

# Urban Pollution: Any Solution?

By Amy Stahl

**I**n the driveway of her west Boise home, a teen-ager soaps down her mud-caked car.

On the other side of town, an elderly gardener applies a heavy-duty pesticide to kill the bugs that have infested his lawn.

After a traffic accident on the Broadway Avenue bridge, a steady autumn rain washes a puddle of motor oil down a storm drain.

These scenes are just an everyday part of life in the Treasure Valley, right? Sure. But where do those soapsuds, pesticides and oil end up? Like all of Boise's urban runoff, they are discharged directly into the Boise River. And that's not all. Among the other pollutants washed into the river are heavy metals, hydrocarbons, phosphorous, sediment and toxic substances.

From Barber Park to Garden City, urban runoff is flowing unchecked and untreated into the Boise River. Downriver, the water quality deteriorates further with the addition of barnyard wastewater and pesticides.

Years ago, the river was known to run red from meat-packing operations that lined the river. The water quality is decidedly better today, but pollutants pouring in

could once again threaten fisheries, limit recreational opportunities and otherwise damage the aesthetics of this most prized resource.

Boise State University faculty members Lee Stokes and Bob Rychert worry that urban runoff, while not yet a catastrophic problem, will only grow worse as the city expands. Both have conducted research on the river's water quality, and they are concerned that without careful planning the river could be jeopardized.

Stokes, a professor of community and environmental health, has spent several years gathering data about Boise River water flows through a study of microscopic organisms

known as periphyton. Periphyton grow attached to or near rocks and can be used as an indicator of pollution.

A former chief of the state's Division of Environmental Quality, Stokes began his study in March 1992 with assistance from a Faculty Research Grant and a graduate assistantship. During the first phase of the periphyton study, student assistants scraped algae from rocks collected at five stations from Diversion Dam to Glenwood Street. Then the rocks were sterilized and returned to see how fast the organisms regenerated.

While results are still being compiled, Stokes says he is most troubled by the proliferation of algae that has been noticeable on exposed river rocks in recent years. "We do have a situation that is non-aesthetic at low flows," he says, noting the impacts of several recent drought years and tremendous fluctuations in water released from Lucky Peak Dam.

Stokes' current research, or phase II, looks at how organisms are impacted by pollution sources. Samples are being gathered near storm drains at Broadway and Ann Morrison Park. Phase III of the study is yet to be determined.

Through his research, Stokes is attempting to create a baseline of data that can be used by decision-makers down the road. "The nature of activities in the Boise Valley is changing so fast we need to be in a position to estimate and then demonstrate impacts," Stokes says. "The more specific data we have on water quality and aquatic communities, the more river managers would have to consider that information in the management of the system."

Biology professor Rychert also has been studying Boise River water quality. In 1978, with his colleagues Charles Baker and Marcia Wicklow-Howard, Rychert produced a report on the impacts of geothermal wastewater discharge into the Boise River. He also completed a study in 1986 on urban runoff, lead salts and pentachlorophenol. More recently, Rychert and his environmental mi-

**'I just want to be assured that we're not throwing pollutants into the river.'**



crobiology students have conducted regular toxicity studies on sewage treatment plant effluents.

The data they've collected show that water quality is relatively good, says Rychert. This is due, in part, to the flushing action provided several times a year by large releases from Lucky Peak. "The Boise River — as we study a limited stretch — has pretty high water quality in my view. I might expect that," Rychert says. "The thing is, can you maintain it?"

Some ecological problems — such as uncontrolled runoff after major storms — are more difficult than others to solve, says Rychert. But he believes the first step toward preserving water quality is better coordination between agencies with jurisdiction over the river. While various governmental groups keep watch over fish, wildlife and other aspects of the river, no single agency is responsible for scrutinizing water quality. As a result, there is little comprehensive information available about runoff and water quality.

Several steps are being taken to improve the situation. One is the formation of an interagency group to oversee the entire Boise River watershed. Another is implementation of Clean Water Act regulations established in 1987 by the U.S. Environmental Protection Agency.

Participants in the interagency group, known as the Lower Boise River Water Quality Study, include the city of Boise, Ada County Highway District, Department of Fish and Game, U.S. Soil Conservation Service, EPA, Department of Water Resources, BSU, the Army Corps of Engineers and others.

Collectively, the group is taking an ecosystem approach to the river by attempting to monitor the entire watershed — not isolated stretches of the river and its tributaries — from Lucky Peak to the Snake River. Formed in 1992, the Lower Boise study group aims to identify water quality issues and form interagency partnerships to determine a course of action and tackle the problems.

