

High Country News

September 28, 1987

Vol. 19 No. 18

A Paper for People who Care about the West

One Dollar



Engineer Peter Maier points to an outlet where sewage from Salt Lake City's new treatment plant enters the Jordan River

Sewage industry beats critic

Goliath 1, David 0

by Steve Hinchman

America loves the story of David and Goliath, in which a small but righteous person takes on and slays a dangerous, powerful foe. The nation is less fond of the far more common case, in which a large foe smashes a small challenger flat.

Peter Maier, an engineer in Salt Lake City, believes he is an example of the latter. In 1980, Maier took on what he calls the engineering-construction complex in Utah. He challenged the proposed building of three large sewage treatment plants to replace an array of smaller, local plants in the greater Salt Lake City area.

The Dutch-trained expert in sewage treatment believed the new plants were not needed and would do a worse job than the existing plants. Maier made his case forcefully, charging that the plants were based on poor science and that his fellow engineers were more interested in large fees than in clean water. Even those friendly to his cause said his science was better than his politics.

Perhaps for that reason, he lost the fight. Today, two of the three plants, costing together over \$180 million, are coming on line to treat the valley's sewage; the old plants are being closed.

While his fellow engineers supervise this massive public works project, Maier, at one time a top executive with Dutch and U.S. firms specializing in sewage treatment facilities, gets up four days a week at 4 a.m. to drive 85 miles into the desert to the U.S. Army's Dugway Proving Grounds. There he works as chief engineer until 5 p.m., when he begins the lengthy commute home.

Maier says it is unlikely he will ever get another job in civil engineering in Salt Lake City. It is also unlikely that he could get on at a sewage job elsewhere.

That is because his criticisms of the Salt Lake projects also go to the heart of America's national program. He says the complex of regulations and sewage treatment plants spawned by the Clean Water Act is a quiet Challenger explosion.

Maier is a renegade in Utah's professional engineering society. For three years he fought the state's water establishment over its water pollution-control program -- three years of fireworks, television coverage and turbulent public meetings.

For the Utah Water Pollution Control Bureau, it was three years of challenges where they had never been challenged before, three years of explaining and justifying their program to

(Continued on page 8)

Dear friends,



High Country News

HIGH COUNTRY NEWS (ISSN/0191/5657) is published biweekly, except for one issue during July and one issue during January, by the High Country News Foundation, 124 Grand Avenue, Paonia, Colorado 81428. Second-class postage paid at Paonia, Colorado.

POSTMASTER: Send address changes to HIGH COUNTRY NEWS, Box 1090, Paonia, CO 81428.

Tom Bell
Editor Emeritus

Ed Marston
Publisher

Betsy Marston
Editor

Judy Moffatt
Development

Rocky Barker
Craig Bigler
Peter Carrels
Katharine Collins
Bruce Farling
Patricia Guthrie
Regional Bureaus

C.L. Rawlins
Poetry Editor

Steve Hinchman
Editorial/Research

Diane Hackl
Intern

Ron Sunderland
Darkroom

C.B. Elliott
Circulation/Production

Peggy Robinson
Graphics/Typesetting

Mary Moran
Centerspread designs

Claire Moore-Murrill
Becky Rumsey
Production

Tom Bell, Lander WY
Michael Clark, Washington D.C.
John Driscoll, Helena MT
Jeff Fereday, Boise ID
Tom France, Missoula MT
Sally Gordon, Kaycee WY
Bill Hedden, Moab UT
Adam McLane, Helena MT
Kate Missett, Buffalo WY
Garett Ray, Fort Collins CO
Patrick Sweeney, Billings MT
Herman Warsh, Emigrant MT
Andy Weissner, Denver CO
Robert Wigington, Boulder CO
Board of Directors

Articles appearing in High Country News are indexed in Environmental Periodicals Bibliography, Environmental Studies Institute, 2074 Alameda Padre Serra, Santa Barbara, California 93103.

All rights to publication of articles in this issue are reserved. Write for permission to print any articles or illustrations. Contributions (manuscripts, photos, artwork) will be welcomed with the understanding that the editors cannot be held responsible for loss or damage. Enclose a self-addressed stamped envelope with all unsolicited submissions to ensure return. Articles and letters will be published and edited at the discretion of the editors.

Advertising information is available upon request. To have a sample copy sent to a friend, send us his or her address. Write to Box 1090, Paonia, Colorado 81428. Call High Country News in Colorado at 303/527-4898.

Subscriptions are \$20 per year for individuals. \$28 per year for institutions. Single copies \$1.00 plus \$1.25 postage and handling.

Direct to you

Circulation manager CarolBeth Elliott's crew of 10 stuffed, sealed, addressed and dragged to the Post Office the first 25,000 or so pieces of HCN's 1987 direct mail campaign. Another 50,000 will go out over the next few weeks.

Undoubtedly, some present subscribers received copies of the mailing. But that was not for want of trying. C.B. and Donna Gregory spent many hours vetting the lists we had bought or begged for this campaign. They pulled 2,000 HCN subscribers off the various lists, but undoubtedly a number of names escaped their notice.

Although 75,000 pieces may seem like a lot, it is modest when put in context. The usual return from a mailing is one percent, which means we expect 750 new subscribers. By comparison, HCN's renewal rate is 70 to 75 percent. That is high, but it still means we must find 1,500 new subscribers this year to stay at 5,800.

Assuming a one percent return, this direct mail campaign, which was funded with the help of a grant from the Beldon Fund in Washington, D.C., will pay for itself over the next two years. It is because of four years of such mailings that the paper has gone from 3,200 subscribers to 5,600, and is today relatively stable.

Such efforts, then, are necessary. Nevertheless, until those packets of postage-paid envelopes bearing new subscriptions have totalled 750, we will have our collective hearts in our collective throats. We tested the letter this spring in a 20,000-piece mailing. But if, for some unforeseen reason, the return falls short, we will be in some difficulty.

Speaking of mail, you should soon receive, on purpose this time, the annual High Country News Research Fund appeal. For those new to the paper, we should mention that HCN readers not only get to subscribe; they also get the opportunity to contribute to the tax-deductible fund which pays our editorial costs.

The Research Fund is the reason HCN can survive without advertising and without a subsidy from a membership organization. Last year 1,100 readers (out of 5,000) contributed \$73,000. Those contributions ensured the continuation, through this month, of HCN, which is owned and published by a non-profit corporation, the High Country Foundation. We hope you will help ensure the paper's continuation through the coming year -- our 19th.

Visitors

We enjoy all of our visitors, but we had a particularly delightful quartet come by on Sept. 17. They were George and Poppy Watkins of London, England, and their hosts, Keith and June Barrett of Carbon-dale, Colorado. For 27 years, George Watkins was Secretary of The Mountaineers Section of the Camping Club of Great Britain, and spent much of his time exploring the Alps. Now 82, he has traded vertical travel for horizontal travel, and is exploring the world below 9,000 feet. Anything above that elevation makes him queasy.

The Barretts knew the Watkins in their native England. Keith Barrett, an economist, once traded com-

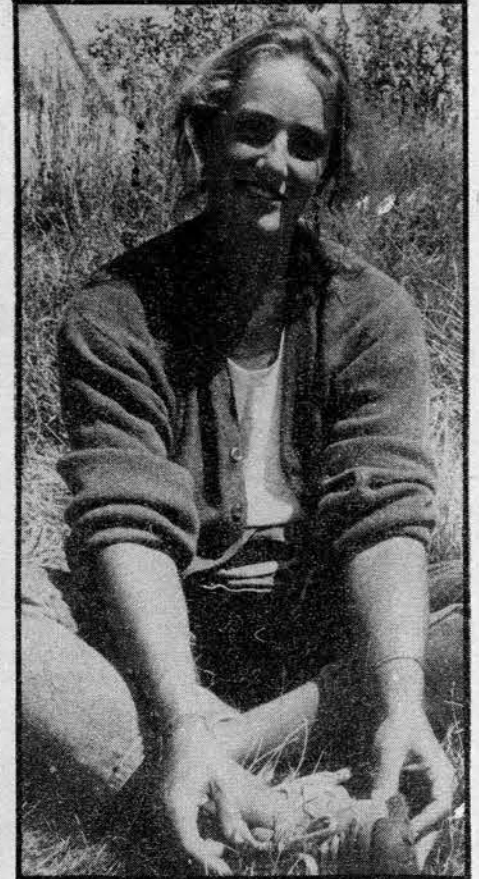
modities in Chicago. He now does the same thing, but out of his electronic cottage in rural western Colorado.

New Jersey native

A New Jersey native, HCN's new intern, Diane Hackl, came to Colorado in search of an education and open spaces. At the University of Colorado, Boulder, she dabbled in art history and English before pursuing a degree in environmental conservation. She was also active in the Wilderness Study Group, a student organization studying public land issues. That was her first introduction to both HCN and to whitewater rafting.

As a boatwoman in the desert canyons of the Dolores and Colorado rivers, she has worked for the past two summers with Humpback Chub River Tours, a small ecologically conscious company based in Dolores, Colorado.

During the summer of 1986, HCN staff escaped the office for a river trip with Humpback Chub and there met Diane, who brought them back alive. She then decided to combine the power of whitewater with the power of the pen by coming to Paonia for a three-month stint.



Diane Hackl

We were pleased to hear that Katharine Collins, HCN's summer 1986 intern, is now bureau chief out of Rock Springs, Wyo., for the *Casper Star-Tribune*. She replaces Paul Krza, who has moved onward and upward. He is now City Editor at the *Tribune*. Although the paper is based in Casper, it does an excellent job of covering the entire state.

Too-short shorts

There is a fear that the expanding tourist industry will devastate the rural West as thoroughly as earlier industries -- such as logging, mining and water development -- have done. So we were comforted recently to hear a presentation by an entrepreneur who will conduct covered wagon rides on Colorado's Black Mesa in the summer of 1988.

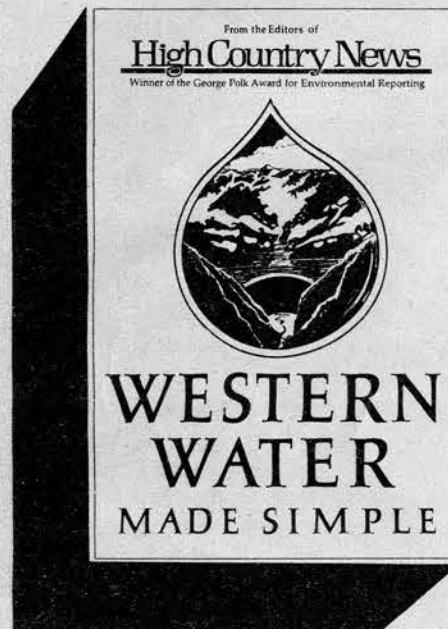
We were comforted because the brochure she handed out made it clear that the tourists will be kept in line. If all resorts in the West can be convinced to adopt the same rules, we will have very well behaved and interestingly dressed visitors. No more halter tops, too-short shorts, or clinging polyester slacks. On this six-day trip, everyone will have to dress in authentic period costume. "On the trail and when riding, females may wear jeans. However, long dresses and bonnets are a must for the evening meal."

Plus, "Pets, coolers, suitcases, radios and any other modern conveniences are not allowed. Use will require confiscation..." Finally, "This is a family affair and some families do not believe in the consumption of alcoholic beverages; therefore, the storage and consumption of alcoholic beverages will not be tolerated in or near the wagons, on the trail or within the wagon circle."

What happens if some swinger from L.A. smuggles in a six-pack? "Those who do not wish to abide by the above rules of dress code and alcohol consumption are in violation of the spirit of the ride, and will be asked to pack up and go home!"

The cost of the six-day ride is \$595 for adults and \$295 for those 12 and younger. For information, write to: Colorado Wagon Train, P.O. Box 73, Crawford, Colo. 81415.

--the staff



Book is born

HCN's first book -- *Western Water Made Simple* -- is not quite out, but it has already had its first review. Peter Wild, Professor of English at the University of Arizona, reviewed it in the September, 1987, issue of *U.S. Water News*. The book, a reprint of four water issues published last fall, will be out in a few weeks. Those who wish to beat the rush can send \$15.95 to Island Press, Box 7, Covelo, CA 95428; 707/983-6414.

Thanks!

Our thanks to Mark Pearson, a Sierra Club leader in Grand Junction, Colorado, for sending us three of the four missing issues we requested in the last Dear Friends. We can use a few backup copies of the missing issues, and we still have no 1982, No. 9, Vol. 14. If you like, we can send you full-size Xerox copies in return for the issues you send us.

Long-time readers of HCN will recall former editor Dan Whipple and former art director Kathy Bogan. They are now in Missoula, Montana, where Dan edits *Northern Lights* magazine, and where the couple produced, on August 27, 7-pound, 12-ounce Jacob. We wish the three-some well, and hope that all enemies of clichés will note that we said nothing about "a new edition."

WESTERN ROUNDUP

Loggers attack water rules as too strict

A consensus between Idaho conservationists and industry on compromise water quality regulations has rapidly disintegrated after a timber industry representative withdrew support.

Idaho conservation groups said earlier this month that they intend to sue the Environmental Protection Agency to force it to install federal water quality standards in Idaho. The coalition is initiating the suit after a timber industry representative said the industry would not support a proposed state anti-degradation policy. That policy was drafted by the Nonpoint Source Interagency Team, made up of staff from the Idaho departments of lands and health and Welfare, conservationists and industry representatives.

The coalition of environmentalists includes the Wilderness Society, Idaho Conservation League, Idaho Sportsman's Coalition and Dr. John Osborn of Spokane, Wash.

"We are being forced to take action to protect the Clean Water Act," said Tom Robinson, of the Wilderness Society in Boise.

