring*, it is flexible enough to be adapted for other monitoring projects. Its user-friendly interface allows input of data from physical and chemical water quality tests, benthic analyses, and site surveys. The software calculates some macroinvertebrate indices and an Overall Water Quality Index. It also allows users to print reports and to share data with others. It is based on Microsoft FoxPro, but users do not need to have FoxPro to use the database.

RiverBank is available on CD-ROM for $15 plus shipping. It runs on a PC using Windows 3.1 or 95 or NT, or a Macintosh using System 7.1 or higher. For more information, see the RiverBank web site at http://www.econet.apc.org/green/riverbank, or contact GREEN at 313/761-8142.

Trashed Rivers Conference in May 1998

The Coalition to Restore Urban Waters' fourth Friends of Trashed Rivers Conference will be held in New Orleans from May 14 to 16, 1998. Conference organizers promise "Southern hospitality, wild entertainment, and all the crawfish you can peel" along with an opportunity to tackle serious problems such as coastal erosion, wetland loss, and toxic contaminants in the water supply. The conference will be hosted by the Lake Pontchartrain Basin Foundation. For more information, or if you are interested in presenting at the conference, please call 504/836-2239.

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Taking Care of the Place We Call Home

by **Petra Riviere**

Sometimes we forget why monitoring is an important form of community outreach. Amid all the test results and the arguments about land use, we may lose sight of the fact that monitoring is ultimately about getting community members involved in making a positive impact on their communities. It is a way for people to feel they are taking great care of the place where they make their homes.

These are the feelings we hope to inspire when we reach out to people about our monitoring project. If we leave people feeling that monitoring is all about collecting incomprehensible scientific data, then obviously we have failed. How can we avoid such failure? One way is to listen—always listen—to why community members may be interested in monitoring.

Working with New Jersey Community Water Watch in urban areas has reminded me that people may not necessarily be interested in the "environmental" aspects of water quality monitoring. They may want to know how the Water Watch program relates to the education of their children, or to the health problems that affect people in their neighbohood. At NJ Community Water Watch, we keep these concerns in mind when designing outreach programs. In our presentations, we emphasize that according to the Environmental Protection Agency, 85 percent of New Jersey's waterways are too polluted for fishing and swimming. This really brings home the relationship between

healthy waterways and healthy human communities, especially in a place like Paterson, New Jersey, where the Passaic River—one of the 85 percent—still supplies the city with some of its drinking water.

At Ironbound Community School in Newark, AmeriCorps members working with Water Watch got the students involved in outreach by helping them design signs reading "Do not eat the fish or crabs from the Passaic River." The students helped translate the signs into Spanish and Portuguese, then placed them around the school in places where adults coming to evening ESL (English as a Second Language) classes would see them. The students felt they were helping to teach both themselves and the adults an important lesson on health and the environment.

Reaching out to diverse groups

It is very easy just to go to the traditional groups that might be interested in monitoring — environmental advocacy groups, watershed associations, wildlife federations, and so on. But the water is not going to get cleaner with just one segment of society working toward that goal. At NJ Community Water Watch, we have reached out to schools, churches, business people, fishers, and community organizations.

A community meeting is a wonderful atmosphere in which to speak with people, because it is relaxed for both the audience and the presenter. The first meeting is a good chance to mingle with members and get a feel for their concerns and accomplishments. The next time may be an opportunity to speak about what you do and how you see your program collaborating with theirs. People feel more willing to participate in your activities if they know that their involvement will be reciprocated.

When reaching out to a diverse and new group of people, it's important to recognize both the similarities and the differences among people. Everyone wants a safe, clean place to call home—but everyone may have a different avenue they would like to follow toward this end. When we reach out to a community, we are giving it the tools to have that safe, clean place.

Petra Riviere is AmeriCorps Member Team Leader at New Jersey Community Water Watch, 119 Somerset St., New Brunswick, NJ 08901; 732/247-4606; H2OWatch@aol.com.

Watershed Survey Manual

Texas Watch's 42-page *Manual for Conducting a Watershed Survey* tells how to survey a stream or watershed and record its history and geography, land and water uses, and pollution sources. Suggested activities include preparing detailed maps, collecting and comparing historical and current data, and investigating present and potential land uses. A watershed survey can be a particularly good tool for teachers who want to explain the relationship between land use and water quality.

Single copies are free. To order, call Texas Watch at 512/239-0028; or check the online catalog at http://www.tnrcc.state.tx.us/catalog.

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Recruitment and Community Organizing

by **Steve Dickens**

Volunteer monitoring groups oftentimes think of "recruitment" in a narrow sense. We recruit "volunteers" to work on particular projects, or "members" who may be asked to contribute money to support our work. In either case our primary goal may not include empowering these individuals to assume leadership in working for change in their communities.

Recruiting people to do a task is fine, if all we want is to get that task done. But if our goals are broader — if we want to mobilize community members for long-term stewardship of their watershed — we need a broader view of recruitment. Community organizing is the process of bringing people together to empower them, as a community, to take action to create positive change. You can only empower people if you actively involve them in powerful positions in your organization. So the "organizing organization" recruits not just members but future leaders.

"Begin where the folks are"

Community organizing is not about defining an agenda for people. True organizing is about a community deciding what issues are important for them, so they can take charge of their social, political, and natural environments. A saying popular among community organizers is "Start where the folks are, not where you are." We must listen carefully

and be willing to broaden the scope of our agendas if we are to be effective, relevant, and truly democratic organizers.

Community organizing has a long history in the United States, from the abolitionist movement of the 1800s to the civil rights movement of the 1950s and 60s. There is much that we in the watershed conservation community can learn from this history. One lesson is the importance of building bridges to groups of people who are our logical allies. We marginalize ourselves if we focus on a river cleanup while ignoring plaguing issues of economic injustice in the very same watershed. We build bridges when we are willing to address underlying economic problems that may be destroying both natural and human communities.

For example, a community may be run-down and neglected by a local municipality because members of that community are poor and disenfranchised and tend not to represent a political threat to those in office. An effort to organize community members to pull trash from the river, without at the same time organizing them to visit their city officials and ask that money and attention be paid to the community, is shortsighted and will likely be viewed as irrelevant.

WE MARGINALIZE OURSELVES IF WE FOCUS ON A RIVER CLEANUP WHILE IGNORING PLAGUING ISSUES OF ECONOMIC INJUSTICE IN THE VERY SAME WATERSHED.

We need to be creative in establishing links to other constituencies within our watershed. How are workers' health and safety concerns linked to our concerns about the health and safety of a river? How are the needs of farmers or parents linked to the work we are doing?

I work with river groups in Vermont that are concerned about farmers planting to within inches of a river bank. Do we insist that farmers take land out of production at their expense to provide for buffer strips? Many farmers in Vermont are barely operating on the edge of economic survival as it is. What if, instead, river groups worked with the farming community to pass legislation that would reduce tax rates on land taken out of production for conservation purposes? Dare we operate outside of the box? Are we able to rally behind some of the fundamental concerns of the members of communities we seek to organize?

Building an organizing organization

How can you build an effective organization for community organizing? The first step is to define an initial project focus—after all, most people join organizations to take part in interesting activities, not to sit in meetings. Choose projects that are achievable, interesting, hands-on, and ongoing. Most important, the projects should provide multiple levels for involvement.