Last May, the group began what is considered to be the first integrated monitoring project on the river. Water samples are being collected by the U.S. Geological Survey at Diversion Dam, Glenwood Street, Middleton and Parma, says Robin Finch of the Boise Public Works Department. A complete set of data is expected by January, he says.

The agencies started the sampling process in response to EPA regulations targeting municipal storm water operators in cities with populations of more than 100,000. Boise is the only city in Idaho required to comply with the rule. The city has begun its permit application by working with the Ada County Highway District to inventory existing



Boise State students Karen Smola, left, and Natalie Creed gather rocks as part of the community and environmental health department's Boise River periphyton project.

"outfalls," and participating in the sampling project.

Boise also is required to implement a storm water management plan, which is intended to identify problems and predict how potential remedies could reduce the level of pollutants in the river, says Ron Redmond of the city's public works department. He expects that the plan will be completed in late 1994.

Although Redmond admits that few cities "like to be told what to do," he thinks the management plan is a good idea. "Storm water has been an area that hasn't received the attention it needs," he says. "Typically the drainage has been a relatively low priority for the community."

Nevertheless, it has become a serious issue in larger metropolitan areas such as New York and Pittsburgh, says Nickie Arnold of

the EPA's Idaho operations office. A 1992 graduate of BSU's health studies program, Arnold admits that urban runoff is a more pressing problem in the eastern United States. But the West can certainly benefit from tighter controls. She notes that although the Boise River is relatively clean at high flows, when the flow drops the water becomes warmer and even small amounts of oil and pollutants have a greater impact.

The regulation, she says, also makes urban runoff a more visible issue nationally. "We need to elevate people's awareness that the thing you do on your own property can impact the river," she says. She points out that pesticides, chemicals and other wastes dumped into storm drains ultimately find their way into the river.

At BSU, officials are acutely aware of the potential hazards posed by the eight drains that pour surface water and materials from the campus directly into the river. The university has made some headway in averting potential problems, says Gene McGinnis, director of the Physical Plant. Ideally, BSU would like to bring the storm water lines together or install oil/water separators at each outfall. Separators, which McGinnis likens to septic tanks, skim oil from the runoff and then discharge the remaining water. Widely accepted, they are nonetheless costly at about \$120,000.

"I just want to be assured that we're not throwing pollutants into the river," McGinnis says.

**'We need to elevate people's awareness that the thing you do on your own property can impact the river.'**

BSU instead is tackling urban runoff issues as they become evident. Several university departments have shifted over to more environmentally friendly products. Applied technology programs now use a citrus-based solvent for cleaning heavy equipment and the university has switched from oil-based to water-based paints. BSU also is attempting to reduce the amount of nitrogen-based fertilizer used on turf throughout campus.

Nevertheless, troubling problems persist. Eldon Chandler, Physical Plant health and safety supervisor, reports that drivers have been known to pull into campus parking lots and dump used motor oil into the storm drains. And less obvious oil leaks and residue that often accumulate during Boise's long, dry summers are regularly flushed off the parking lots and into the river.

Eliminating storm drain pollutants admittedly will be a challenge, McGinnis says, citing the cumulative effect of years of abuse. It may take legislation requiring that vehicles be checked for oil and leaks. "If we don't, we'll just continue killing our environment," he says. "It's a long process and we're going to have to learn to be more cautious with what we're doing."

While it's easy to point an accusatory finger at runoff, some of it can be recycled, says Cathy Chertudi, groundwater coordinator for the city of Boise. A 1979 BSU graduate with a bachelor's degree in environmental health, Chertudi says some storm water can be treated "naturally" through bio-filtration strips, or grassy barrow pits like one at Boise Towne Square Mall.