The suit is to be filed in 60 days unless the EPA takes action, Robinson said. It will charge that the EPA has allowed the state to go beyond deadlines mandated by the law to set anti-degradation standards. The EPA disapproved the state's water quality standards but has been awaiting resolution of the issue by the interagency team.

Warren McFall, EPA Idaho water

section chief, said the agency has the authority to put federal regulations in place in the absence of adequate state regulations. He said he did not know how it will react to the suit.

"The past two years can be characterized by state foot-dragging, legislative interference and timber industry obstructionism," said Robinson.

Pollution from logging, ranching, farming, mining, construction and other activities, which can't always be traced directly to its source, is called nonpoint-source pollution. The primary problem that concerns the environmental groups in Idaho is sediment from soil erosion.

Road building and logging, for example, loosens soil, which then may be washed into streams, covering salmon-spawning beds.

Last week, Joe Hinson of the Idaho Forest Industry Council told team members that the timber industry could not support the proposed policy and would take every means to stop its approval, said Susan Martin, who is a water quality specialist at the Idaho Department of Health and Welfare, Division of Environment. That placed the precarious consensus process in doubt.

"It certainly is on rocky footing," said Martin. But the state, facing a legislative mandate to finish writing rules by February, plans to move ahead with public hearings on the antidegradation policy and implementation plan in October as planned.

"We felt from the workshops we got very strong opinions on both sides. We didn't get any alternative methods. We feel we are compelled to go forth with the proposal with some modification based on public input."

Hinson said the timber industry went into the rules-writing process with its options open.

"The result has such far-reaching land use and economic implications that we can't buy into it," he said.

Tim Crawford, an ICL board member who served on the interagency team, expressed frustration over Hinson's "last-minute" move. "I have volunteered hundreds of hours on this and I feel now like it has been a waste of time."

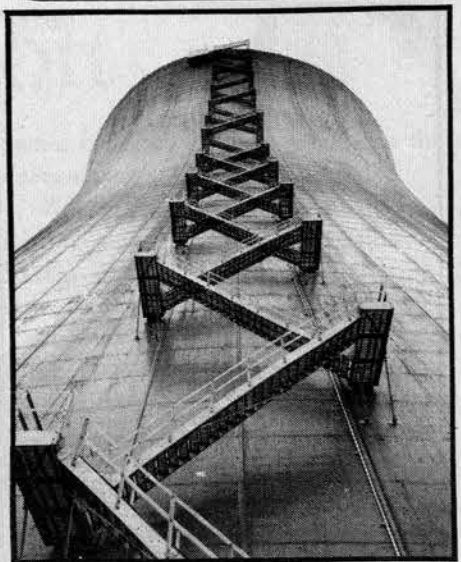
Hinson said the state regulations go beyond the Clean Water Act. The EPA Northwest Region staff is issuing verbal guidance to the state that is stronger than written guidelines completed by other regions, he said.

The Lake States region issued guidelines on antidegradation standards saying the EPA only had the obligation to ensure states comply with best management practices, said Hinson.

The antidegradation policy is meant to protect water quality so that beneficial stream uses can continue. These range from agriculture to steelhead spawning.

--Rocky Barker

HOTLINE



\$92 million war chest

The first settlement in the massive WPPSS (pronounced Whoops) bond-default lawsuit has been reached. It involves nearly 200 Wall Street firms that sold \$2.25 billion in bonds to finance construction of nuclear power plants for the Washington Public Power Supply System. The brokerage firms agreed to an out-of-court settlement to return the much lesser amount of \$92 million to the holders of bonds. Richard Lehman, treasurer of a citizens' bondholders committee, told AP the group will use the \$92 million to continue its lawsuits against WPPSS, the Bonneville Power Administration and the 88 other utilities that agreed to build the power plants. The utilities defaulted on the bonds in 1983, when cost overruns and the energy glut halted construction of the nuclear power plants.

Agencies join volunteers to improve fishing streams

Loggers, roadbuilders or too many cattle on a hillside usually means erosion, and silt-covered gravel beds in the streams below. And that usually means a loss of trout-spawning habitat. But now, with fishing a booming business in the West, federal and state agencies are starting to protect some watersheds.

In Colorado, for example, the state's Division of Wildlife calculates the economic impact of fishing at \$700 million per year. This is spent by more than 1 million resident anglers and 250,000 non-residents. Montana sees a total of about 350,000 fishermen on its lakes and streams and Wyoming about 300,000.

Last June in Denver, the state office of the Bureau of Land Management -- an agency not famed in the past for fisheries management -- signed a memorandum of agreement with the Colorado Division of Wildlife and Colorado Trout Unlimited to enhance fisheries on public lands. The agreement calls for identification of places where Trout Unlimited volunteers can join BLM funds and equipment to improve stream habitat. A similar agreement was signed two years ago between CTU and the Forest Service.

"Colorado was the first state where this partnership was formalized," said Dave Taylor, executive director of CTU. Two years ago the group's volunteers helped the Forest Service with 15 stream projects that the agency estimates were worth \$117,000. Last year there were some 40 projects valued at \$300,000.

Under the memorandum, the BLM will in some cases match donations raised by CTU from its members, its national group or other donors such as the Denver-based Gates Foundation.

One joint project underway is at Trout Creek, a tributary of the South Platte River where it meanders through the broad mountain valley called South Park. The creek was illegally channelized by Thornton, a Denver suburb, several years ago. The Thornton water department,

which had bought water rights on Trout Creek, blasted and dredged a channel through a wetland to increase drainage from the property.

Under an agreement to repair the damage, the city and BLM have put in a dike system, fish pond and duck-nesting island, said BLM biologist Erik Brekke.

"Then the idea evolved to where the Aurora Anglers Chapter of Trout Unlimited adopted it as a project area," Brekke added. This summer chapter volunteers planted 130 trees

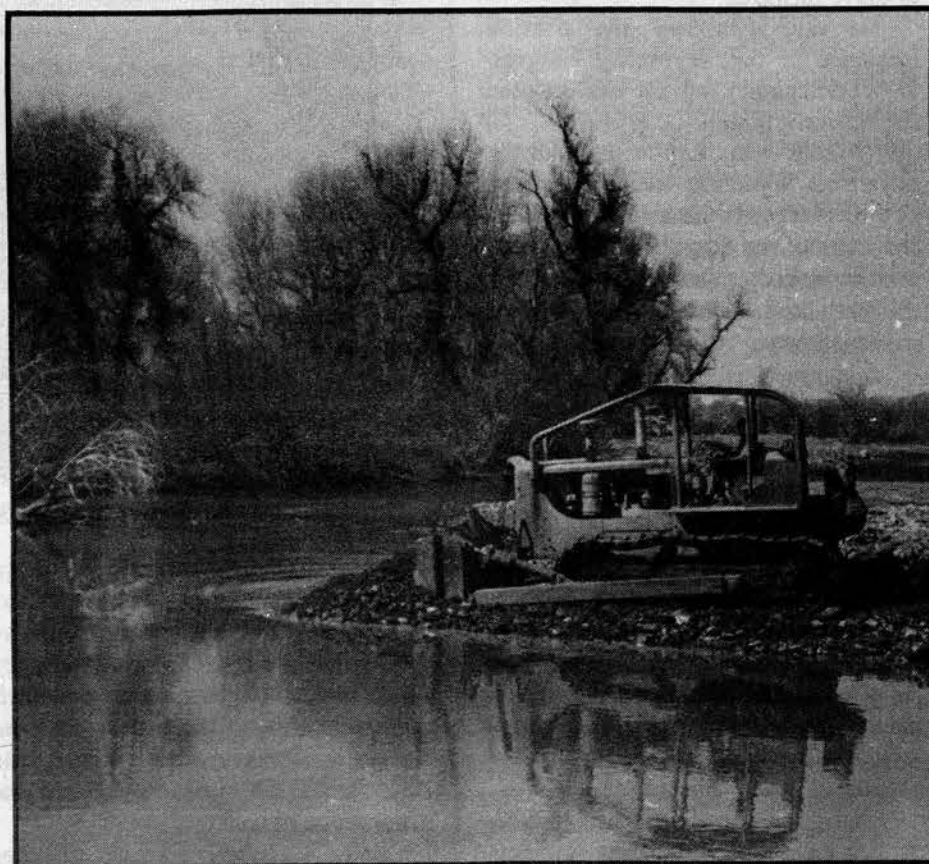
and shrubs at the site. "As these grow, this section of Trout Creek will be as much a wildlife area as a fishing area," he said.

Elsewhere in South Park, the Salida-based Collegiate Peaks Anglers Chapter of CTU has been planting trees and shrubs on Badger Creek, a tributary of the Arkansas River. Other projects have included building small log dams in mountain creeks to slow the water and create deeper fish-holding pools.

"If you can get the cows out and get vegetation back, you'll get more water in the creek and less evaporation," Brekke said. The plantings will be aided by new fencing and an agreement with the grazing permittee to turn cattle into the area only at controlled intervals.

--Chas S. Clifton

The writer is a sportsman and freelancer in Florence, Colorado.



Farmer dredges a river near Paonia, Colorado

BARBS

Move over, God.

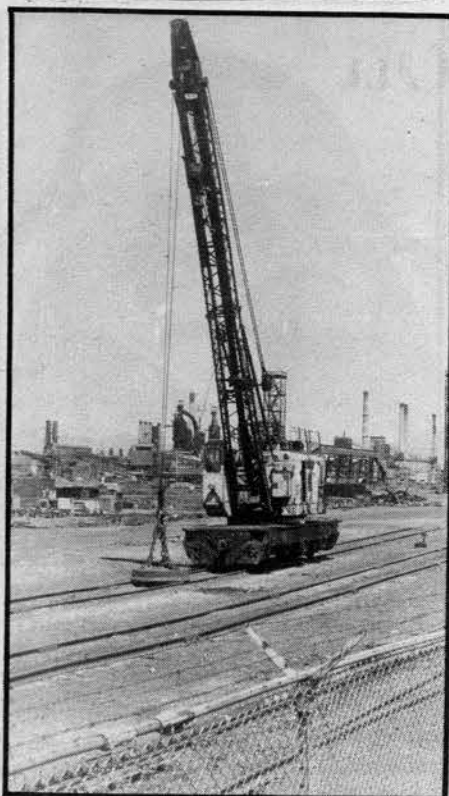
A geneticist with the Department of Agriculture says a new test now predicts grafting success, which means city-tough trees can be developed to withstand pollution, salt and herbicides.

Saturday morning television comes to the northern Rockies.

Starting next summer, USA Today will be printed in Salt Lake City for distribution to Utah, Idaho and Montana.

4-September 28, 1987 -- High Country News

HOTLINE



Geneva Steel, Utah

Re-steeling Utah

The old Geneva Steel plant in Orem, Utah, has reopened. Nearly 900 steelworkers and 200 office workers unemployed since last August are back on the job at the plant, which will now be called Geneva Steel of Utah. Although local officials and workers say they are ecstatic the plant reopened, only half the plant's old labor force is expected to be re-hired. All workers took a 30 percent reduction in wages to get their old jobs back. Basic Manufacturing bought the plant from USX Corp. for \$40 million -- \$30 million now and \$10 million to be paid from royalties out of the next two years' profits. That price is less than half the plant's estimated fair market value of \$86.9 million and less than USX's asking price of \$55 million (HCN, 2/16/87). However, the new owners also agreed to honor \$3.6 million in contracts previously held by USX, and will share up to \$20 million in environmental cleanup costs.

Egin-Hamer approved

A decision by Idaho BLM director Delmar Vail to allow a right of way for the controversial Egin-Hamer Road was upheld Sept. 21 by Robert Burford, director of the Bureau of Land Management. Vail said he will sign the Record of Decision that allows Jefferson and Fremont counties to build the nine-mile, farm-to-market road across key winter range used by 2,000 elk. The road, which will be closed from Dec. 1-March 31, cannot be built until the counties meet a BLM stipulation to guarantee the road closure. Several groups, including the Idaho Natural Resources Legal Foundation and the Shoshone-Bannock tribes, who appealed the decision, have vowed to file a suit.

BARBS

These two were kicked by the same mule.

U.S. News and World Report for Sept. 7 tells of Maria, an Atlantan in her 20s, who found herself terrorized, while driving, by a macho dude who swooped, swerved and slammed on his brakes in front of her in an effort to impress her. She told the magazine, "I realized I had a crazy person there. (So) I pulled out my .38 and laid it on the dashboard."

Fish and Wildlife Service abandons wolves

A statement by the U.S. Fish and Wildlife Service director that he will shelve a recovery plan for the Rocky Mountain gray wolf pleases stockmen but not conservationists.

But the regional FWS official who signed the wolf recovery plan said Dunkle's comments won't change the agency's management program.

Frank Dunkle, FWS director, said he won't request funding for the recovery plan, which calls for establishing 10 wolf packs each in northwest Montana and northcentral Idaho. It also recommended reintroducing wolves in Yellowstone National Park.

"I have no intention of recommending implementation of the recovery plan at this time," he said.

But John Spinks, FWS Mountain Region deputy director, said Dunkle did not mean the agency would drop its responsibility to protect and study wolves in the region.

"I think what he was talking about is reintroduction of wolves, which the service has no intention of doing," said Spinks. "Our focus is on those animals in Glacier (National Park)."

Janice Grauberger, a spokeswoman for the National Woolgrowers Association in Denver, said the decision was welcomed by stockmen.

She said she was pleased with Dunkle's recognition that the agency did not yet have an adequate wolf predation control program.

"I think that comment really represents a factual response on behalf of the Fish and Wildlife Service," Mrs. Grauberger said. "All that stockmen have ever asked for is that people take a common sense look at the reintroduction of wolves or the purposeful reintroduction of any predator where livestock are being raised."