The next step is to develop a systematic plan for "growing" participants into leaders. Designing a leadership development plan is not difficult. Start by breaking your projects down into smaller tasks. Say your project is to conduct river monitoring at 10 sites on the river. Some of the tasks will involve coordination—calling volunteers, providing supplies, arranging transport of samples to the lab. Group these tasks together, and presto! You have just defined an interim leadership position. The key is to define enough interim levels of involvement that people can take on progressively more challenging assignments, without having to commit all their free time to the organization.

Recruitment

Once your leadership development plan is in place, you're ready to recruit. Recruiting members is the core of community organizing. It's also probably more critical to a group's survival than any other single factor.

When should you recruit? Continuously! Every event, every phone call, every personal contact is an opportunity to recruit.

Unfortunately, recruiting often gets ignored, even when everyone agrees that it's important. Create a recruiting committee—or, if your organization is not that large, assign one person to be recruiting chairperson.

How to recruit

Traditional means of recruiting members include posting flyers, advertising events in local newspapers, doing mass mailings, and getting articles about your organization published in newspapers or magazines. While these are all useful, this article will focus on another approach: the networking strategies developed over the years by community organizing groups.

What is networking?

Networking consists primarily of building your organization one person at a time through individual telephone calls and in-person meetings. You start with a list of targeted organizations and individuals. (Lists may be provided by friendly nonprofits,

planning commissions, or state and federal agencies.) Now your job is to expand the list. As you contact the people on the list to discuss your work and your organization, ask each one for names of others who might be interested; then call those people and do the same thing. This is networking.

Sound time-intensive? It is, but it's also the method that has proved most effective in community organizing. Why is it so effective? First, people respond best to a request to get involved if that request is personal. The more personal and direct, the better. Second, networking is an excellent way of identifying key people fast. You focus your time and energy on those who are most likely to help you out. You don't cast the net as wide, but you're fishing in richer waters. And third, from an organizing perspective, you're doing a much better job when you're out there listening to people voicing their concerns.

You will need to be meticulously organized to keep track of all your individual and organizational targets—what type of contact they are, when you contacted them, what was the outcome.

THE "ORGANIZING ORGANIZATION" RECRUITS NOT JUST MEMBERS BUT FUTURE LEADERS.

How to network

Screening a long list of potential recruits is best done over the phone. For those you identify as particularly hot prospects, perhaps future leaders, plan an in-person meeting of 30 minutes to an hour.

Ultimately, you want to talk to every recruit one-on-one. But sometimes you'll start by addressing a larger group. A great way to reach a lot of pre-screened people quickly is to make presentations at meetings of your target organizations. Sometimes the most active volunteers are people who volunteer for more than one group. You may get lucky and recruit one of these "hot members."

When you visit an organization, make sure you bring along a volunteer sign-up sheet. It should include a checklist of three or four specific tasks that people can sign up for, with a short description of each task and the time commitment required. Don't just take the sign-up sheet home and wait for the folks to knock on your door. Only one of three is likely to follow through unless you follow up with a phone call or visit.

House meetings are a good way to gain access to a new group of people. Ask your members if they would be willing to invite some friends to their house for a slide show

and short presentation about your work. Hosting a house meeting is an easy and fun way for people to help. At the meeting, pass out your volunteer sign-up sheet and invite the guests to host house meetings of their own. Later, you will talk individually with those folks who expressed an interest in helping.

Listening for people's needs

When recruiting people, don't make a long speech trying to "sell" them on how great your organization is. Your goal is to learn what *their* concerns are. So take the time, lots of time, to listen. Approximately 80 percent of your time should be spent listening. Most people are rarely listened to well. Your good attention will be appreciated.

Remember that part of the purpose of your visit is to build your relationship with this person. Share something of yourself; be spontaneous and, above all, be genuine. It will be obvious if you're not genuine.

Establishing need. Good salespeople know that if you don't demonstrate need, you won't make a sale. In order to get someone to buy in to an idea, you have to get them to recognize they have a need that you can fulfill—perhaps a need for clean drinking water, or for a safe place to swim, or for a chance to get involved in a community project.

Demonstrating need is a two-way process. You may start by briefly telling the person your ideas. Then ask a series of open-ended questions which you have thought of ahead of time. Good questions might be: "What, if anything, do you value about our river?" "What do you think are some things that may pose threats to the river?" "What do you think are the most important issues facing our community?" "In what ways do you think our river is important to the health of our community?"

Linking your organization to the person's need. Once you've established a need the person has, you want to tie your organization's work to that need. Here's where you need to be creative. Can your organization legitimately respond to this person's need or interests? If so, it's time now to ask for their help. Ask them to help in a way that directly relates to their interests. If not, is this person expressing a need that others in the community feel strongly about as well? Is there room to expand your organization's agenda to address the concerns of these individuals? Obviously the answer to this question will relate back to your purpose and mission. If that purpose or mission is to do community organizing, you'd best think long and hard how to incorporate the concerns community members express.

APPROXIMATELY 80 PERCENT OF

YOUR TIME SHOULD BE SPENT LISTENING.

As discussed earlier in this article, those of us in the environmental movement—historically a white middle-class movement—need to be particularly aware of the ways we marginalize ourselves when we fail to address the primary concerns of the communities we seek to organize. When we reach out to recruit community members, we must look at our long-term goals. Are we just looking for some volunteers to help us with a one-time project, or do we seek to organize community members to take on long-term stewardship of their community's resources?

Steve Dickens is the Community Coordinator at River Watch Network, 153 State St., Montpelier, VT 05602; 802/223-8084; steve@rwn.igc.apc.org. He is currently working on a River Watch Network manual, Guide to Community Organizing, scheduled for publication in 1998.

Social Action Guide

Despite its name, *The Kid's Guide to Social Action* is not just for kids. This 185-page book, written by Barbara A. Lewis, shows how to get noticed and get results. It includes step-by-step guidance for writing a press release, making speeches, surveying opinions, raising money, and more. Available for $14.95 plus $2.25 S&H from Adopt-A-Stream, 600-128th St. SE, Everett, WA 98208; 425/316-8592.

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Media Strategies for Cheapskates

by **Kristin Merriman-Clarke**

(Excerpted from Kristin Merriman-Clarke's presentation at the Fifth National Volunteer Monitoring Conference. For the full text, please see the conference Proceedings, available at no charge from Alice Mayio, National Volunteer Monitoring Coordinator, USEPA (4503F), 401 M St. SW, Washington, DC 20460; ph. 202/260-7018; mayio.alice@epamail.epa.gov; or on the EPA volunteer monitoring homepage, http://www.epa.gov/owow/monitoring/vol.html.)

Why should you have a media strategy?

A survey three years ago found that 81 percent of Americans get their environmental information only from the news media. In 1993, readers responding to 10 newspaper studies identified environmental issues as the fastest-growing topic of news interest.

In 1994, the Foundation for American Communications (FACS) published a survey of 512 newspaper and TV reporters and editors that showed environmental coverage had expanded by 46 percent in the past two years. In fact, every very large newspaper in the United States has at least one reporter assigned to the environmental beat. In addition, one-fourth of local TV stations have someone specializing in conservation stories.

