I get my water from a spring that comes out from under a mountain in Montana. I have always felt superior in this regard to most other people on the planet—their water might be threatened by carelessness upstream, but I'm here at the beginning of the flow, and mine is clean.

Not any more. One recent morning, having returned home from airborne wanderings over less fortunate people's watersheds, I found myself hiking through early snow to the cistern at the spring with a bottle of bleach and a humbled heart. A routine test of my water—which had never turned up problems before—had come back from the lab with the notation: "Too numerous to count—background bacteria."

What had happened? Something had seeped into my aquifer and clouded my peace of mind. I could only clean the cistern and try another test. Until then I would have to boil my water or risk disease. I had joined the ranks of too many people on this continent who aren't sure of the quality of what they drink.

Few things are as insidious as bad water. It's dangerous for you and your children, but you usually can't tell if you have it. And if you do, you may not be able to find out where the problems are coming from. Water can carry some of our most serious diseases—typhoid, dysentery, hepatitis—yet still look clear in the glass. We may do battle over how we get our water and develop it, but we fear for its quality.

This year Congress has been grappling with that very issue. The United States' first truly broad set of water-quality laws, known as the Clean
Risky fishing ■ A makeshift sign warns anglers away from the Fen holloway, Florida’s only “industrial” stream. For decades waste from a pulp mill, fully owned by the Procter & Gamble Company until this year, overwhelmed the river. A treatment process has eliminated detectable dioxin output, but a state fishing advisory remains in effect.

Water Act, was passed in 1972, and now it’s time to revise this act and the more recent Safe Drinking Water Act to reflect the current situation. This is tough, partly because the state of water is difficult to capture in the kind of unambiguous statistics lawmakers like and partly because it has become increasingly apparent that the sources of pollution are not just industrial and municipal institutions that can be controlled by specific laws. The burden of pollution belongs to us all.

Water’s nature itself is a part of these complications. This simple structure of hydrogen and oxygen has even been called the universal
Groundwater gumshoe  ■ Probing pollution’s hidden migrations, U. S. Geological Survey researcher Denis LeBlanc (above right) uses an array of 10,000 test wells to sample groundwater beneath the Massachusetts Military Reservation on Cape Cod. Streamers of light mimic the path of bromide injected into the sand and gravel aquifer. Such tests help in understanding the spread of contaminants under the site, where jet fuel spilled years ago can be pumped out and burned in a cigarette lighter.

solvent. It takes into solution a vast number of substances, and what it can’t dissolve, it simply pushes along or grinds up fine enough to carry in suspension.

Human beings have put this characteristic of water to work in thousands of ways. We wash with it; we flush with it; we mix it with chemicals to spray on our fields. It’s in the processes that make paint, plastic, pork. We hose down the workshop, the garage, the factory. But this remarkable utility also means that it’s very hard to put anything out of water’s reach. Water is far more persistent than even the most determined rat or cockroach, so a lot of things we don’t want in water get there anyway. If you pour poison on the ground, even in the starkest desert, water will pick it up, molecule by molecule, and because water is always going somewhere, it will take it away.

I once watched how we use this characteristic of water from a gravel bank on the upper reaches of the Yukon River. I was with Gerry Whitley, a pollution-control administrator who had just taken me on a tour of the city of Whitehorse’s reservoir, power plant, and parks. Now we were at the end of the system. The water slid past silently, heading north into wilderness, but an unmistakable aroma rose from it. Whitley stood cheerfully on a manhole cover; beneath his feet sewage ran from settling ponds into the river.

Jim Richardson’s photographs have illustrated National Geographic water stories on such subjects as the Ogallala aquifer in March 1993 and the Colorado River in June 1991. Before freelancing, Richardson worked for the Denver Post.
“Whitehorse is a microcosm of how we use water,” he said. “Recreation, power, greenbelt, water supply; then below the city we dump sewage. This is how our society organizes stuff.”

The cost of this simple organization is enormous—not to water itself, which flows just as swiftly when poisoned with cyanide as it does fresh from a cloud, but to us. So the Environmental Protection Agency (EPA) determines water quality in terms of how pollution impairs the way we want to use it.

Impairment is a curious image—it makes you think of a creek hobbling along on a cane—but it’s not a bad metaphor. Impaired water, in the EPA definition, is water we can’t use as fully as we want to. Some is unhealthy to drink, some is unhealthy to swim in, and in some we shouldn’t even fish. The agency, which compiles reports from each state, says in its most recent summary that only 22 percent of all the United States’ stream miles and 67 percent of the lake acreage have been assessed. Of those totals, a third of the stream miles and almost half of the lake acreage are, in one way or another, impaired. And states set their own standards, so states that set more stringent standards can actually look more polluted on paper than lax ones. All that can be said with certainty is that based on the state reports, about 15 percent of our river miles and 38 percent of our lake acreage are not impaired.

“We’ve got a huge mass of data points,” says Robert Adler of the Natural Resources Defense Council, a conservation organization, “but they can’t be connected.” Trends are even harder to gauge. Many rivers and lakes appear to have been dramatically improved since the infamous Cuyahoga caught fire in Cleveland in 1969 and since the passage of the Clean Water Act, which provided standards for pollution control and money to build treatment plants. But some think this is only a surface image.

“There are two very conflicting messages,” says Kevin Coyle, president of American Rivers. “A lot of rivers are cleaned up—you can swim in them now. The Cuyahoga may never catch fire again. But when you look deeper, many of the nation’s rivers are in worse shape than they have ever been. Though they may
look cleaner, they may be more deadly.”

Recently, after following rumors of this deadliness, I sat at a picnic table on the outskirts of Brownsville, Texas, with Alma Alvear and her daughter, Thelma. Thelma was two years old. She looked normal. While her mother and I talked, she played with a plastic bow that was missing its arrow, occasionally looking up at me with calm, speculative eyes. Eventually Alma showed me Thelma’s scars: a little knot of flesh on her belly and a line down her back. Thelma was born with a birth defect, spina bifida, and had a shunt inserted into her body to draw away fluid that collects in her brain. Some doctors suspect that pollution in the Rio Grande caused the defect.

Pediatrician Carmen Rocco, then medical director of the Brownsville Community Health Center, agrees. She had plotted an unexpectedly high rate of spina bifida and other related birth defects on a map of the Brownsville area. “These clusters are where people live near pollution,” she says. Chronic, low-level exposure to polluted air and water, she suspects, may also either cause birth defects or trigger genetic susceptibility to them.

Like most medical problems attributed to pollution, the causes of the birth defects in Brownsville are almost impossible to document; there are too many factors to isolate. But it was not paperwork that convinced Rocco. It was her daily contact with grief.

“I realized that every day I had been seeing babies with heart defects, blood disorders, limb anomalies, and other deformities,” she said. “What was happening still is.”

“It’s been a hard time,” Alma Alvear said, while Thelma regarded me thoughtfully. “She’s had three operations on her head already. She’s scared of doctors.” Alma is only 22, but Thelma was her second baby with a similar defect. The first child died.

A breeze blew through pepper trees. Thelma climbed down, ran away, and brought her mother a doll to cuddle. I grinned at Thelma, but I didn’t feel like smiling at all.

**Cleanup hell** “One job can fill 12 dump trucks,” says Stephen Clingenpeel (right), who uses water to blast away zebra mussels, prolific European invaders, from a power-plant intake on Lake Erie. A worker at the Hanford Site nuclear-waste storage facility in Washington State (below) struggles to contain a seven-square-mile plume of groundwater-contaminating carbon tetrachloride—a possible human carcinogen.
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