Hank Fischer, of the Defenders of Wildlife in Missoula, Mont., said Dunkle's decision was virtually a "flip-flop" since the wolf recovery plan was signed a month ago by FWS Regional Deputy Director John Spinks.

"It politicizes the whole thing even more," Fischer said. "The way I see it, we still have a signed recovery plan that directs the agency to move forward."

He said it shows the political influence of the Wyoming congressional delegation, which has opposed the recovery plan.

"I think what happened was the guys from Wyoming called on Frank and he acted like the former chairman of the Republican Party he used to be rather than the director of the Fish and Wildlife Service he's supposed to be," Fischer said.

Dunkle is former chairman of the Montana Republican Party.

Pete Williams, press secretary for Rep. Richard Cheney, R-Wyo., said Dunkle's stand on wolf reintroduction has been well known. "That's pretty consistent with what Dunkle's said all along," said Williams.

In August, William Penn Mott, National Park Service director, said he would not initiate an environmental impact statement on Yellowstone wolf reintroduction without the support of Wyoming lawmakers.

Cheney has opposed wolf reintroduction from the beginning. Williams said Mott's role is more important now than Dunkle's.

BRIAN KENNEDY



This livestock-killing wolf weighed 107 pounds when shot by government trapper Ken Wheeler. That is nearly 20 pounds more than when it was captured and fitted with

a radio collar in early July. Wheeler shot the wolf from a helicopter near the Dan Geer ranch in northern Montana, where sheep and cattle were killed.

BRIAN KENNEDY



Wolf's paws were almost as large as a man's hand.

"He hopes it's a done deal," Williams said of Cheney.

Dunkle said the federal agency will start a cooperative effort with the state, the Forest Service, the National Park Service and the Blackfoot Tribe to review the natural occurrence of wolves.

Both Grauberger and Fischer predicted that the Yellowstone reintroduction plan was not dead.

Fischer said the controversy has really helped the wolf in the long run.

"It's healthy," said Fischer. "It's got the information out on wolves and it has started the discussion that had to happen and has to continue. We've said all along that this is a long term project."

--Rocky Barker



CAPITOL HILL

A Wyoming pack pulls down Mott

by Andrew Melnykovich

WASHINGTON -- On a beautiful spring day in 1985, newly appointed National Park Service Director William Penn Mott sat on the front porch of the superintendent's house in Yellowstone National Park and talked about his goals for the agency.

Mott's ideas were a startling departure from the policies set for the Interior Department by a succession of Reagan administration ideologues.

He proposed significant additions to the national park system. He spoke of managing human use in order to prevent rampant commercialization that would destroy those things the parks were created to preserve.

The next day, Mott reiterated those ideas in a speech to the Greater Yellowstone Coalition, the organization dedicated to preserving the integrity of the ecosystem centered on the world's first national park.

The conservationists, accustomed to Reagan administration officials who would barely listen to them, were startled to find that Mott not only was willing to hear them out, but that he actually agreed with them more often than not. And they were astonished when they heard what the new park service director had to say about bringing wolves back to Yellowstone.

Yes, Mott said, the wolf is a key element that is missing from the Yellowstone ecosystem. And yes, Mott said, he would favor reintroducing wolves to the park. Mott's position on wolf reintroduction delighted his listeners. But many of them doubted Mott's ability to convince either the Reagan administration or Congress to approve wolf reintroduction.

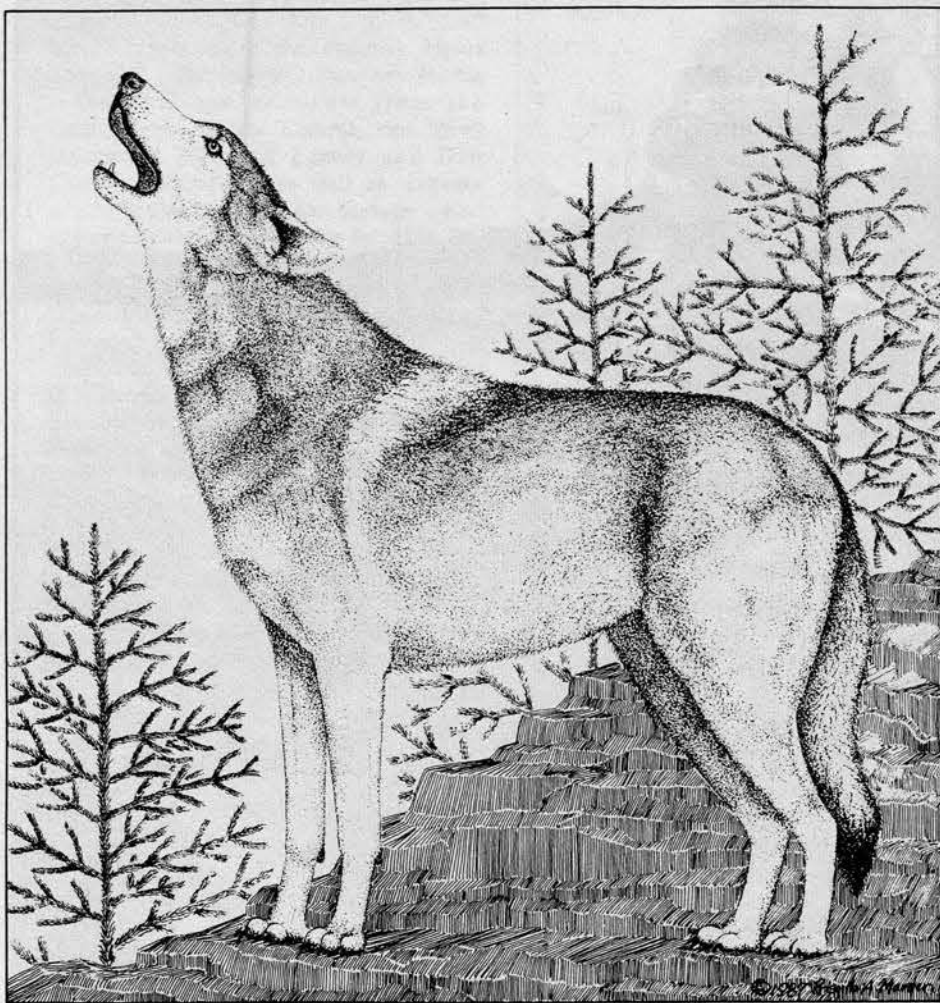
No other top Interior Department official favored wolf reintroduction, and many opposed it, the skeptics said. Mott was on a collision course with the livestock industry and its powerful friends, the Wyoming congressional delegation.

Sens. Malcolm Wallop and Al Simpson and Rep. Dick Cheney, all Republicans, had raised all of the usual arguments about inadequate protection for livestock owners, the ability of wolves to eat their way through big game populations, and the spectre of federal bureaucrats and out-of-state environmentalists teaming up to foist an unwanted predator on an unwilling local populace.

Wait a couple of years and see how far Mott has gotten with this wolf idea, the doubters said.

It has been two years, and the verdict is in. The pessimists were right. This summer, in a span of no more than five weeks, hopes for wolf reintroduction into Yellowstone came crashing down. They were done in by obdurate opposition from the expected sources, political naivete on Mott's part, and, exquisitely bad timing by a pack of wolves in northern Montana.

This is what happened. By mid-summer, the U.S. Fish and Wildlife Service was close to fulfilling its legal obligation under the



Priscilla Marden in Biolog, Teton Science School, Kelly WY 83011

Endangered Species Act to produce a Northern Rocky Mountain Timber Wolf Recovery Plan -- the outline for any future effort to bring the wolf back from endangered or extinct status in Montana, Idaho, and Wyoming.

The wolves themselves were cooperating in the recovery effort. A few had moved down from Canada and established the "Magic" pack in and around Glacier National Park in Montana. There were also reports of wolves in northern Idaho. If wolves could be brought back to Yellowstone, the three stable populations called for by the recovery plan might be within reach. Wolf supporters had reason to be optimistic.

Two meetings on July 31 set the stage for the demise of wolf reintroduction. In the first meeting, Sen. James McClure, R-Idaho, tried to persuade the Wyoming delegation to go along with the recovery plan. While he is not a wolf enthusiast, McClure had practical reasons for supporting the plan. The plan would allow those affected by wolf recovery, especially ranchers, to have a say in how the animals are managed, McClure argued. And it would give ranchers more flexibility in dealing (read: killing) with marauding wolves, he said.

At the same meeting U.S. Fish and Wildlife Service Director Frank Dunkle stated his opposition to wolf reintroduction. He had delayed the recovery plan as long as he could, but the agency was legally obligated to approve the document, Dunkle explained. He assured the delegation that the USFWS would take no steps toward reintroducing wolves into Yellowstone. The session with McClure did not advance the prospects for bringing wolves back to Yellowstone. The second meeting of the day set them back.

Mott, Dunkle, and Assistant Interior Secretary William Horn listened as the delegation again made it clear that the recovery plan

should not be implemented after it was signed. Wallop, Simpson, and Cheney were particularly concerned that Mott would set the plan in motion by asking permission for the NPS to begin working on an environmental impact statement on wolf reintroduction into Yellowstone. The delegation made it clear that it did not want an EIS. Dunkle repeated his assurances that the USFWS would not push for wolf reintroduction. Horn, who is both Mott's and Dunkle's direct superior, reportedly promised that there would be no EIS unless the delegation dropped its opposition. That is the commitment the delegation relied upon.

Mott's lack of overt disagreement with Horn was interpreted as acquiescence.

The recovery plan was signed a few days later, but Mott seemed unwilling to accept political reality. He did not back away from his long-standing support of wolf reintroduction, and he publicly described the Wyoming delegation as the biggest impediment to bringing the wolf back to Yellowstone.

Matters came to a head when Mott, in an interview with the *Casper Star-Tribune*, proclaimed his readiness to go ahead with an EIS even if he was unable to convince the delegation to drop its opposition.

The response was instantaneous.

Cheney, who had kept a relatively low profile on the wolf issue, fired off an unusually harsh letter to Interior Secretary Donald Hodel, essentially asking Hodel to jerk Mott back into line. Mott, seeking to calm the waters, asserted that he had been misquoted -- a claim which did nothing to restore his credibility with the Wyoming delegation.

More significantly, Mott also reversed field and said that the reintroduction idea was "on hold" until the Wyoming delegation gave its go-ahead. Unwilling to abandon the cause entirely, Mott said he

would continue to try to persuade the delegation to change its mind.

All of the controversy in Washington was played out against a background of real-world wolf problems in Montana.

A pack of three adult wolves and three pups had taken up residence on the Blackfoot Indian Reservation east of Glacier National Park. Because the reservation is nearly devoid of big game, the wolves had taken to preying on livestock. Federal predator control agents began trying to trap the wolves. They failed. The agents then tried to catch them using nets and helicopters. Even though one of the wolves was wearing a radio collar, making it easy to find, the animals avoided capture. Finally, after the wolves had killed about a dozen sheep and half as many cows, the order went out to shoot them. That worked.

Wolf opponents seized on the Montana problems as evidence of the impossibility of controlling wolves. The Montana wolves became living proof that the ranchers' worst fears would be realized if wolves were brought back to Yellowstone. Dunkle himself bought into that line of reasoning, saying that the USFWS would focus on learning more about the Montana wolves and how to manage them. The Yellowstone reintroduction plan would be abandoned, with no immediate prospect of revival, he said.

Thus, barely a month after the wolf recovery plan was signed, it was consigned to some obscure file drawer.

It seems destined to sit there, not to be dusted off unless the Wyoming delegation changes its membership or its collective mind, or until the advent of an administration with the courage to proceed despite their opposition.

HOTLINE

Mines get go-ahead

Energy Fuels Nuclear, a Denver firm with ties to the Swiss nuclear industry, received the go-ahead for a controversial uranium mine and announced plans to seek approval for another. Both mines are on public land near the Grand Canyon. On Aug. 28 the Forest Service denied appeals filed by a number of environmental groups and Indian tribes to stop the opening of Energy Fuel's Canyon Mine, six miles south of Grand Canyon National Park. The company has claimed nearly a million acres of land on both rims of the Grand Canyon since 1979, and is in the process of mining seven sites north of the canyon. The decision came as no surprise to activists, whose opposition climaxed with two demonstrations this summer at which 26 members of Earth First! and Canyon Under Siege were arrested. Environmentalists say the developments will industrialize the remote lands that surround the Grand Canyon. All groups involved intend to appeal this latest decision. Meanwhile, Energy Fuels issued a press release recently that indicated it had discovered another ore body six miles north of Grand Canyon National Park.

On the North Platte: a fish kill to end all fish kills

Early on the morning of April 1 this year, Natrona County Sheriff Ron Ketchum wheeled his truck up to a bridge that spans the North Platte River some 21 miles southwest of Casper, Wyo. He got out, sniffed the air, and peered down into the waterway.

"It smelled just like a refinery," he remembered later. "You could see the sheen of gas on the water."

The sheriff was the first to see that a 14-mile section of the North Platte, that high-plains haven for rainbow and brown trout, was strangling. The killer was a spill of more than 90,000 gallons of gasoline that escaped from a ruptured pipeline and bubbled nine miles down a dusty arroyo into the river.

It began in the dead of night, and before it was all over some 37 miles of the North Platte would become contaminated, killing more than 100,000 trout.

The sagebrush-lined river is a spectacular fishery. "Portions of the North Platte have the highest standing crop of trout per mile of any river of comparable size in the country," said Bill Wicher, an area fisheries-management supervisor for the Wyoming Game and Fish Commission. His task now is restoring the fishery. "The fish productivity here used to beat the hell out of the more famous western rivers like the Madison and the Big Hole," Wicher said.