This is all good news. The bad news is that 72 percent of reporters say that they think reporters lack the training and background needed to cover environmental issues well.

In fact, only 2 percent of the surveyed environmental reporters had studied science in college. Another problem the survey revealed was that more than half the reporters had trouble finding experts who speak in plain English and who also are not biased toward either environmental activism or business.

So the good news is that media want conservation stories; the bad news is that they don't know what they're talking about or where the stories are.

That's where you all come in. News coverage for *your* group can translate into many benefits, including:

- free publicity
- new members
- increased community support for conserving water resources
- visibility as a source of scientifically based water quality information
- better public understanding of your organization
- pressure on public officials to act on a problem

Strategies

You are newsworthy but you're broke. Who cares? Forget all those glossy media kits, all those expensive video news releases, etc. You don't need ten grand to get a reporter to call. Most of your cost is in time.

First, make a complete list of all local newspapers and magazines (daily, weekly, and monthly), TV, and radio stations. The aim is to make "contacts"—editorial page writers, local news broadcasters, journalists who regularly cover the environment or community beats. Your local library should have two reference books that make this job easy: the latest issues of *Editor and Publisher Yearbook* and *Broadcasting Yearbook*. Don't overlook publications distributed by state natural resources agencies. You can also check on whether your state has an outdoor writers group. Call the Outdoor Writers Association of America at 800/692-2477.

The cost of this part of your strategy is zero, except maybe one or two long-distance phone calls.

Second, appoint one of your members or officers to be the media liaison. This member is responsible for developing regular contacts with journalists, maybe inviting them to attend your organization's meetings or events. Reporters are more likely to call people they know and trust for information.

The cost to you? Again—zero.

Third, make a list of events you want the media to cover this year. Ideas might be proposed legislation, monitoring events, training sessions, cleanups, a new fact sheet, whatever. Decide what media would be most likely to cover each event—for visual activities like stream cleanups, think TV as well as newspaper. For a new fact sheet, go with a weekly or daily paper.

Cost to do this: zero.

Fourth, decide whom you most want to reach, then build a strategy around getting the messages out to those people. You can save money for your group by doing targeted media outreach. Don't just send a release to anyone.

Getting newspaper coverage

Regardless of what you read on the Internet, print publications are not dead. In 1996, the number of daily newspapers was 1,532. Weeklies totaled more than 5,000. The number of on-line newspapers tripled last year and might total 350 in 1996. Their audience is almost limitless. Seek out these publications and add them to your media list.

One of the most important tips I can give you in terms of involving newspapers in your media strategy is to *give reporters from different departments of the newspaper different stories*. That means pitch a feature story to the feature editor—say, a story about a senior citizen who is helping to restore important stream habitat and convince other seniors to get involved in conservation. Papers like old people. The same goes for children—kids sell.

Then pitch a news story to the news department—on something like sediment problems caused by development near local Jones Creek. That might end up in the front or metro section.

Next comes an outdoor story about what a great family activity stream monitoring can be, and showing anglers and boaters getting involved. This might end up on the Sunday outdoor page in the sports section.

You can even try the business editors with a pitch about something like the increasing cost of flood insurance due to diminished numbers of naturally protective wetlands—or, on a positive note, how greenways and healthy streams can add value to homeowner property.

In addition to these newspaper sections, don't forget the easiest way to get in the paper: write a letter to the editor. Besides the front page, the letters page is the most-read page

of the paper. You can also contact the editor about writing a short opinion piece.

Another idea: the 1993 FACS survey found that few environmental stories discuss the health risks or economic consequences of environmental decisions. So if you can find an angle along those lines, pitch that as well.

I also want to point out that if you are an urban stream group, you should know that TV and print media are hungry for positive stories about minority groups and individuals. Sadly, a recent study prepared for the National Association of Hispanic Journalists shows that only 1 percent of news stories are focused on Latinos and issues related to Latinos. Of those, 85 percent focused on crime, immigration, affirmative action, and welfare.

I strongly urge you all to consider creating a Rolodex card that you mail to reporters each year. You write the text, and then for around $25 or $30 you hire a graphic artist to design the card. To print up 500 Rolodex cards in Washington, DC, where you're sure to be gouged, costs less than $100. I'm sure it's cheaper elsewhere.

Television

Now I'll turn to TV and cable. I confess a bias against them because I think many TV reporters are lazy and use the evening news to entertain rather than inform. Essentially, if you get covered by your local or state newspaper, you likely will get a call from a TV station. What's really going to help you get airtime is how visual your water monitoring activities are. Unlike the talking heads of politicians, you all are out there, feet wet, in the picturesque stream, holding intriguing, scary-looking bugs — and you might be only 6 years old! Or 96! Either way, you're local, you're timely, you've identified a problem, and you've got recommended solutions. You're news! So when you're thinking of pitching a story to TV, think about how to get your message across visually.

Cable TV represents the future of communication: reaching niche audiences. Don't ignore this outlet. Many cable stations have local talk shows that want local people to discuss local issues. Call them and offer to be a guest.

Radio

Radio is great. It's underused by environmental groups, but the potential audience is tremendous. It's also very easy and inexpensive to get coverage. You have several routes:

1. Write up a few PSAs about different issues or problems that relate to the station's audience, maybe a PSA about frugal use of lawn chemicals to reduce

runoff. Write up a 10-second, 30-second and one-minute spot on each topic, practicing each aloud and timing it for length. Write a cover letter introducing your group and why it wants the station to run the spots. Include the scripts and a self-addressed, stamped postcard or envelope and ask stations to let you know if they will use the PSAs or not.

Your media list of radio stations should focus on station formats geared to talk, news, public access, country-and-western, and middle-of-the-road. I've had good success with these formats.

You can produce the spots yourself on tape. The problem is that this approach costs more and also doesn't contain the station's radio personality, who always has a better chance of getting airtime. This is a good choice, though, if you have a celebrity willing to be the voice.

2. Pitch stories to the radio news reporter and offer to take her out for a monitoring demonstration.

3. Keep a list of all local radio talk shows and contact appropriate ones for a possible guest appearance. Call-in shows are particularly good and often have large listenerships.

Kristin Merriman-Clarke is the editor of Fisheries*, the magazine of the American Fisheries Society, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814; 301/897-8616 ext. 220.*

Helpful Advice on Getting the Word Out

"No matter how small or hungry your nonprofit organization happens to be, you have an advantage over the biggest corporation when it comes to getting the word out."

These encouraging words are from Richard Beamish's recent book, *Getting the Word Out in the Fight to Save the Earth*. Beamish's point is that environmental organizations can get free coverage in the media, "in a way that even Big Oil would envy," because their work is truly in the public interest.

"Approaching people in the news business is much easier than you might imagine," Beamish goes on. "If what you are doing is worthwhile and fills a public need—and why else does your organization exist?—you have an interesting story to tell. How successfully you sell your story idea depends, more often than not, on how you present it."

How to present your story to the media is the subject of much of the book. Other topics include recruiting through the mail, producing a newsletter, and obtaining major gifts. The book is written in a down-to-earth, engaging style, and includes hundreds of real-life examples that show what to do and what not to do.

Getting the Word Out in the Fight to Save the Earth is available in bookstores or from Johns Hopkins University Press; paperback $24.95.

Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

What the Media Want from You

*by **Barry Tonning***

(Excerpted from Barry Tonning's presentation at the Fifth National Volunteer Monitoring Conference. For the full text, please see the conference Proceedings, available at no charge from Alice Mayio, National Volunteer Monitoring Coordinator, USEPA (4503F), 401 M St. SW, Washington, DC 20460; ph. 202/260-7018; mayio.alice@epamail.epa.gov; or on the EPA volunteer monitoring homepage, http://www.epa.gov/owow/monitoring/vol.html.)

The idea of dealing with the media may sound formidable—even threatening—to volunteers unaccustomed to reporters. Indeed, most of our public information and education thus far has been disseminated through carefully composed brochures, pamphlets, slide shows, and videotapes aimed at targeted audiences. However, in order to reach the masses of people who need to be informed on water quality issues, we must preach to the sinners as well as to the choir.

Despite the normal fear of reporters, cameras, and microphones, telling the local watershed story to the local press need not be an unpleasant experience. Using the mass media—radio, television, and newspapers—is a powerful and very inexpensive way to get your message across to huge numbers of people. All you need is familiarity with the basic principles of communication—and the needs of the media.

Although there are considerable differences among newspapers, radio stations, and

television stations, all three share some important similarities:

1. They want a story.

It can be anything—"Agency Concerned about Siltation in Rolling River"; "Group Seeks Funds to Clean Up Goose Lake"; "Citizens Urge Study of Livestock Impact on Bear Creek." A good story can be developed from nearly anything related to watershed work. Just because no major event (i.e., grant award, enforcement action, hospitalization, death) has occurred doesn't mean that a story is unwarranted. Indeed, much of what's covered in the "news" consists of press releases from various sources.

Your watershed story can be about anything, but it has to be about something. Focus it. The story is the most important thing to consider: it will dictate what kind of coverage is devoted to your message.

A dozen or more stories can be developed from nearly any project that lasts 12 months. Weekly updates or even weekly columns present an excellent format for continuing coverage.

And remember: news consists of the good, as well as the bad and the ugly. Feature stories on successful solutions are great ways to cover nonpoint source issues in a positive light. In fact, focusing on real, achievable solutions implemented by the wide variety of runoff pollution players often provides the best format for presenting the technical details of the problem, its impacts, and possible solutions, while at the same time improving science literacy among the public.

2. They want a local angle.

Don't send reporters a general press release from some national or state office and expect them to localize it. That's your job. Take them out to film some badly eroded river or creek banks. Call the water plant and get the manager to talk to a reporter about the effect of solids on treatment costs. Have a few fishermen on standby who can talk about spawning bed siltation problems. Feature a local farmer who has just installed a new animal waste system. Do a story on the wide availability of oil recycling options, and the effects of dumped oil on surface and groundwater.

3. They want you to do most of the work.

Face it: reporters are trained in retelling a story. You've got the story, they've got the expertise and the means to retell it. Don't expect them to sift through two-inch-thick documents on impaired uses of surface waters—compile the information for them. For best results, consider writing up the story yourself! It's not too difficult, and you'll be

making sure the story says what you want it to say. Tell them (or better yet, show them) where to take pictures or videotape. Give them the names and phone numbers of people to interview. Make it easy for them, so easy they can't resist running your story—and so easy that they'll call you when the news is slow (summertime) and they need a story.

Finally, and perhaps most important of all, develop a personal relationship with the press. Faxes and phones are nice, but there need to be faces and people behind them. Developing relationships early will ensure that you'll be called to comment on breaking news stories or to put the local spin on regional or national developments.

 A wide-scale effort to utilize the mass media in watershed projects will mark a considerable transition from the current approach, which usually involves media coverage based on a significant (and usually very public) event. This type of coverage is most often about a point source, and is generally negative: fish kills, oil spills, etc. What's lost in event-based coverage is the significant contribution of nonpoint sources to water quality degradation, and the positive message that solutions exist.

Barry Tonning *is an Environmental Policy Analyst for the Council of State Governments in Lexington, KY; 606/244-8228; btonning@csg.org.*

Marketing Your River

In his book *How to Save a River: A Handbook for Citizen Action*, David Bolling makes the following points about marketing a river:

Remember that no one will know about your river if you don't market it.

The operative word here is "market." Some people hate the "M" word; they find it distasteful to reduce their lofty ideals to marketing jargon. But like it or not, what you are about to do is market your river, sell it like a product.

The first step in selling anything is to define the product. Sounds simple, you say, my product is a river. But the definition has to be more precise than that. The people who protected the Tatshenshini sold it as "North America's Wildest River." The marketing message for the John Day River could be reduced to one word: salmon. On the Gauley and the Ocoee the product bought by the public was whitewater recreation.

How to Save a River is packed with useful information and illustrated with dozens of real-life examples showing how "ordinary people with passion and commitment" have successfully protected the rivers they loved. Published by Island Press; available for $14 plus $4 S&H from River Network, 503/241-3506; rivernet@igc.apc.org.

Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

Interpreting Fecal Coliform Data:
Tracking Down the Right Sources

George Heufelder has been Environmental Program Manager for the Barnstable (Massachusetts) County Department of Health and the Environment for the past 12 years. He has done extensive research on the sources of fecal coliform input to bays and shellfish areas on Cape Cod, and has also advised many volunteer monitoring groups in the New England area.

In the following interview with The Volunteer Monitor, *Heufelder shares some of the insights he has gained over the years.*

You've consulted with a lot of volunteer monitoring groups. What kinds of problems do you see?

I'd say I've addressed easily 30 New England volunteer monitoring groups in the past two years. And I see the same story playing out again and again. It starts when a favorite shellfish area is shut down by state authorities. Local authorities and citizen groups, determined to stem the tide of pollution, take their own tests for fecal coliforms. They survey the area for potential sources, they map all the tributaries. Then they attack the problem by ordering the repair or upgrade of septic systems along the shoreline. And in many cases, countless hours of volunteer effort and official responses are sadly rewarded with little or no measurable improvement in water quality.
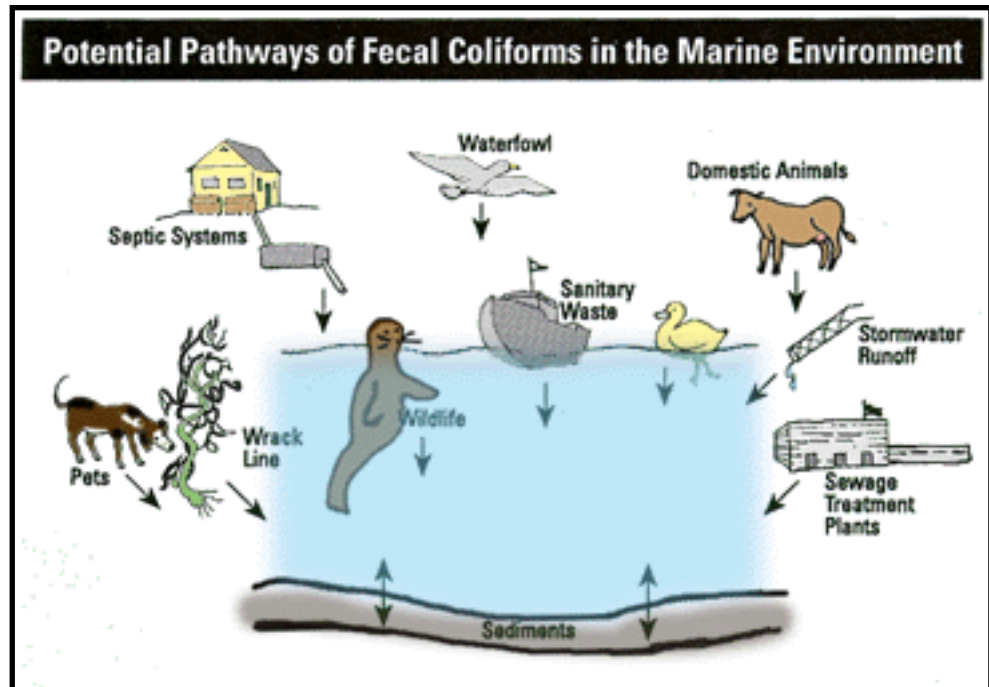
Why is that?