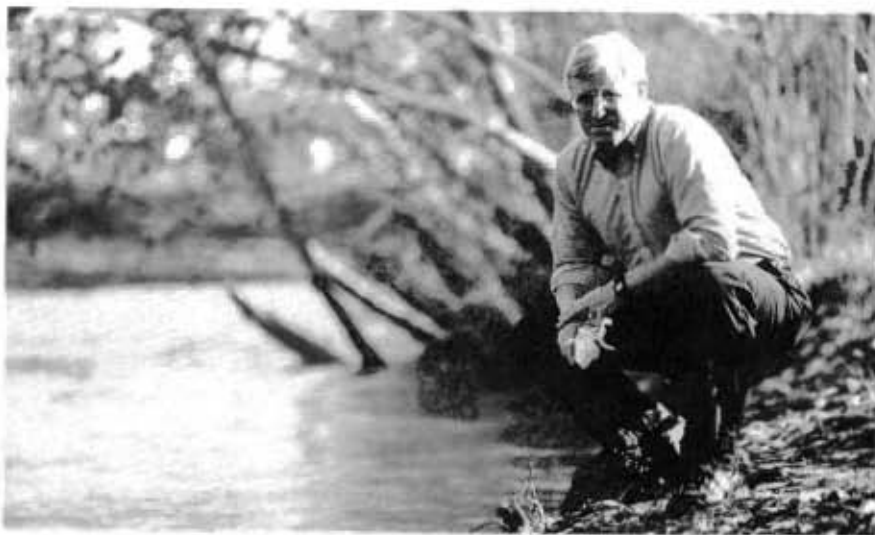
Storm water is collected in a grass-covered swale and then dispersed through evaporation and plants that can "uptake" some of the heavy metals.

Oil/water separators also are becoming more commonplace at areas such as the Executive Air Terminal, Chertudi says.

Despite such positive steps, most experts agree more needs to be done. Among the other solutions being discussed is a special sewer system that would channel storm water to a processing plant where it would be treated and then discharged into the river.

Rychert suggests that the time has come to hold a Boise River Symposium, where the various governing agencies could discuss water quality, recreational uses, fisheries, river flows, power demands and all the other pressing issues facing the river. Officials also could use the opportunity to plot out long-term plans and goals for the river.

To ignore the issues would be a disservice to the community, Stokes says. The Boise River as "an incredible resource. It isn't unique I suppose, but there aren't a great many cities that have river of high quality with a fully developed Greenbelt," he says. "This is a community resource that is unusual. Nobody wants to see it messed up."



Larry Satterwhite considers the Boise River to be the city's "crown jewel."

## BOISE STATE'S 'COLONEL CLEANUP'

By Bob Evancho

Larry Satterwhite can talk trash with the best of them. Just ask his fellow racquetball players.

While it's true Satterwhite's banter rarely abates during noontime matches in the Pavilion racquetball courts, BSU's former military science department chair leaves his *real* trash talking for the Adopt-a-River program he established last year.

Satterwhite says the volunteer trash patrol, in which groups or individuals "adopt" and regularly police quarter-mile sections along the Boise River, evolved from his personal interest in the plight of the river—a concern he passed on to his family and students.

"My family enjoys using the river, but it seemed that it was really getting trashed; when I went fishing with my [two] kids we would take an extra [garbage] bag with us to pick up trash," he says. "And as a professor of military science, I wanted to get my [ROTC] students involved in a community-service activity. I bounced the [river cleanup] idea off my students and they thought it was a good idea, even though many of them were already involved in other major activities."

But Satterwhite wasn't done yet. "From that point," he says, "my concept was to get both Boise State students and associations as well as community organizations to help clean up the river." Which is precisely what Satterwhite accomplished last fall with the help of the Associated Students of BSU and the Boise Parks and Recreation Department.

Working with city officials, Satterwhite spearheaded an effort to organize what is now a communitywide Adopt-a-River

program. Modeled after the Adopt-a-Highway concept, civic groups and other organizations pick up trash and other debris along their designated sections of the river "on at least a monthly basis," says Satterwhite.

Because BSU's campus has some of the heaviest Greenbelt traffic, several groups are assigned to police the area. "All it takes is one concert or one football game for a lot of trash to accumulate near the river in the campus area," says Satterwhite.

After 23 years in Army, Satterwhite retired as a lieutenant colonel and stepped down as BSU's military science chair earlier this year. But civilian life has hardly slowed him down or severed his ties with Boise State. His wife, Jan, is a nursing professor at BSU and Satterwhite also teaches adult education courses in the university's Division of Continuing Education. He also provides career counseling through the University of Idaho's Boise Center and serves as director of an organization that works with people who are serving community-service sentences handed down by local courts.

In addition, Satterwhite is currently student teaching at Boise's Hillside Junior High through the BSU College of Education to earn his teaching certificate.

Despite Satterwhite's many responsibilities the 46-year-old Twin Falls native believes the Adopt-a-River program is worth the time and effort. "I consider the river the crown jewel of Boise," he says. "But it's very fragile; we have to do our part to keep in clean."