In the 13.7-mile section immediately downstream from Bolton Creek, an intermittent waterway through which the gasoline entered the river, the North Platte was estimated to harbor 5,500 rainbow and brown trout *per mile*. Included were many in the 5-10 pound range, and brown trout up to 14 pounds were found dead following the spill. In the Grey Reef section of the river just nine miles upstream, the river holds more than 14,000 rainbow trout per mile -- a staggering ton of fish for each quarter-mile of shoreline.

It was a telephone call to the sheriff's dispatcher from a passing trucker, who reported strong gasoline fumes at the Government Bridge, that brought Ketchum and his deputies to the water's edge at 7:45 a.m. that April Fool's Day.

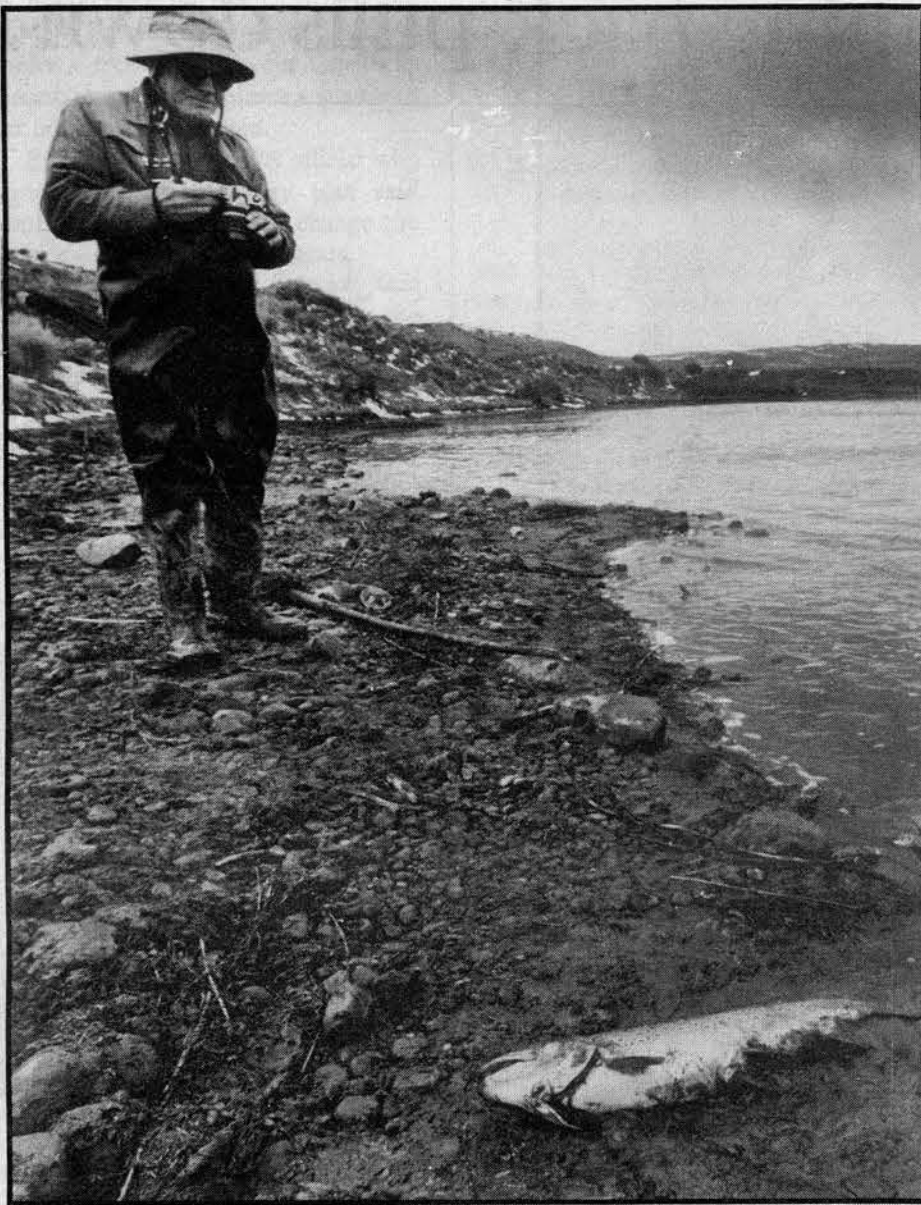
Law enforcement agents followed the gas trail several hundred yards upstream to the confluence with Bolton Creek, then upland for several miles. An airplane pilot confirmed what appeared to be a ruptured pipeline shortly after 9:00 a.m. that morning.

It was later learned that the pipeline was shut down at 5:12 p.m. the previous afternoon by employees of the Continental Pipeline Company, a subsidiary of Conoco. They did that after a drop in pressure was recorded on Conoco's home office computers in Houston, Texas.

But while Conoco spokesmen have claimed that air and ground teams were out searching for the leak almost immediately, it remained for a wandering trucker to pass the bad news to local officials the following morning.

Sheriff Ketchum expressed concern that word of the gasoline spill came as such a surprise and from such an unlikely source. "I did have a problem with the time lag," he said. "If they would have notified us sooner, I would have been able to

Rick Sorenson, Casper Star-Tribune



Wyoming Game and Fish staffer Dick Keeney checks for dead fish

along the Platte River

commit more manpower to the situation."

Conoco spokesman Tom Hannigan said the pipeline was shut down within a minute after the leak was detected. He said the company acted properly under the circumstances. "We had a very reasonable belief that it was not a large leak," he told the *Casper Star-Tribune* three days after the spill. "We have every reason to believe we acted as expeditiously and conscientiously as we could in detecting the leak. All proper notification to federal and state authorities within the prescribed timeline was done."

Rancher Bill Sternberg owns riverfront property 13 miles below Bolton Creek at a place known as the Narrows. He first heard reports of the spill on the radio while shopping in the neighboring town of Douglas, some 60 miles east of Casper. He hurried home, and within a day the fish in his backyard began to die.

Sternberg and his wife, Georgia, began a salvage operation, gathering hundreds of the trembling trout from eddies and placing them in an aerated, 550-gallon stock tank. The couple even filled their bathtub with trout. Out of the several hundred fish they managed to rescue, however, fewer than a dozen would make it.

From Bolton Creek to the Narrows, an estimated 95 percent of the 78,000 trout larger than six inches eventually bellied-up to the surface, dead.

"The worst part was watching them die," Georgia Sternberg recalled. "They were quivering and shaking, and you knew there was nothing in the world you could do for them."

Her husband, who recently reached a financial settlement with Conoco

concerning damage done to his land, estimated that some 2,700 dead trout lined a one-third mile stretch of shoreline below the Narrows. "Some of 'em were just fingerlings, and some would have reached to your knees," he gestured glumly.

One of the reasons for the knee-high North Platte trout is the natural productivity of the river. The abundant mayflies, caddis flies, stone flies, leeches, crustaceans, and suckers provided excellent forage for the trout, contributing to the classification of the upper 18.5 miles of the river affected by the spill as "Blue Ribbon, Class 1 water." That is the highest quality of trout stream in a state noted for its fine fishing waters. "Premium trout waters and fisheries of national importance," is how the Game and Fish Commission phrases it.

The cleanup of the disaster, which Conoco called the worst gasoline spill in its history, began almost immediately. Gasoline-trapping skimmer booms, absorbent booms and vacuum trucks were sent to several locations along the river. Cleanup efforts were aided by the discharge of 1,500 cubic feet of water per second from Alcova Dam some 10 miles upstream from the spill, more than four times the normal release. Out of the 2,172 barrels of gasoline lost, however, only 87 were recovered. The rest journeyed in the river's swirls to Nebraska.

Although Wyoming Gov. Mike Sullivan likened the event to "an act of God" while touring the river shortly after the spill, others disagree. One is Gary Wren, a Casper outfitter and fishing guide, who has enlisted the help of the Jackson, Wyo., law firm of Spence, Moriarity and Schuster in filing a class-action lawsuit against Conoco.

"My contention is that Conoco was asleep at the switch," Wren said angrily. "How they could go 17 hours without locating the spill, not inform anybody, and have the sheriff's people locate it by accident within two hours is just unbelievable."

Wren said the spill wrecked 75 percent of his outfitter business. "I'm tired of dead trout in the river, and I'm tired of everybody just shrugging this off as an unfortunate incident," he said. "Conoco dropped the ball any way you look at it, and somebody has to make a stand."

Unfortunately, the dead trout included most of the 10,000 ten-inch cutthroats the Wyoming Game and Fish Commission had finished stocking in that area of the North Platte only the day before the spill.

Following the clean-up, some 36,000 trout, including 5,000 two-pound cutthroats, 21,000 catchable-sized browns and 10,000 10-inch rainbows, were poured into the dead zone. An evaluation of the gasoline's impact on invertebrate life forms in the river is continuing, although preliminary findings suggest the food base may be coming back.

Fish counts of the North Platte River done both before and after the spill allowed biologists to make what they consider accurate estimates of losses. They were high; this August the commission reached a \$332,520 settlement with Conoco.

The agreement includes Conoco paying \$132,520 to the state to cover re-stocking and rehabilitation of the river; \$50,000 to cover follow-up studies by the commission; the deeding of two parcels of land just above the Narrows by Conoco to the commission (totaling about 1 1/4 miles of shoreline and valued at \$50,000 for public fishing access; and the establishment of a \$100,000 mitigation account by Conoco to be used by the state to develop that land.

Dick Keeney, an information officer for the Wyoming Game and Fish Commission for the past 25 years, believes that the affected part of the North Platte will return to its productive state in 3-4 years, although it will likely take at least a decade for the trophy fish to return.

He is less confident, however, about the future of the rivers that crisscross the state's midsection -- many of which meander over the massive petroleum fields underlying the lunar western landscape.

"Central Wyoming has gas and oil pipelines running in all directions," Keeney noted. "I hate to think about it, but we are going to see more of this type of thing."

--Jim Scott

Jim Scott is a freelancer whose first book, *Pikes Peak Country*, was published recently by Falcon Press of Helena, Montana.

BARBS

How about, "Get it while it lasts"?

The state of Montana is seeking a successor to its current slogan, "Naturally inviting." Earlier slogans were "Big Sky Country" and "Last of the Big Time Splendors."

BULLETIN BOARD

NORTHERN ROCKIES RENDEZVOUS

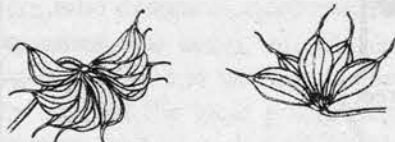
The Badger Chapter, a Montana-based conservation organization, hosts its second annual *Northern Rockies Rendezvous* at the University of Montana in Missoula, Oct. 13-15. The theme of the conference is *Conservation of Wildlife and Wildlands in the Northern Rocky Mountains*. Speakers Gilbert Lusk, Superintendent of Glacier National Park, Bernie Lieff, Superintendent of Waterton National Park, and representatives from the Flathead and Lewis and Clark national forests will focus on the Waterton/Glacier International Biosphere Reserve. Resource experts, conservationists, state and federal officials, spiritual leaders, lawyers and citizens will also examine grizzly bear de-listing, wolf recovery, the Yellowstone ecosystem, logging on the national forests and federal land law. Registration is \$2. For more information contact the Badger Chapter, P.O. Box 8374, Missoula, MT 59807.

WORKSHOP FOR TEACHERS

The Teton Science School will host a teacher's workshop titled "Topics in Natural Science" in the Grand Teton National Park, Oct. 15-17. The school's staff and visiting faculty member Kim Fadiman will offer the workshops on pattern in nature, using a museum collection for teaching biological concepts, bringing nature into the classroom and describing rivers. Tuition is \$75 for the entire course or \$30/day. Credit is available. For more information contact Teton Science School, P.O. Box 68, Kelly, WY 83011 (307/733-4765).

SHORT DURATION GRAZING

Allan Savory, developer of the Savory Grazing Method and head of Holistic Resource Management, developed the elements of his approach to intensive stocking and rotation of livestock in southern Africa based on his observations of African wildlife and of livestock (HCN, 4/27/87). In the August 1987 issue of *Rangelands*, Certified Range Consultant Jon Skovlin, in an article titled "Southern Africa's Experience with Intensive Short Duration Grazing," writes: "Claims for range improvement in southern Africa through intensive Short Duration Grazing at double conventional stocking rates are not founded in fact. To the contrary, evidence in literature from Zimbabwe and elsewhere in southern Africa indicates that it is impossible to have both heavy stocking and improvement in range conditions." In his paper, Skovlin said he was "amazed", on his recent return to the U.S. from three years consulting in sub-Saharan Africa, at the interest here in Savory's approach. His paper is a review of the Savory Grazing Method based on the six major concerns he found in southern Africa. They were: claims for range improvement, stocking rate, duration of grazing and rest, number of pastures and paddocks, the paddock configuration, and finally the "herd effect," which involves the hoof chipping of crusted soil, the laying of litter, seed planting and the dunging effects. The author's address is: P.O. Box 2874, La Grande, OR 97850.



SOIL, NOT DIRT

"Come learn to quit treating our soil like dirt!" say Jerome Osentowski and Michael Wenger, who will lead a 10-day permaculture course in Basalt, Colo., from Oct. 10-19. Osentowski was head gardener for a permaculture project at the Aspen Community School for two years and now runs an organic gardening business. Wenger was the first president of the Hawaii Permaculture Association and an instructor since 1982. Their course will cover principles of permaculture, marketing strategies, companion and succession planting, greenhouse structure, composting, wild plants and seed collection. Tuition is \$500 and includes organic meals, lodging, course materials and field trips. Contact Jerome Osentowski P.O. Box 631, Basalt, CO 81621 (303/927-4158).