Often people — professionals and volunteers alike — have a preconceived notion of what the source must be. Too quickly they jump to the conclusion that it's septic systems that are causing the high counts. And sometimes they're right, of course. But there are also a lot of other possible sources of fecal coliform bacteria. People will ask me, "What are we going to do about these septic systems?" And I say, "Well, are you sure you've got the right enemy?"

What are some other sources?

The answer to that question is highly dependent on the area. A key thing to remember is that all warm-blooded animals eliminate fecal coliform bacteria in their feces. The question an investigator must ask is, "Does the fecal waste from the animals have a plausible route to the surface water or shellfish area?"

In agricultural areas, cows, chickens, or other farm animals may be a dominant source. This is especially true if animal wastes are deposited near steep slopes of glacial till or clayey soils on the banks of tributaries.

Potential Pathways of Fecal Coliforms in the Marine Environment

In urban areas, stormwater is probably the number one source affecting shellfishing and recreational waters. In part, this is because monitoring in shellfish areas is purposely done under the worst hydrographic conditions, which is during a rainstorm, in order to protect public health. Fecal coliforms in stormwater can come from domestic animals, or they can come from wild animals—birds, raccoons, deer, rodents—that live in or near the stormwater conveyance system.

There's a piece of conventional wisdom that's generally false, and that's the idea that fecal coliforms in animal waste die off after a day or two. Most of the literature says if you drop fecal coliform bacteria into the ocean environment, 99 percent of them are

dead in a few days. Yes, I'd agree to that. But if those bacteria are in a goose fecal pellet that's sitting on the bottom of a quiescent estuary, they can remain nearly 100 percent viable over many days. In essence, fecal pellets are little time capsules, slowly releasing fecal coliforms with each successive tide.

Any other sources?

After you've eliminated the major sources—humans, stormwater, wildlife—you have to start looking at things that are not actually sources, but are reservoirs. When people call and say, "We've done everything, and we just can't see where these high counts are coming from," I always suggest that they look in the sediment.

If you have a steady input of animal waste feeding into the sediment, this becomes a reservoir that can resuspend the fecal coliforms into the water during a storm, or a high wind event, or a high tidal event. This is especially important in areas with soft, mucky sediments. Once fecal coliforms get into the sediment they can persist for a long time.

Another potential reservoir that people almost always overlook is the wrack line. Wrack is that line of seaweed and other material you see stranded on the beach at the high tide line when the tide goes out. If you observe carefully, you'll see birds and animals foraging and defecating in this area. In Buttermilk Bay, we removed the wrack from a 300-foot stretch of beach and the median fecal coliform density dropped from 175 per 100 ml to 2 per 100 ml.

How did you become aware of the importance of these other sources?

Back in the '80s our department conducted an extensive study on fecal coliform sources to Buttermilk Bay, and we really tried to put the whole picture together, the sources and the pathways.

Were you surprised by what you found?

Yes, I'd say I was surprised. Up until then I sort of bought into the whole idea that fecal coliforms had very limited survival in the environment. But then I started noticing large amounts of animal waste every time I walked the beach. Every three steps is what it worked out to be. And I said to myself, Geez, I wonder if this stuff is still viable. So I put little markers next to the scats, and when I came out to take my water samples I would take a small sample of the scat. Three weeks went by and viability was still up in the hundreds of thousands per gram, and even millions per gram. That's a high survival rate when you consider that fresh feces has a range of 106 to 109 fecal coliforms per gram. And I thought, Wait a minute, if I can't discount this animal waste, what about all the ducks, what about all the geese, what about all the raccoons?

How do people react when you talk about these other sources?

Sometimes people don't want to hear that other animals besides humans produce fecal coliforms, because they feel that investigating these other sources is too big a task. And I tell them, No, it's not that big a thing. Tracking down the sources can be broken down into a series of small experiments that are very doable. Actually it's fun, because you get a result and you can figure out what's going on.

START WITH SOME OBSERVATIONS. COUNT THE BIRDS. COUNT THE SCATS ON THE BEACH. THE KEY IS TO COME UP WITH SOME HYPOTHESES AND TEST THEM.

What kind of experiments?

First of all, when you're taking bacterial samples, you always have to make observations. How many birds do you see; do people walk their dogs there; is the bottom sediment muddy; is the water turbulent—for bacterial investigations those things mean a lot.

So you start with some observations. Count the birds. Count the scats on the beach. The key is to come up with some hypotheses and test them. The hypothesis might be "It's the birds." So you count the birds, you do some back-of-the-envelope calculations, and you say, Well, is it possible, based on the annual loading of those birds? And if you decide yes, it's possible that birds are the source, then you test the hypothesis further. You might have to get some scat and test it; you might have to collect samples when the birds are there and when they're not there.

I remember one time we were investigating high coliform counts at a swimming beach at a Boy Scout camp. The health agents suspected that the camp's septic system was somehow getting into the pond. Well, we noticed that every day about two or three o'clock all the seagulls from the landfill would come over and land in the pond. So we went out at one o'clock and took a series of samples, and we went out at four o'clock and took the same set of samples, and the counts were elevated two orders of magnitude. And that settled it—it was the birds.

Here's a really low-tech method I used to estimate the number of dogs in the Buttermilk Bay watershed. I walked around in the streets kicking a can ahead of me, and I counted the number of barking dogs in houses and back yards. I did a quick calculation, estimating each dog produced about 150 grams of waste per day and about 10 percent of that had a possible route to the bay, and I concluded that two to three days' worth of the

dog waste alone could account for the observed high levels of fecal coliforms that were closing the shellfish area.

Let's say you want to find out how long dog scat, or raccoon scat, or goose pellets are viable. If you're really dedicated, take a couple scats, move them up the beach a way, and then come every other day and sample scat. Clip a little piece off, take it to the lab, weigh it, mix it up, do the counts, and see whether it dies off.

How can you test the sediments or the wrack line?

If you want to determine the importance of sediments in your area, wade carefully into the water and take a sample of the clear overlying water. Then roil the area by stirring your foot vigorously, and take another sample. If you see a 2- or 3-log difference between the two samples, then you realize, Hey, I've got a sediment sink here that I have to deal with.