RISK OR OUTRAGE?

The City of Phoenix and the University of Missouri Science Journalism Center are sponsoring a one-day symposium on *Groundwater Quality: Reporting on Risk*, Oct. 6 from 7:45 a.m. to 5 p.m. at the Phoenix Hyatt Regency. The event features media representatives, scientists from the Centers for Disease Control, the Environmental Protection Agency and Dow Chemical Company, as well as experts in hydrology, risk assessment and environmental law. Keynote speaker Dr. Peter Sandman from Rutgers University in New Jersey will address the question, "Can journalism distinguish risk from outrage?" Other topics include an overview of problems encountered by the media in covering environmental issues, the effects of hazardous chemicals on drinking water and public health, and a hypothetical groundwater contamination case-study. Other sponsors include the Freshwater Foundation, the Nebraska Groundwater Foundation, the National Water Well Association, the Dow Chemical Co., the EPA and the Arizona School of Journalism. Preregistration is \$80 and \$10 for students. For further information contact Vicki Suazo at Groundwater Seminar, 1625 Eye St., N.W. Suite 500, Washington, D.C. 20006 (202/429-3417).



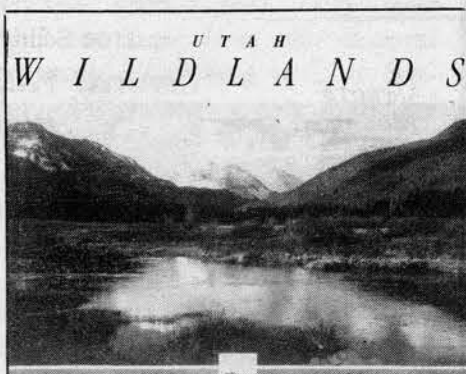
PACKED WITH WILDLIFE

Packed with dramatic photos of wildlife, the Sept.-Oct. issue of *International Wildlife* features stories on orcas, earth's vanished mammals, captive apes exploring the wild, satellite tracking of wildlife, Japan's Mt. Fuji, and much more. We mention all this because the bimonthly magazine published by the National Wildlife Federation is consistently interesting. An annual subscription is \$15 from International Wildlife, 8925 Leesburg Pike, Vienna, VA 22184.

LOOKING AT THE WOLF

Looking at the Wolf, by Bruce Thompson and the Teton Science School staff, is a concise little book for all ages derived from the Teton Science School's journal, *Biologue*. It contains good illustrations and short essays on wolf society and wolf recovery prospects.

Roberts Rinehart, Inc. Publishers, P.O. Box 3161, Boulder, CO 80303. Paper: \$3.95. 12 pages. Illustrations and photos.



UTAH WILDLANDS, volume 3 in the Utah Geographic Series, is now available. This beautiful 112-page book features more than 90 color photographs, eight color maps and more than 30,000 words of text by author Stewart Aitchison about wilderness and proposed wilderness in the diverse vastness of Utah's Great Basin, Colorado Plateau and Rocky Mountain physiographic provinces. Send \$15.95 plus \$1.00 for postage (\$16.95 total per softbound book) or \$25.95 plus \$1.20 postage (\$26.15 total per hardbound book) to: Utah Geographic Series, Box 8325, Salt Lake City, Utah 84108. Money-back guarantee if not fully satisfied.

INTERN WANTED at *High Country News* Dec.-Feb. You will learn to write and rewrite, pore over daily bags of mail and soak up Western natural-resource issues. Workaholics with senses of humor are encouraged to apply. Sorry, no stipend. Send resume and writing samples to HCN, Box 1090, Paonia, CO 81428.



A SENSE OF PLACE

Clinton Roeber was born in 1919 in the Paonia area of western Colorado and has been there ever since. He knows the land, the cows it can support and has put in several years of underground coal-mining to support the family ranch when things became tougher than usual. This little book contains recollections and stories of his father, Gus, ornery horses and favorite dogs, bear encounters, elk and deer hunts, and colorful characters. Roeber's daughter, Denise Kossler, compiled the stories in *West Elk Tales*, which is available for \$6.95 from Clinton Roeber, 1260 4250 Rd., Paonia, CO 81428. The 103-page paperback is illustrated with photos.

ACCESS

NEAT STUFF

RECYCLED PAPER. Free color catalog of environmental notecards and recycled office and printing paper. Samples enclosed. Earth Care Paper, 325-191 Beech Lane, Harbor Springs, MI 49740. (4x15p)

BE THE FIRST on your block to own a t-shirt that says "January 19, 1989," on the front, against a backdrop of smiling faces, and, on the back, "Ron's Last Day," with the same smiling faces. \$10 pre-paid from Mobile Bay Area NOW, P.O. Box 8834, Mobile, AL 36689-0834. S, M, L, XL in aqua, yellow, lavender, and raspberry, in a 50-50 cotton-polyester blend.

CLASSIFIED ADS cost 20 cents per word, pre-paid, \$5 minimum. General rates for display are \$6/column inch camera-ready; \$8/column inch if we make up. For ad rate brochure, write HCN, Box 1090, Paonia, CO 81428 or call 303/527-4898.

LAND

20-ACRE patented mining claim above Silverton, Colorado. Road and Animas River through property. Terrific views, possible cabin sites, mineral value, \$9,500, 303/247-0914. (3x17p)

FOR SALE: Western Colorado Peach Orchard/Vineyard. 9 1/2 acres with 2300 s.f. house. Solar, sunroom, deck, barn. BLM access. Views. \$167,000. 303/464-5386 (recorder). 3695 F Road, Palisade, CO 81526. (2xp)

NORTH CASCADES RANCH. Premier 4-Season recreation area. 1814 acres border Methow River, state, USFS land. Custom home, all amenities. Ideal environmental retreat, private hideaway, luxury guest ranch. Seller will work with environmentally oriented buyer. \$2,000,000. Contact Mary Jensen for color brochure. Alpine View Realty, Route 2, Box 6, Twisp, WA 98856, 509/997-6562. (4x17p)

HELP

BOUNDARY CONSULTANT specializing in boundary line disputes, resurvey conflicts with BLM or Forest Service. Expert records research and field investigations. Contact Ginger Hite. 303/443-5391. (6x18p)

WYOMING WRITERS AND ARTISTS

The Owen Wister Review, the University of Wyoming's literary and art magazine, is accepting submissions for the Spring 1988 issue. The issue will feature work by C.L. Rawlins, poetry editor of *High Country News*. Poetry, fiction, essays and art (black and white preferred) should be sent to Box 4238, University Station, Laramie, WY 82071 by Oct. 31. Please include a SASE. Pay is in copies of the publication.

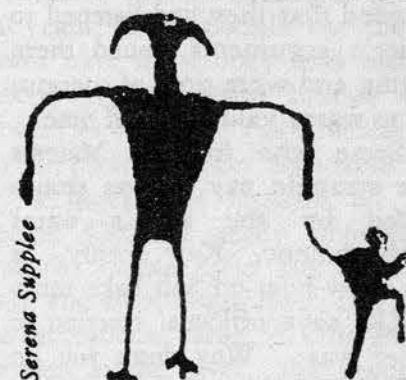
PRESIDENT

Defenders of Wildlife

A NATIONAL NONPROFIT environmental organization seeks a President and Chief Executive. Headquartered in Washington, D.C. with regional offices throughout the country, Defenders of Wildlife (DOW) has a \$3.5 million budget, a staff of 35, and about 80,000 members. DOW seeks a president who can articulate the organization's mission and provide leadership to its staff, the environmental community, and potential donors. Managerial and fundraising skills are essential prerequisites for the position. Salary commensurate with experience. Interested persons should send a letter of application including a vision of the organization and its priorities, a resume, and list of references to: Dr. Stephen Kellert, Chairman of Search Committee, Defenders of Wildlife, 1244 19th Street, N.W., Washington, D.C. 20036. Deadline for application: October 19.



SUBSCRIBE ONE YEAR/24 ISSUES



\$20/INDIVIDUAL
\$28/INSTITUTION

SEND YOUR ADDRESS AND CHECK TO
High Country News

Box 1090
PAONIA
COLORADO
81428

Goliath...

(Continued from page 1)

the public, three years of delays.

Maier quickly became the bane of the agency and of other officials involved in putting together the planned \$300 million expansion and upgrade of the Salt Lake valley's sewage treatment system. Observers say officials were most angered by Maier's charge that the projects could be built for half the cost, if they needed to be built at all.

Maier won a few battles. But in the end he lost the war. What may have ruined him was lack of outside support -- public, professional and political.

Part of the problem was his rapid-fire delivery of complex technical arguments. Few who were not trained in bio-chemistry could follow his arguments at public meetings, on television or in interviews with the print media. And it seemed that those who did understand were not talking. A technical smokescreen enveloped Maier and the issues he raised.

Pete Hovingh, a biologist with the University of Utah and co-chair of the environmentalist Inter-Mountain Water Alliance, says he found it difficult to understand the issue even though it was related to his own field.

Hovingh also says, "After reading Maier, I didn't want the (1987 amendments to the) Clean Water Act to pass, and that's like being against god and motherhood as far as the environment is concerned. The Clean Water Act funds jobs and construction companies. The environmentalists don't understand it, the engineers don't understand it. All you really see is big bucks going for construction, which everybody understands."

Maier never managed to remove the technical confusion around the issue. Instead, the conflict turned nasty when he alleged nest feathering and professional malpractice. At that point, state water officials responded that they had listened to Maier's arguments, found them lacking and were tired of continuing to waste valuable staff time.

Some who followed Maier's lone struggle say he was stonewalled by the state's water establishment. Kay Henry, a talk-show host on Salt Lake radio KTKK, says officials' reaction to Maier was: "Why don't you go curl up and die."

Maier has a point of view they don't want to look at," she says. "That makes him a dangerous person. If he's right, they're wrong, and bureaucrats handling multimillion dollar budgets shouldn't be wrong."

Maier's best opportunity to prove his point hit a bureaucratic brick wall. In 1984, the Utah Governor's Science Council

*Thanks to the Clean Water Act,
this environmental-industrial complex
has an open door to the federal treasury.*

agreed to tackle the subject, and formed an investigative committee. Its members included the assistant director of the state Water Pollution Control Bureau, professors and others in the field.

The committee concluded that the Utah Water Pollution Control Bureau was correctly managing the sewage program. But it also recommended that for six months the bureau conduct alternative tests to the standard BOD-5 test. The BOD-5 test, a major target of Maier's criticism, is the test used to test sewage and to design plants. After the six months, the committee said, it would review the results of the additional testing.

To date, the water bureau has not conducted the requested tests.

In a 1986 meeting with the bureau, director Ken Alkema told Maier that not one staff member in the department agreed with his ideas. Lowell Palen, a sewage plant equipment contractor present at the meeting, and one of the few people in the industry in Salt Lake to support Maier, said, "I came to the conclusion after that meeting that Peter was beating a dead horse with those guys."

Other professionals were silent and Maier says that crippled him. "The people in the field say it's a political issue. I have always claimed that you cannot expect laymen to understand it; it's a professional issue."

Kay Henry suggests the lack of professional support was indeed political: "The government is the name of the game in this area, in terms of who is going to get what work."

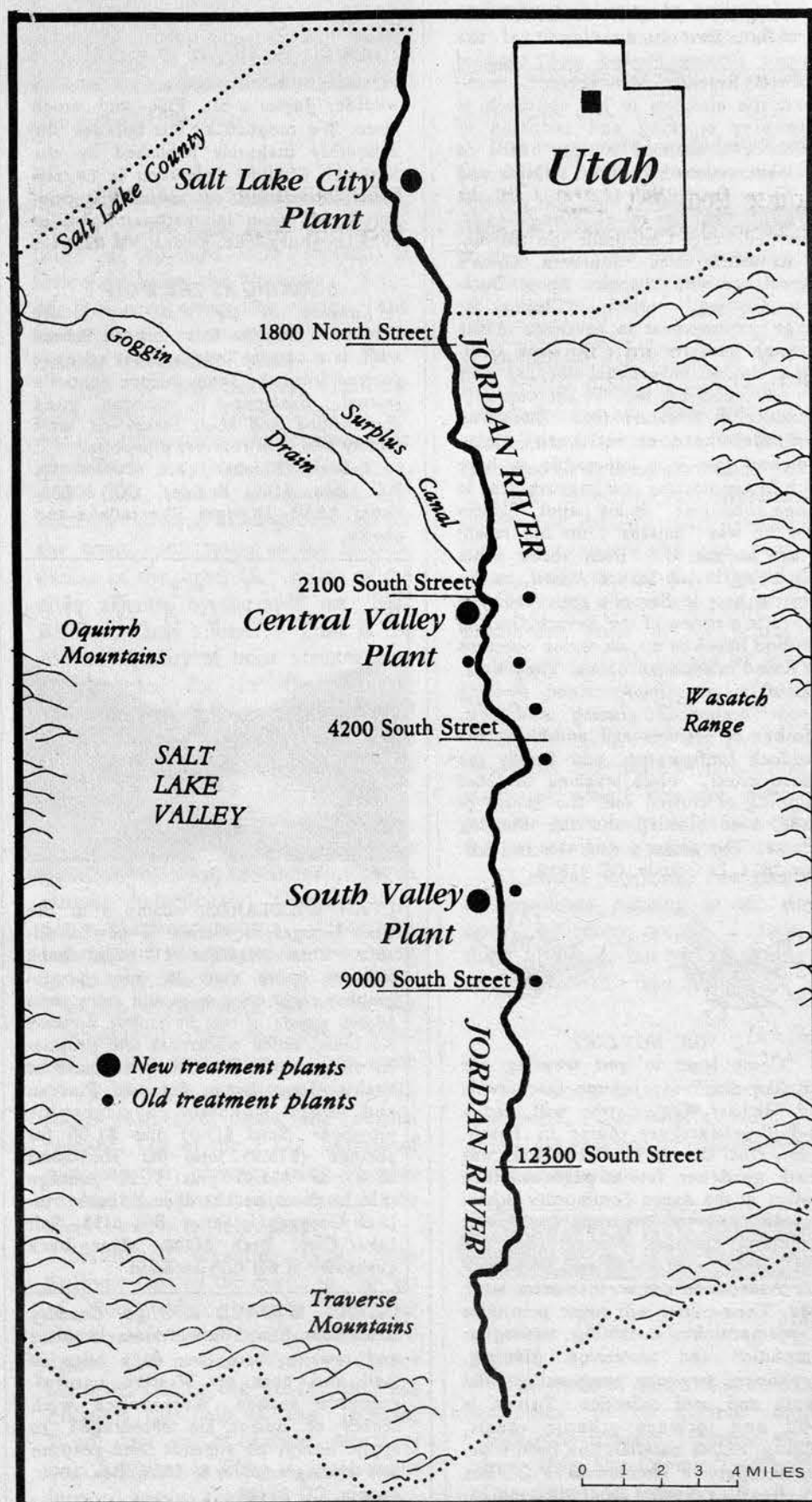
A major industry in Salt Lake City this century has been the federal government -- military, interstate public works projects, waste dumps, Indian reservations and the Clean Water Act. The other big industries, mineral extraction and oil and gas, have been on the ropes since 1982 or so.