If you suspect a significant problem with wrack, collect five pounds or so of wrack and put it in a 10-gallon aquarium. Take it to someplace like a dock where you can get relatively clean seawater, and pour about five gallons of seawater into the aquarium. Let the water slosh back and forth across the seaweed for about five minutes, then take a sample. Repeat this procedure five or ten times.

Do you see volunteer groups having any other problems in interpreting fecal coliform data?

I would urge any group looking at fecal coliform data to have a good sense of the natural variability of the water systems they are monitoring, as well as the variability in results of the methods they're using. For instance, let's say that one day you sample a stream and the lab reports 130 fecal coliforms per 100 ml. The next day you repeat the sampling and get a lab report of 150 per 100 ml. Did the stream get worse overnight? No—the difference is not significant. The reason is related to both natural variability and method variability.

If you take five samples at the same spot, a minute apart, in all likelihood you would get results like 130, 120, 110, 150, 130. This is due in part to the fact that fecal coliforms in the stream water are not perfectly and uniformly mixed. The other variability is inherent in the laboratory method. To get a handle on lab variability, take five 10-ml samples from the same water sample, and process them all in the same way. The next day you'll likely see 13 colonies on one plate, 14 on another, 12 on another. This is the variability inherent in the method.

THE PROBLEMS WITH THE FECAL COLIFORM INDICATOR - WELL, THAT'S WORTH A HALF HOUR OF INTENSE DISCUSSION. THE SHORT STORY IS, IT'S THE BEST WE'VE GOT.

Suppose a group determines that animals are the main source. Is there still a public health risk?

That's what people always want to know. They say, "Well, if it's animals then why are you guys busting our chops here? I thought you were concerned about human pathogens." And then I explain that not all human pathogens are just carried by humans. Then they ask, "Is animal waste the same as human waste?" No, it's not the same, because viruses generally don't jump species. But there's still a risk from bacteria.

So they say, "What's the public health threat?" And unfortunately the answer is, "We don't know."

The problems with the fecal coliform indicator—well, that's worth a half hour of intense discussion. The short story is, It's the best we've got. Yes, it's faulty. We know it's faulty but it's been protecting public health reasonably well since the 1920s. It's very conservative. People say, "It's overprotective." And I say, "Well, public health should be overprotected as opposed to erring to the other side."

It sounds as if part of your message is "Maybe sometimes there's nothing you can do."

Yes, that's right, there is nothing you can do about some of these sources. So even though you might be a little happier knowing that the source is not septic systems, because you're still using the area for recreational purposes, it's very unsatisfying at the end to say, "We know exactly where it's coming from—but we can't do anything about it."

Folks have to realize that all of the many uses are not always compatible. If you want a rookery, you want to see birds, you want to see seals, then you have to forgo something. My answer is, harvest the shellfish, move them to a clean area, let them depurate, sell them—if your state allows that.

What it all comes down to is that people tend to think of pollution only as something that impacts what we want to use the resource for. That's the definition—an activity or substance that affects a resource and alters it from its intended use. Well, in that definition, "intended use" is rather presumptuous. We "intend" to use it for shellfishing; the birds "intend" to use it for their roosting area; seals "intend" to use it as a resting

spot and a great fishing area.

Any final words of advice?

The keys to successful source investigation are an observant eye and an open mind. Get to know more about fecal coliform bacteria—college libraries and the Internet are good places to start. One of the best resources I know of is Pierson and Hackney's *Comprehensive Literature Review of Indicators*, often referred to as the "national indicator study." It includes an excellent discussion of the persistence of indicator organisms in the environment. Unfortunately it's rare and hard to find. Your state shellfish agency or health department may have a copy.

Don't forget that fecal coliforms can be deposited by any warm-blooded animal, and if deposited in the right place they can survive for weeks. Formulate hypotheses and test them. Last but not least, remember: E. coli happens!

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George Heufelder may be reached at Barnstable County Department of Health and Environment, Superior Courthouse, Route 6A, Barnstable, MA 02630; 508/362-2511; gheufeld@capecod.net.

Definitions

Indicator - an organism whose presence suggests the presence of other organisms.

Fecal coliform bacteria - the primary indicator used today for shellfish harvesting areas. Fecal coliforms are a group of bacteria, including E. coli and several closely related organisms, that are commonly found in the intestinal tract of warm-blooded animals. Their presence in water suggests contamination with sewage or feces, which in turn could mean that disease-causing bacteria or viruses are present.

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Technical Tips
Automated Flow-Through Sampler

by **Gerald Rosebery**

Since 1991 the Marine Resources Council of East Florida has monitored water quality in the Indian River Lagoon, which runs 155 miles up the central east coast of Florida. Monitoring is performed by both Council staff and 80-plus volunteers who participate in our Citizen Volunteer Water Quality Monitoring Network. The Council is under contract with several different agencies to collect regular sampling data from the Intracoastal Waterway, which runs up the entire length of the lagoon.

The shallow, often opaque waters of the Indian River Lagoon offer special challenges when we are required to sample not only from the surface but from the area near the bottom. Bottom sampling is important because we want to compare salinity, which can vary dramatically top to bottom, as well as changes in turbidity and TSS with depth. Since dissolved oxygen (DO) is often influenced by bottom growth (seagrass or algae), DO readings from both the bottom and the surface are useful.

Because we cannot afford sophisticated monitoring equipment such as a HydroLab, we have been relying on time-tested but cumbersome equipment like the Van Dorn sampler. Using the Van Dorn to obtain a sample 0.3 meters from the bottom on a rocking boat in relatively shallow, murky water is challenging to say the least.

It became obvious that we had to find a better way. We wanted to use the electronic

equipment we already had—salinity/temperature and DO meters from Orion—and keep the apparatus as simple and cheap as possible. The result is the very simple and relatively cheap ($125) flow-through sampling device pictured above, which we call the "Mark I." It has proven exceptionally reliable and easy to use for both staff and volunteers.