*The Central Valley plant will be fully operational next summer, when the Salt Lake City plant upgrade is finished.
The South Valley plant came on line last year.*

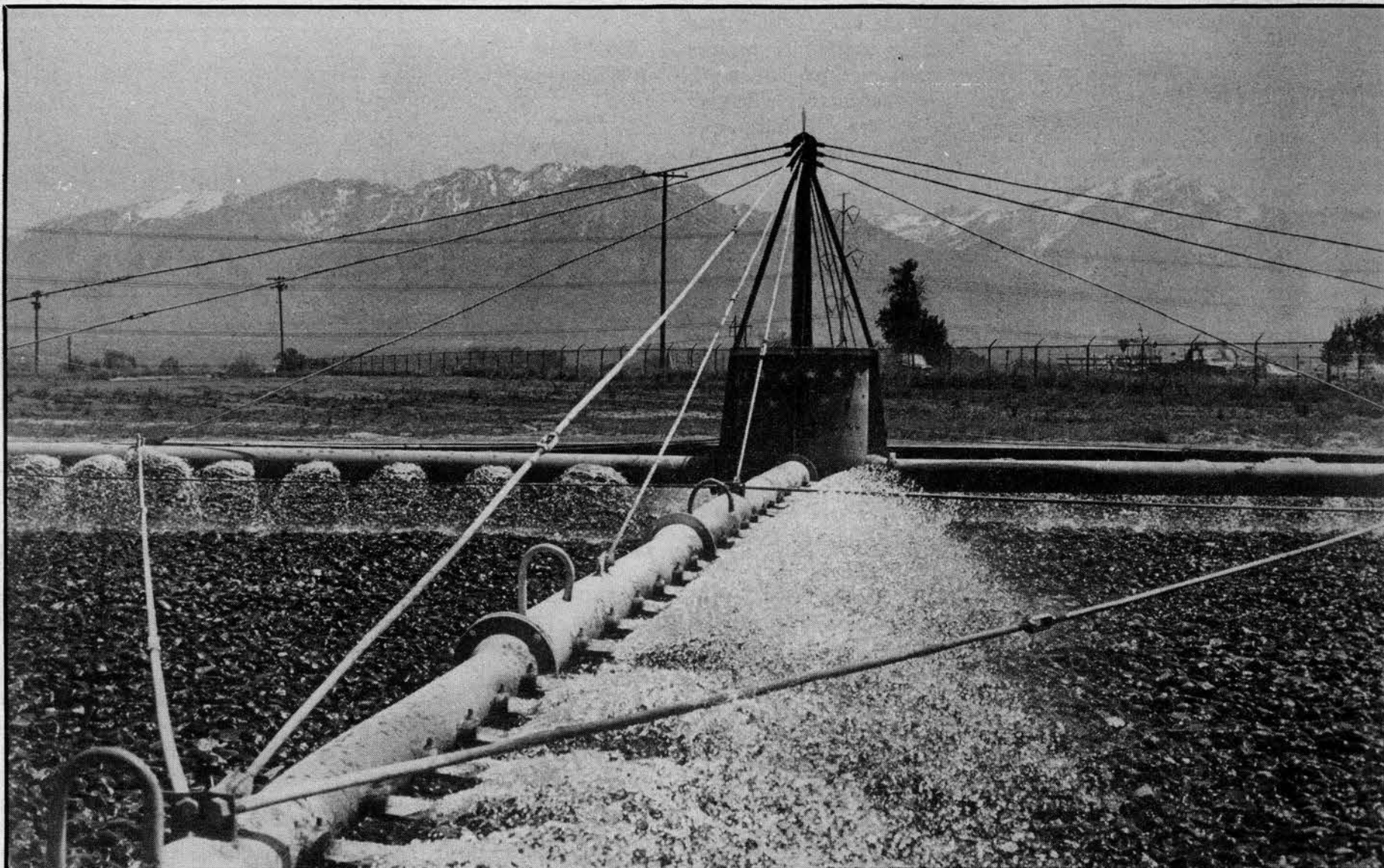
The fight between Maier and the state water agency began narrowly, over the cost of the three plants planned for the Salt Lake valley. However, in the midst of the battle, Maier stumbled onto what he soon decided was a major flaw in the EPA's regulations and, he says, possibly the main cause of the Clean Water Act's failure to cleanse the nation's waters.

As he tells it, while preparing

a presentation for a public hearing on the proposed plants, he discovered that the BOD-5 tests used to justify the plants give incomplete and misleading results. Maier testified in the hearing that the test is of little value to an engineer who has to design a treatment plant to clean a stream or lake. But, he said, it is the perfect test to justify building another big treatment plant.



Steve Hinchman



One of the Salt Lake valley's old trickling filter plants, which will soon be closed down

With his attack on the BOD-5 test and the design of sewage plants, Maier broadened his critique from Salt Lake City to the national clean-water program.

Washington, D.C., water-lawyer Larry Silverman says that people at EPA headquarters tell him off the record that Maier is right, and that regulations and tests can and should be improved. But they also tell him change is impossible because, Silverman says, "It would require the re-education of an entire industry." He adds that it might also require the re-tooling of an industry that is happy with the status quo.

Salt Lake City illustrates the industry's ability to resist change. According to Silverman, "In Salt Lake City, as in most of the country, there is a sewer lobby. They have a product to sell and they sold it. There are equipment manufacturers, engineers who design it, construction companies that build it. They're all good citizens in the sense that they support the local politicians; they are well placed and highly organized."

Thanks to the huge sums allocated to sewage plant construction under the Clean Water Act, this environmental-industrial complex has an open door to the federal treasury. It also has a monopoly on the knowledge needed to evaluate the projects it proposes and builds.

That was the case in the Salt Lake area's sewage situation. Beginning in 1980, the Environ-

mental Protection Agency, the Utah Water Pollution Control Bureau and 10 sewage districts prepared to upgrade the valley's sewage system.

Their plan called for two huge central plants outside the city to replace eight smaller, aging suburban plants. In addition, Salt Lake City planned to upgrade its existing plant, built in 1965, and then to double the city's sewage capacity by building a new plant.

The proposed expansion would have handled the waste from 2.6 million people. The current population of all Utah is now 1.5 million; the Salt Lake valley population is .7 million.

Altogether, project costs topped \$300 million, with over half to come from the federal treasury. According to Don Ostler, construction grants manager for the Utah Water Pollution Control Bureau, the rest was to come from state funds, local bonds and rate hikes.

Salt Lake City's plans to upgrade its existing plant and build a new one were based on a study by CH2M Hill, a national engineering firm. Its study showed the existing plant was dangerously overloaded and would soon violate its discharge permit. The CH2M Hill study was based solely on the BOD-5 and total suspended-solids tests. It also used population growth curves that were current in the yeasty days of the 1970s.

Today, that planned \$110 million project, the only one of the three ineligible for federal funds, is on indefinite hold. Although city water officials say the delay is caused by water conservation and low growth, there are indications that it was derailed when the Salt Lake City Council allowed Maier to conduct his own set of tests in 1984.

Unlike the BOD-5 tests, Maier's tests separately measured the demand for oxygen created by the two classes of waste: the carbonaceous waste and the nitrogenous waste. He found that, rather than being overloaded, the sewage flowing into the plant required only 60 percent of the plant's capacity.

That was the good news. The bad news was that sewage was not being cleaned. The plant, although underloaded, was removing only 35 percent of the pollutants.

Maier says the problem lay with the design of the plant. It had three times as much capacity as it needed to treat the carbonaceous sewage load. But it was totally incapable of removing nitrogenous wastes found in urine. The need wasn't for more sewage capacity, Maier concluded. Instead, Salt Lake City needed to upgrade the existing plant to treat the nitrogenous wastes, and eliminate the oxygen demand those wastes create.

The city proceeded with the upgrade, and cancelled plans to build the new plant one month after Maier submitted his results. Maier considers it his only victory in the war.

The two suburban plants were built with federal help. One appears to be an example of how not to build a sewage treatment plant. The other appears to be just as definitive an example of how to build a plant.

The first, the Central Valley trickling-filter plant, is one of the most expensive plants to be funded under the Clean Water Act. Costs thus far exceed \$130 million, and at least \$43 million more will be needed before the

plant meets standards. Ostler of the state pollution bureau says the project is so expensive, construction barely goes fast enough to keep ahead of rising costs due to inflation. It is conceivable that several years from now, after \$43 million more has been spent, there will still be \$43 million to be spent on the yet unfinished part of the plant.

The trickling-filter approach is perhaps the most common secondary sewage treatment design. It uses wide, deep concrete tanks topped by rotating arms that spray sewage water over rock or plastic filters in the tanks. The filters are home to carbon-eating bacteria. Unfortunately, the filters seldom provide a home for nitrogen-eating bacteria. So trickling filter plants do well with carbon wastes and poorly with nitrogen wastes.

The Central Valley plant could be upgraded to handle nitrogen wastes. But that would cost \$13 million to build and \$30 million to operate over the next 30 years. Plant officials say they don't have the money and have asked the Utah water bureau to lower its nitrogen requirements so the plant can meet standards.

It bases that request on a recent \$300,000 study showing that the Jordan River has mostly carp and other tough trash fish of no recreational value. A little less oxygen in the river, the report says, will not hurt the fish. Those opposed to the change say it could interfere with the reproductive cycles of all fish in the river.

The state water bureau has not ruled on the nitrogen issue, but assistant director Jay Pitkin says there is a tentative agreement to lower the nitrogen standards for the Jordan River.

(Continued on page 10)

10-September 28, 1987 -- High Country News

Goliath...

(Continued from page 9)

That means Central Valley will not have to build the \$43 million nitrogen-removing basins as originally required.

Maier says that by not requiring Central Valley to meet its original nitrogen standards, the plant will do no better and may even do a worse job of cleaning sewage than the five smaller plants it replaces in 1988. Central Valley authorities refuse to conduct alternative tests on the five old plants, Maier says, because the results could be politically damaging. But results Maier has seen from standard ammonia tests at one of those plants indicate that it was removing most of its nitrogen pollution.

Meanwhile, the EPA is charging the Central Valley plant and its sewage districts \$10,000 a day for nitrogen and other violations. The total is now over \$1 million and rising.

Twenty miles upstream from Central Valley is a very different plant. There, the South Valley oxidation ditch has become a national showcase. South Valley cost twice as much as Maier felt it should. But it cost only a third of Central Valley's current costs, and on a per-unit basis it cleans sewage three times as well.

The plant was designed to have little more than half of Central Valley's capacity. But plant manager Jack Peterson says the first year of operation showed the plant could handle sewage 40 percent more efficiently than Central Valley, which brings it up to two-thirds the capacity of Central Valley.

South Valley's permit allows it to discharge water into the Jordan River that contains up to 10 milligrams of oxygen-demand per liter of water. However, the

plant averages only 3 milligrams per liter, or mg/l. It reduces nitrogen pollution to .01 mg/l, which is extraordinarily efficient.

Peterson says, "I think we're getting total cleanup at an economical cost. I don't know what other plants are paying, but they're not getting the type of removal we are."

South Valley stands in marked contrast to Central Valley. It was finished early, construction costs came in under bid, it takes fewer workers to operate the plant, and the water it discharges into the Jordan is cleaner than the water already there.

Comparison of the two plants appears to support Maier's contention that the sewage industry and government agencies are not building the best and cheapest plants they could.

Opponents say Maier is a special-pleader when it comes to oxidation ditches. Maier says that during the three-year fight, Salt Lake media were told he was merely trying to sell a different design. EPA's Hais, for example, writes Maier off as just another special interest. "Oxidation ditches remove part of nitrogenous oxygen demand as part of the process," Hais says, "Maier and other oxidation ditch proponents stand to gain if there were nitrogenous standards."

That, says Maier, is a cruel joke. During the three years he waged his campaign, Maier, his wife Dodie, and their three children lived solely off savings. Just before the money ran out in 1984, he says, he took a job in Cincinnati and spent a year there living alone in a small apartment. Now he is back in Salt Lake City employed in a job far below his professional level. Stubborn as ever, he continues his campaign.

Maier says he never walked away from the fight, even though

*"I was put against the wall
and you either have to admit
you're a big phony
or you have to fight."*

he figures it cost him \$35,000 in savings, plus the \$30,000-a-year salary he could have made in some other state. "I reached a point where I was put against the wall and you either have to admit you're a big phony or you have to fight," he says.

His family says the cost was higher. "Even though he was right, professionally he killed himself," says his oldest daughter, Eleonore. "I think it has something to do with us being from the Netherlands; they doubted his credentials."

Maier's wife, Dodie, says the experience has disillusioned her husband, who had viewed America as a symbol of freedom, creative thinking and innovation. The rest of the family has or will soon get U.S. citizenship; Peter Maier refuses to do so.

Despite the long battle and hard feelings, Maier is respected by some in Salt Lake who, as Lowell Palen says, see him as the "leading edge of something important in sewage engineering." Palen bases much of his opinion on reports from Europe. "It's pretty obvious which way they are going there," he says, "and they're way ahead of us."

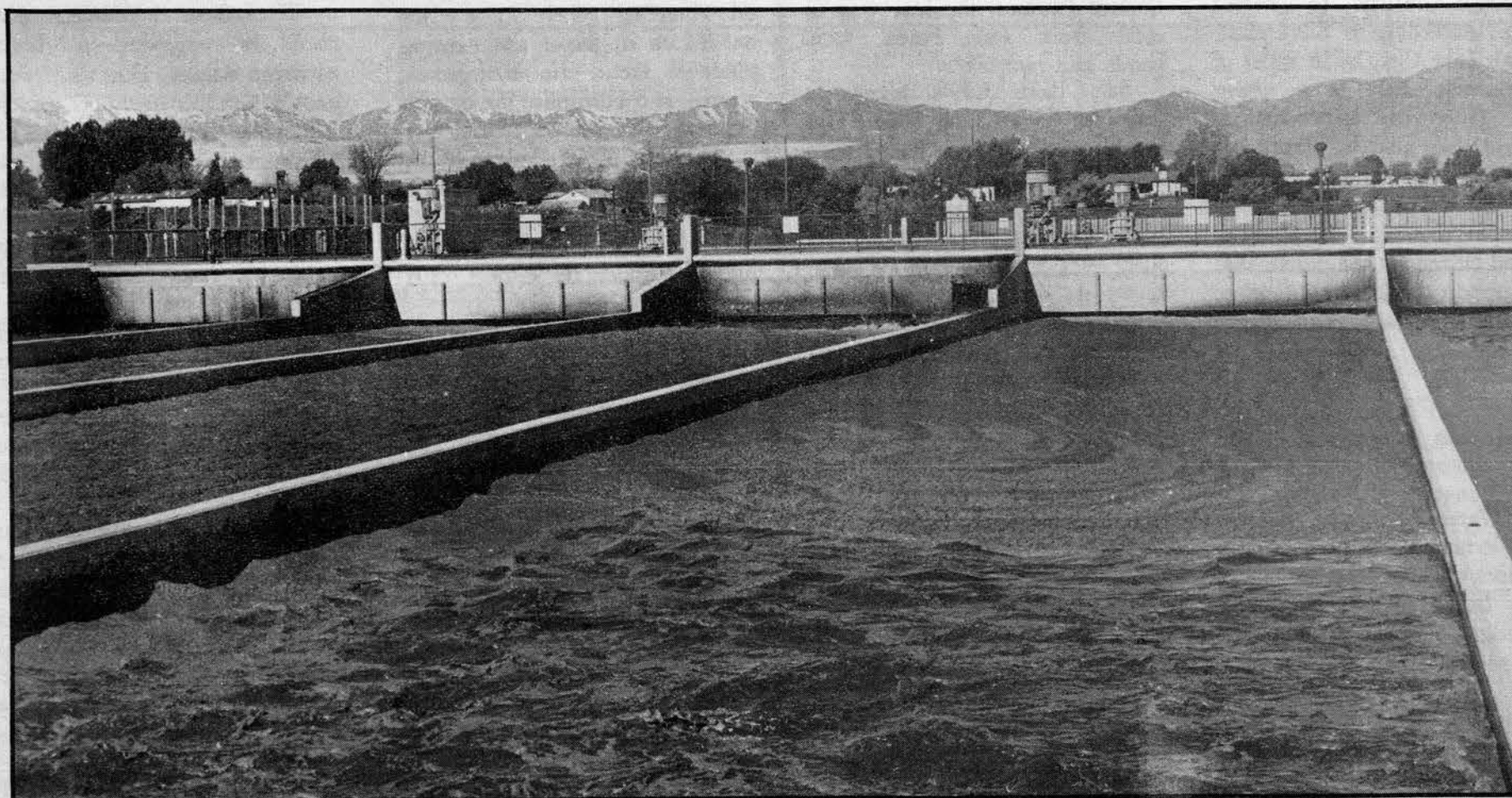
Brigham Young University's LaVere Merritt, who was also on the Governor's Science Council committee that investigated the controversy, says Maier is a very important voice in the wilderness. "Peter (Maier) may help move us toward a more rational approach in pollution control over time. He is a not-too-well received proponent of a valid point of view, one we will probably move to in the future."

Maier says people call him a scientist operating in a field of theory. He says, "I am a down-on-the-ground engineer. What I care about is saving money. And if they follow my philosophies, then all the money will be out of sewage treatment."

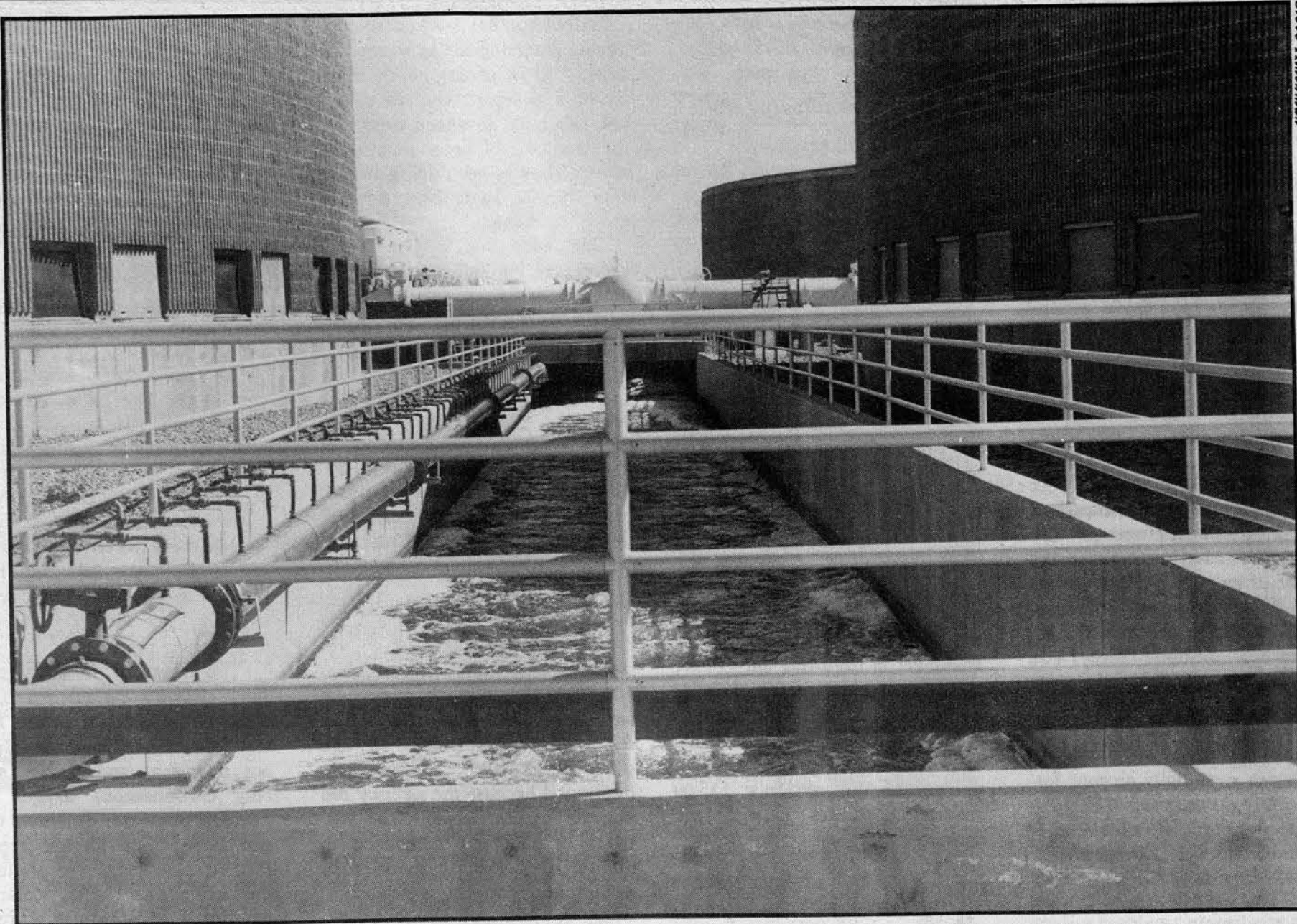
□

This story and related articles were made possible by the Fund for Investigative Journalism in Washington, D.C., and the High Country News Research Fund.

The South Valley Sewage Treatment Plant below is the largest oxidation ditch in the U.S.



Steve Hinchman



Steve Hinchman

Incoming sewage at the Central Valley Sewage Treatment Plant in Salt Lake City

The BOD-5 test

Fatally flawed or perfectly adequate?

by Steve Hinchman

At the heart of Peter Maier's criticism of the nation's sewage treatment program is the BOD-5 test, the short name for the biological oxygen demand test. According to Maier, the test can be compared to a carpenter building a house with a ruler calibrated in meters while he thinks it is calibrated in feet.

The BOD-5 test is the tool used to design sewage treatment plants and then to determine how well they are performing. If the test is fatally flawed, as Maier contends, then the nation's fleet of sewage treatment plants have been based on a faulty foundation.

The theory of a sewage treatment plant is straightforward. It is designed to perform, in the space of a few acres, the functions that would be carried out naturally by a stream over many miles.

In place of vegetation and gravel, the plant uses mechanical filters to remove solids from the sewage stream. In place of rapids and falls, the plant uses rotating

paddles to churn air into the sewage, or pumps and perforated pipes to bubble air up through it. Finally, the plant uses concrete ponds, tanks filled with rocks or long concrete channels as the streambed.

Although the environment is artificial, the goal is to mimic nature. The plant creates a home for the bacteria that break down the carbon and nitrogen wastes found in sewage, transforming those wastes into carbon dioxide, nitrogen oxides, water and inert sludge.

The decay process is confined to the sewage treatment plant in order to protect the stream, lake or ocean coast into which communities discharge their wastes. If sewage wastes are released into open waters the same decay process will occur, but in the process bacteria will consume the stream's dissolved oxygen. Without sufficient oxygen, fish and other aquatic life cannot survive, and water turns anaerobic. A new and very unpleasant class of organisms takes over the stream. Under such conditions bacteria now convert wastes into toxic compounds like methane gas and sulfurous oxides. Often in a secondary reaction, the decaying remains of aquatic life suffocated by oxygen loss act as fertilizers

stimulating the growth of large algal mats and causing lakes to become eutrophic.

Thus, the concept of sewage treatment is appealing and straightforward, and Congress, with voters strongly behind it, have consistently voted billions to build these concrete, steel and plastic streams to protect the nation's natural bodies of water.

Congress, however, does not build sewage treatment plants. So it ordered the Environmental Protection Agency to adopt a set of regulations and a test to measure water quality. The agency did that, and then handed the job of designing and building the plants over to the consulting engineers and construction firms that make up the sewage treatment industry.

The heart of the regulations adopted by the EPA is the BOD-5 test. It measures how much oxygen the materials in sewage will consume; that, in turn, determines how much and what kind of treatment a community's sewage needs.

The test, then, guides the design of the plant. After the plant is built, the BOD-5 test determines whether the plant is functioning well enough to earn the community a discharge permit.

No one claims the test is perfect. But the sewage treatment industry and the EPA say it is adequate.

Peter Maier says the test, more than any other factor, is responsible for what he calls the failure of the Clean Water Act and the waste of billions of the public's dollars.

Everyone admits that the test is quick, dirty and imprecise. It does not distinguish between oxygen consumed by the decay of carbon-based compounds and that consumed by nitrogen-based compounds. Nor does it measure all of the oxygen demand in a sample of sewage. Complete decay takes about 30 days, while the test lasts only five days. Finally, the test does not measure, and sewage plants are not designed to treat, the many complex materials which now find their way into sewage.

The BOD-5 test was designed over 50 years ago as a shortcut to the normal 30-day BOD test. It was selected as the backbone of the EPA's sewage treatment program in 1972, because the shortcut fit the needs of a sewage plant operator. A sewage plant cannot retain the sewage of several hundred thousand people for a month. The operators must

(Continued on page 12)

12-September 28, 1987 -- High Country News

BOD-5...

(Continued from page 11)

have quick results if they are to know, on a day-to-day basis, how well the plant is functioning. Although more precise tests to measure sewage content are now available, such as the chemical oxygen demand test, the EPA only requires sewage plants to use the BOD-5 test.

When the agency decided to base its regulations on the five-day version of the BOD test, Maier says it may have irreparably damaged the sewage treatment program. Although neither the five nor the 30-day test distinguishes between the carbon and nitrogen-based wastes, the 30-day test gives the total amount of oxygen demand in the water. The five-day test does not. In fact, the EPA assumes BOD-5 ignores all nitrogen decay because nitrogen wastes don't start oxidizing until six to 10 days after sewage is produced.

But Maier says nitrogen wastes can eventually account for up to 40 percent of the total oxygen demand in an average sample of sewage. Nitrogen also acts as a fertilizer for algae and other lower life forms, and therefore helps eutrophy, or age, lakes.