The components of the Mark I are assembled on a plywood base, which is carried on board a boat. The power source for the pump is the boat engine starter battery. To
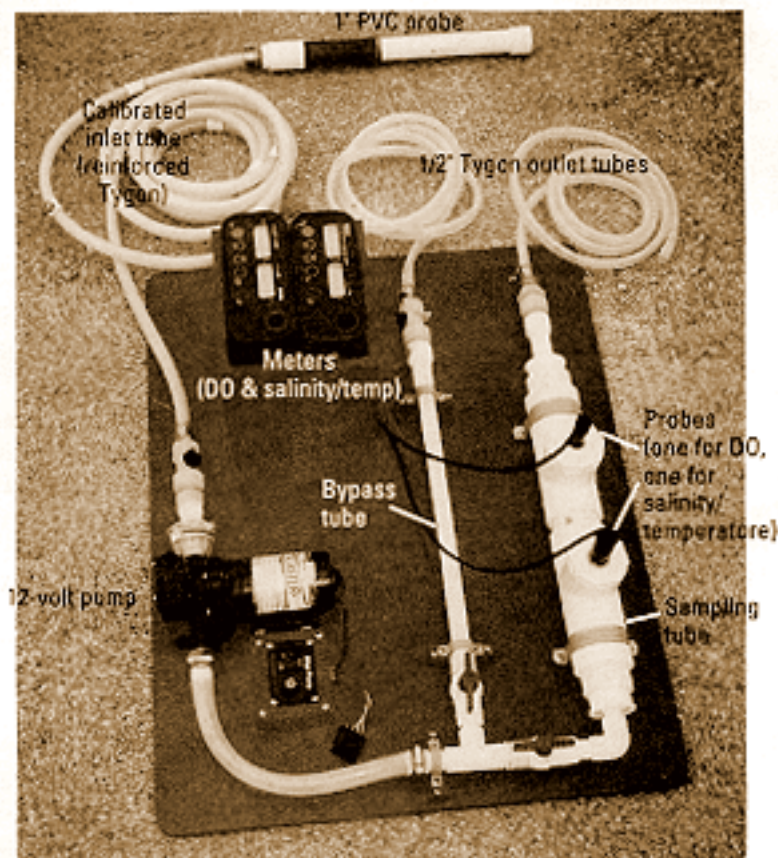
sample, the weighted PVC probe is lowered to the desired depth, using the calibrated markings on the inlet tube to determine depth. The probe has four 1/2" inlet holes drilled 0.3 meters from the base to facilitate near-bottom sampling. A 12-volt pump draws water into the sampler, where the stream of water is split into two paths. Some of the water passes through a sampling tube that contains probes from the salinity/ temperature and DO meters. The rest is directed through a bypass tube, from which samples can be collected for later laboratory analysis for pH, turbidity, and TSS. The flow rate in both tubes is adjustable. Water exits the system through two Tygon outlet tubes which are directed over the side of the boat.

The meters themselves are housed in a raised wooden box built into the platform. One of the beauties of the Mark I is that the meters and probes can be quickly and easily removed for hand-held use. Thus we get the efficiency of an automated flow-through sampler without having to sacrifice the convenience of portable hand-held meters.

We feel that the key to the success of the Mark I is the design of the sampling tube and the way the electronic probes are mounted in it. The sampling tube consists of two connected 2"-diameter PVC plumbing T's with 1" side tubes set vertically. The hard plastic probes from the salinity/temperature and DO meters slide down into the center of each of these T's, which we line with silicone rubber. They do not leak and are easily installed and removed.

The high flow rate through the inlet tube results in a rapid change of water in the sampling tube. As a result, stable values for salinity and DO are usually obtained within 10 to 15 seconds of changing the position of the inlet probe.

The Mark I has reduced testing time from 15–20 minutes per site to 5 minutes or less—something we especially appreciate in the Intracoastal Waterway, where we often have large boats bearing down on us as we sample.

The pump was designed for saline waters, using saline-resistant parts. For freshwater use, a less expensive pump could be substituted (our pump costs about $100).

The sampler should be useful in any waters up to about 25 feet deep. We are currently working on the Mark II, a smaller version. If readers would like specifications and a parts list for the Mark I, we would be pleased to provide them. Please contact us at the address below.

Gerald Rosebery is Director of Water Quality Programs for the Marine Resources Council, P.O. Box 2892, Melbourne, FL 32902-2892; fax 407/504-4488; council@ juno.com.

Secchi Line Shrinkage

The Spring 1997 issue of "River Trends," the Chesapeake Bay Citizen Monitoring Program newsletter, reported that volunteer monitor Ken Kaumeyer recently checked a nylon Secchi disk line he'd been using for four years and found it had shrunk by 16 centimeters over its 4-meter length. Kaumeyer had been using the Secchi disk to measure bottom depth as well as water clarity, and his data showed a steady increase in the bottom-depth readings over the four-year period. "Ken knew that the rate of sea level rise wasn't that rapid!" comments Matt Sabo, the program's Citizen Monitoring Coordinator.

Based on Kaumeyer's experience, the Chesapeake Bay program has switched to a line made of minimal-stretch nylon cord. For monitoring deeper waters where even slight changes in line length could become significant, New Hampshire Lakes Lay Monitoring Program Coordinator Jeff Schloss recommends using vinyl-coated braided- metal-core clothesline. "Read the package carefully," cautions Schloss, "and make sure the metal core is braided. Nonbraided metal-core lines tend to kink." Some newer (but more expensive) options that Schloss has heard about are

fiberglass measuring tape and fiberglass surveyor's tape.

Sabo stresses that no matter what material you use, it is critical to calibrate Secchi disk lines regularly. Volunteers with the Chesapeake Bay program now calibrate their lines every six months. Sabo also suggests that for shallow readings you can mark the endpoint on the line with a clothes pin (or just hold your fingers there), then take the Secchi disk out of the water and use a meter stick to measure the distance from the disk to the endpoint on the line.

"River Trends" is published quarterly. For a free subscription, write to Citizen Monitoring Program, Alliance for the Chesapeake Bay, 6600 York Rd., Suite 100, Baltimore, MD 21212.

Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

Technical Tips
Shallow Water Sampler

"Our new sampler is getting rave reviews from our volunteers," reports Linda Green, Program Director for University of Rhode Island (URI) Watershed Watch. The sampler was designed by Jim Geib, a volunteer monitor who was tired of getting wet while sampling.

Watershed Watch volunteers who monitor shallow lakes (i.e., less than 15 feet deep) collect samples at a depth of 1 meter. Until this summer, volunteers collected the samples with a siphon pump, which was attached to a hose marked off at one meter with a piece of tape.

"You needed a couple of extra hands and a couple of extra eyes," recalls Geib. "It was two hands for the pump, and then you still had to hold the bottle somewhere—I usually put it between my knees. Then you had to keep your eyes on the tape to maintain the proper depth." Unfortunately, the hose tended to slip out of the sampling bottle, pouring water onto the hapless monitor's lap and legs.

In place of the siphon pump, Geib used a gasoline primer bulb that can be operated with one hand. The other hand is left free to hold the tubing securely inside the mouth of the collection bottle. To maintain the proper sampling depth, Geib made a float by cutting pieces from a polyethylene foam "noodle" (a pool toy).

After collecting the water sample, volunteers measure the temperature and filter a

portion for subsequent chlorophyll analysis. The remainder of the sample is sent to URI laboratories for a variety of chemical tests. Green points out that the sampler should not be used to collect samples for bacteria (since it's not sterile) or dissolved oxygen (since the collection procedure introduces oxygen into the sample).

Howard Cook, a URI student intern with Watershed Watch, made slight modifications to Geib's design and then constructed 40 samplers, which were distributed to volunteers last summer. The primer bulbs were purchased at a marine supply store. Cook says the rest of the materials are available from hardware stores, but he suggests shopping around—you may find better prices on some items at auto supply or plumbing stores. The total cost for materials is under $20.

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Materials

3/8" clear PVC tubing
3/8" hose clamps
Gasoline primer bulb
Foam "noodle" pool toy, preferably with a hollow center
3/8" diameter female brass hose nipple
3" long, 3/8" diameter threaded male brass nipple

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Assembly

Cut two lengths of PVC tubing, one about 1/3 meter long and the other about 2 meters long. Use 3/8" hose clamps to attach one piece of PVC tubing to each end of the primer bulb.

Cut a 3" length of the "noodle" float and slide it over the 2-meter piece of PVC tubing. (Note: If you can't find the type of noodle that comes with a hollow center, you will have to drill a hole.)

Insert the barbed end of the female brass hose nipple into the lower end of the 2-meter PVC tubing. (If it does not fit snugly, use a 3/8" hose clamp to secure it.) Screw the male brass nipple into the threaded end of the female nipple. The metal nipples weight the tubing and keep it straight.

Position the float 1 meter from the bottom of the sampler. The
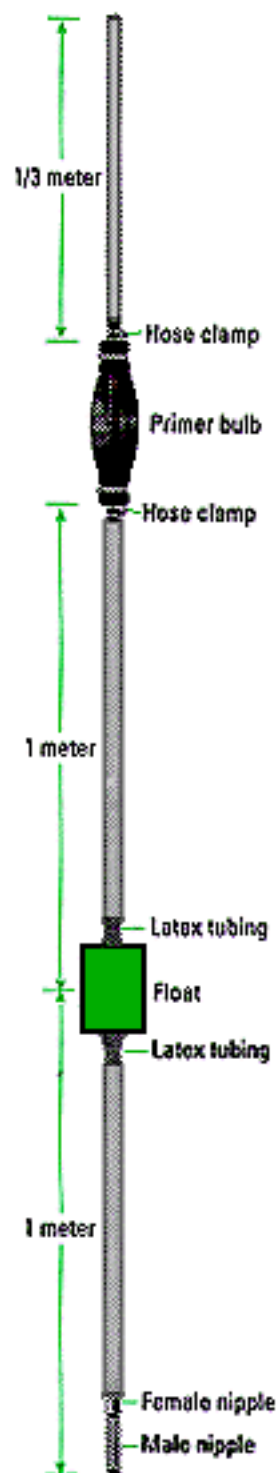
float is held into place with sections of latex tubing that are slit lengthwise, slipped around the PVC tube above and below the float, and secured by wire ties. (Note: Other methods could be devised to hold the float in place; Cook simply used materials that were on hand at the Watershed Watch lab.)
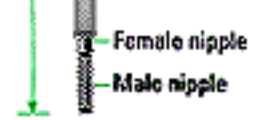
Optional refinement: Geib likes to "sink-proof" the sampler by covering the section between the bulb and the float with foam pipe insulation cut in 1" pieces. That way, the entire sampler will float if dropped.

Instructions for use

(These are the instructions given to URIWW monitors.)

1. Place the end of the sampler with the brass pipe into the water and lower it until it is supported by the float.
2. Squeeze the bulb 10 times to rinse out the sampler. Do not use this water as your sample.
3. Holding the sample bottle in one hand, pump the bulb with the other hand and fill the bottle. You are sampling at a depth of 1 meter.

Missouri Stream Team Passes 1,000 Mark

This September, an Explorer Post in Bourbon, Missouri, became Missouri Stream Team No. 1,000. To celebrate this milestone, all Missouri Stream Teams were encouraged to plan a special project (such as a cleanup) on September 27, followed by a barbecue or reception. Stream Teams received a press packet to help with media outreach; as a result, hundreds of local papers across the state carried stories about Stream Team 1,000 activities.

In addition, Missouri Stream Team marked the event with a statewide coloring contest for students in 6th, 7th, and 8th grades. The theme for the students' artwork was "what healthy streams mean." The winning entries are being published in a 1998 calendar, along with lots of facts about Missouri's streams and ways to protect them.

The Stream Team 1,000 celebration was especially meaningful for Mark Van Patten, who was a member of the Roubidoux Fly Fishers when that group became Stream Team No. 1 back in 1989. Van Patten is now the Stream Team coordinator for the Conservation Federation of Missouri.

According to Van Patten, one reason for the phenomenal growth of the Stream Team program is that the sponsoring agencies try to encourage and enable each team to pursue its own goals. (Besides the Conservation Federation, Stream Team's sponsors are the Missouri Department of Conservation and the Missouri Department of Natural Resources.) Joe Bachant, coordinator for the MDC, concurs. "We haven't tried to dictate what happens at the local level," he says. "Every team has a reason for being and that's different for every team." Popular activities for Stream Teams include water quality monitoring, stream cleanups, storm drain stenciling, and community education projects.

The Volunteer Monitor

Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

New Resources from EPA

EPA Stream Methods Manual Available

The Environmental Protection Agency's *Volunteer Stream Monitoring: A Methods Manual*, long in the works, will be available in December. This 210-page manual is the third in a series of methods manuals published by EPA (the first and second covered lakes and estuaries). It takes the reader through an introduction to streams and discussion of watershed survey methods, then proceeds to offer in-depth, step-by-step approaches to monitoring macroinvertebrates, habitat, water quality, and physical conditions. The manual concludes with a chapter on managing and presenting data. Several volunteer monitoring programs assisted EPA in developing this manual by sharing their protocols and expertise.

For a free copy of the manual, contact Alice Mayio at USEPA (4503F), 401 M St. SW, Washington, DC 20460; 202/260-7018; mayio.alice@epamail.epa.gov. (The manual will soon be available on the EPA volunteer monitoring homepage at http://www.epa.gov/owow/monitoring/vol.html.)

Need Funding Help?

Order a copy of EPA's new *Catalog of Federal Funding Sources for Watershed Protection* for information on federal monies that might be available to fund a variety of watershed protection projects. One-page fact sheets on each of 52 funding sources (grants and loans) indicate types of projects funded and eligibility requirements.

Available at http://www.epa.gov/owow/watershed/wacademy/fund.html; or order publication # EPA 841-B-97-008 from NCEPI at 800/490-9198; fax 513/489-8695.

Top 10 Watershed Lessons

People who want to involve their whole watershed in monitoring and protection activities will be interested in a new Environmental Protection Agency publication titled *Top 10 Watershed Lessons Learned*. This 59-page book distills the experience of dozens of watershed practitioners across the country into 10 lessons. A sampling of the lessons:

- Partnerships Equal Power
- The Best Plans Have Clear Visions, Goals, and Action Items
- Plans Only Succeed If Implemented
- Build on Small Successes

Each lesson is illustrated with real-life stories (several of which concern volunteer monitoring) and accompanied by a list of related resources—books, reports, newsletters, and web sites.
For a free copy call 800/490-9198 and ask for publication # EPA 840-F-97-001. The document is also available on the web at http://www.epa.gov/owow/lessons/top10.pdf.

Web Sites to Check Out

New additions to the EPA's web site include:

- *Surf Your Watershed* (http://www.epa.gov/surf), designed to help users locate, use, and share environmental information about a watershed or community. You can find out about protection efforts and volunteer opportunities in your watershed, and even build, view, and download a customized map of your area including such things as roads, streams, and EPA-regulated facilities.
- *Index of Watershed Indicators* (http://www.epa.gov/surf/iwi/), which compiles information on the condition and vulnerability of watersheds in the U.S. Fifteen indicators, among them assessed waters meeting designated uses, fish consumption advisories, and aquatic/wetland species at risk, are combined to determine an overall index score for every watershed in the nation. Check out your watershed and see if you agree with the score it receives!
- *Adopt Your Watershed* (http://www.epa.gov/surf/adopt), initiated as part of the 25th anniversary celebration of the Clean Water Act. This site is a national catalog of groups involved in local watershed protection efforts. Thousands of watershed alliances, volunteer monitoring groups, cleanup efforts, and advocacy organizations are listed.