Maier adds that by testing sewage early, at five days, the BOD-5 test also misses a third of the ultimate, or 30-day, carbonaceous pollution. Altogether, Maier says the test ignores 1.5 times more pollution than what it measures.

Maier concludes that when the EPA wrote the regulations for municipal waste water treatment in 1972, it picked the wrong test. That, he says, has made for a deceiving standard and little change in water quality despite the billions spent.

But the BOD-5 test does have a perverse advantage, Maier charges. Because it is so imprecise, he says it has enabled the sewage industry to build plants that cost a lot to build and then produce questionable results.

Examples of poor quality plants abound. Historically, the majority of treatment plants built under the Clean Water Act have experienced tremendous difficulty meeting discharge permits. In the late 1970s, the EPA reported that at any given time 50 to 75 percent of the nation's treatment plants were not performing as designed and were in violation of their permits.

A 1981 U.S. General Accounting Office study found that in 1978, 87 percent of the plants violated their permits, 31 percent seriously. EPA waste water technician Allan Hais, in Washington, D.C., says only 25 percent of the nation's plants are in violation today. However, half of that improvement is probably due to a

change in BOD-5 testing procedures allowed after 1984.

In addition, the most commonly built sewage treatment plants -- the activated sludge and trickling filter designs -- do not provide a good home for the bacteria which eat nitrogen waste. According to EPA reports, such designs average only 85 percent removal of total oxygen demand and suspended solids, which is all that is required under the EPA's secondary treatment regulations.

Because of population growth and an increase in the pollution produced per person since 1972, plants that only achieve the secondary standard of 85 percent removal barely enable water pollution control agencies to keep pace with higher sewage levels.

Any treatment beyond secondary is called advanced, or tertiary, treatment. Advanced treatment is required only where the EPA or state water agencies determine that secondary treatment won't prevent degradation of existing water quality. Only 20 percent of the nation's 15,400 treatment plants fall in the advanced category.

Maier and others say it is possible to build sewage plants that can easily meet advanced standards, while costing less than plants that now have trouble meeting secondary standards. He also says this technology predates the 1972 Clean Water Act.

One such approach is the oxidation ditch, a Dutch-design that has been around since the late 1960s and has seen extensive use worldwide. Building oxidation ditches has been Maier's business for 15 years.

Like the others, the oxidation ditch works by mimicking a stream. But it does so in a less compact way. In it, sewage moves through long channels arranged in a concrete maze. The water is kept moving by rotors, which also churn in dissolved oxygen. The system has a long retention time compared to other types of treatment plants, and supports a healthy population of both carbon and nitrogen-eating bacteria.

A 1978 EPA study found that oxidation ditches consistently get 95 percent and higher removal of wastes, putting it among the best of the advanced treatment categories. The study also showed that the plant has lower construction and operating costs.

Despite this, the oxidation ditch has never been well accepted in the U.S. The EPA regulations place it in the less funded advanced treatment category, says Salt Lake-based sewage consultant Orris Albertson. He also says it is unpopular with the industry because lower construction costs mean lower fees and less work for the engineering and construction companies that build sewage plants.

Albertson has worked in sewage engineering for 30 years. He says, "A lot of engineers really haven't accepted the fact that you can build advanced treatment for the cost of secondary treatment. They've been doing it their way for 20 years and are not ready to change."

He adds that if the EPA's secondary regulations had nitrogen standards, as Maier wants, it would have long ago forced the industry to begin using oxidation ditch technology.

To return to the test itself, experts in the sewage industry, universities and many trade organizations say the BOD-5 test does exactly what it is supposed to do. If there is a problem, it is not with the test, they say, but with the EPA's application of the test.

Historically, the EPA has made serious mistakes in its use of the test. The worst problem was just discovered three years ago. It occurred when the BOD-5 test was used to measure sewage plant performance. The problem happened because the agency did not distinguish between the two types of pollutants measured in the BOD-5 test: carbonaceous wastes and nitrogenous wastes.

In those cases where plants were not breaking down nitrogen, pollution tests showed the plants were working properly. That is because nitrogen wastes were not being oxidized in the plant, nor registering in the tests. Instead, they pass downstream to become untraceable pollutants.

The problem came when plants that were not designed to treat nitrogen did. That caused nitrogenous oxidation demand to creep undetected into test results, which in turn caused the BOD-5 test to show a high oxygen demand still remaining in the sewage. EPA officials interpreted the high readings to mean the plant was not treating its sewage and therefore violating its permit, when the plant actually had treated more sewage than its permit required.

The Water Pollution Control Federation, a leading sewage industry trade organization, formed a task force to study the issue in 1983. The group reported that even though the information on nitrification interference in the BOD test has been available in the technical literature since the 1930s, the EPA either "ignored or forgot" to differentiate be-

tween carbonaceous and nitrogenous oxygen demand.

Until 1984, the EPA fined treatment facilities for violations on the basis of BOD-5 data, and hundreds of plants were expanded or re-built because the test said the plants were out of compliance. The new plants typically achieved compliance by prohibiting conditions that allowed nitrification -- thus removing less pollution than the plants that were replaced.

As the situation was discovered in the late 1970s, engineers from cities all over the nation with violations on record petitioned the EPA to allow plants to separate carbonaceous and nitrogenous oxygen demand. It took a lawsuit from the city of Dubuque, Iowa, which the EPA had fined \$10,000 a day for permit violations, to get the EPA to allow new testing procedures.

The new test, in effect since 1984, allows plant officials to add a nitrifying inhibitor to the BOD test bottle. The method screens out nitrogen, and results show only carbonaceous oxygen demand. The Water Pollution Control Federation *Journal* reports that 60 percent of the plants in the nation with chronic violations on record became legal through this device.

Maier says that instead of correcting the problem the EPA has simply eliminated nitrogen testing and treatment from its Secondary Treatment regulations -- thereby skirting the real issue and leaving nitrogen pollution in the water to cause problems downstream.

EPA and Utah water officials vehemently disagree with Maier and other critics. They deny that they are improperly regulating the sewage treatment program or that they have wasted taxes. The officials don't question Maier's science; they say he misunderstands the regulatory system.

According to the EPA's Hais, Maier is right when he says the BOD-5 regulations only control carbon wastes. But, Hais continues, that is as intended. Carbon pollutants, he says, outweigh nitrogen three-to-one, and are a much greater threat to oxygen levels. Moreover, Hais says, when nitrogen becomes a problem, sewage plants are required to deal with it.

Hais says Maier wants the

When the EPA changed its BOD-5 test, 60 percent of the plants with chronic violations became legal.



Steve Hinchman

Sewage -- in the first stages of treatment

EPA's minimum standards to cover both types of wastes and to do away with separate secondary and advanced regulations. But, he says, "The agency made a conscious decision to regulate it another way."

The Utah Water Pollution Control Bureau, which has clashed with Maier many times since 1980, makes the same point. Assistant chief Jay Pitkin says, "Peter (Maier) says we are ignoring nitrogen demand, but we're not. Sometimes it's not measured, but where it's important, it's taken into account."

The water quality approach is deemed the best method by the regulators because it allows agencies to concentrate limited funds on the worst problems. They say the effect of Maier's suggestion would be to raise water quality standards across the board -- an unnecessary and expensive proposal. Officials say such a change would be resisted by most communities, which are already stretched nearly to the breaking point.

EPA officials admit that sewage technology is changing, but warn that the oxidation ditch is not a panacea. It requires more land than most other technologies, which raises costs.

However, in the West, where land is often cheap, it may be the wave of the sewage future. Five oxidation ditches are being built or designed in Utah alone, and nearly every expert predicts they will become the most common treatment plants.

The trend is not due to a change by the EPA. The pressure comes from the people who run the local sewage districts, who now, thanks to less federal money, have to pay a larger bill. More municipalities are telling engineering firms to build the oxidation ditch, Albertson says.

Problems in the EPA's con-

struction grants program create a second push for change. In a report to Congress, Albertson tracked how long it takes a construction grant application to pass through EPA: 7½ years, at a minimum.

Municipalities about to be fined \$10,000 a day by the EPA for sewage violations can't wait that long, he says. Moreover, plant costs can double or triple over that time. As a result, a few communities have washed their hands of the EPA and built plants for less than they would have paid with EPA's help.

Maier says that as engineers in the sewage industry begin to use other technologies, the question of standards will become academic. But in the meantime, he says, it is professional malpractice to design and build sewage plants which do not use the best available technology.

"In any other field of engineering this would have been unacceptable, because it would have directly resulted in death -- bridges collapsing, buildings falling, airplanes would not fly." But in sewage treatment, he says, only streams and fish die.

Maier has not yet presented his views on the BOD-5 test in a national scientific journal, a step many professionals consider a must before he can be taken seriously. But a few peers in Utah quietly support his views.

Hal Link, publisher of the now-closed trade magazine *Utah Waterline* and manager of a sewage treatment consulting service, says, "Maier's science is correct and the officials who are charged with the work are incorrect." But Link adds, "Peter (Maier) never got sufficient political backing to push his points through and change policy."

Lowell Palen, a Salt Lake contractor who builds equipment for sewage plants, says Maier is

the most ethical engineer he has met, and that his ideas are consistent with the leading new technologies. Palen adds that Maier's name is something of a swear word in Salt Lake's engineering circles, but that many others hold him in high regard.

Some experts in the field say the use of the BOD-5 test is not so much wrong as irrelevant; an arbitrary technical standard that has distracted the industry from its goal of making the nation's waters swimmable and fishable.

Larry Silverman, who has served as executive director of the American Clean Water Association, and who is now a private attorney in water pollution control, says, "Engineers who design our water treatment plants do not design for bass or game fish, they design for certain standards -- BOD standards. But the standards miss the mark."

The EPA's regulations may also be dangerously flawed for a reason that threatens not just fish, but also public health.

Dr. Lenore Clesceri is professor of biochemistry at Rennselaer Polytechnic Institute in New York, and currently chair of the *Book of Standard Methods* joint editorial board; which is responsible for writing and reviewing testing methodologies used by the sewage industry. Clesceri warns that industrial changes have far surpassed the EPA's tests and regulations. New synthetic compounds have entered surface and groundwater systems across the nation.

She says the new synthetics are difficult or impossible to break down by natural biological processes, seldom register on the BOD-5 test and pass through a sewage plant untreated. Clesceri says they are often toxic, and can interfere with the reproductive ability of fish and other marine animals. They also pose a serious threat to human health as the toxins are carried upward through the food chain.

Jim Fish, executive director of the eight-state and two Canadian province Great Lakes Commission, says the sewage problem has been eclipsed by four new major pollution problems. Those are:

- Non-point pollutants, which, because of their origins on fields and city streets, are difficult to control;

- Toxics and radioactive pollutants, which are only now being monitored and understood;

- Toxic sediments and radioactive "hot spots" from early, untreated discharges; and

- Airborne deposition of acids, PCBs and dioxins.

Fish says dealing with those problems may require changes in the way America lives. "We have not begun to consider the ramifications of the stuff we're using -- household chemicals, plastics, etc. We seem to demand and industry seems to produce more and more toxins that we can use on a daily basis."

The potential disaster of the huge quantity of waste currently held quiescent by the salt in the Great Salt Lake is echoed by water quality problems elsewhere in the West. The Clark Fork River in Montana, and the lake it feeds, Pend Oreille in Idaho, have experienced yearly fish kills and eutrophic conditions. National jewels such as Crater Lake in Oregon (HCN, 8/3/87) and Lake Tahoe in the California Sierras are threatened.

Both the Jordan River in Utah and the South Platte downstream of Denver, Colo., are in the midst of battles to lower water quality standards because sewage treatment plants built for millions of dollars can't meet the current standards.

Several major rivers flowing out of the Colorado mountains are highly toxic due to contaminated mine waters. The most noticeable are the Arkansas near Leadville, due to the Yak tunnel (HCN, 2/3/86), the San Miguel and Uncompahgre rivers, because of mines in the San Juan Mountains, and the Eagle River outside Minturn because of the Eagle Mine.

Some say that the nation's growing water quantity problems may actually be water quality problems. In the West, it is said, water flows uphill toward money. But sewage and toxins flow downhill, contaminating downstream water supplies, polluting groundwater and forcing communities to go farther afield in search of pure water.

The nation has thrown massive resources at the water pollution problem since 1972, only to witness the relative failure of the regulatory and technical solutions it chose. The blame can be spread far and wide.

14-September 28, 1987 -- High Country News

Clean Water Act hasn't done the job

by Steve Hinchman

Amendments to the Water Pollution Control Act were meant to set the nation on a new approach to water quality in 1972. Their goal was to make dirty streams swimmable and fishable by 1983. Even more ambitiously, polluting discharges were to be completely eliminated by 1985.

A new philosophy was at work: that municipal sewage and other wastewater would be reclaimed rather than flushed away. Sen. Edmund Muskie of Maine said during the Senate debate: "These policies simply mean that streams and rivers are no longer to be considered part of the waste treatment process."

It was perhaps the deepest shift in American sewage treatment policy since the invention of the flush toilet in the 19th century, when we began releasing sewage into the waterways around us.

The new law went beyond rhetoric and optimism; it was backed by teeth and money. It ordered the Environmental Protection Agency to set national treatment standards, and it gave the agency 13 years to hook the entire nation into sewage-treatment systems.

Because a multimillion dollar treatment plant was beyond most communities, the 1972 Congress said the federal government would bear 75 percent of the costs. As a start, it appropriated \$18 billion to build sewage plants. Later amendments reduced the federal share to 55 percent.

The first consequences of the law were felt on Wall Street, where pollution-control stocks soared. The result was the birth of a national environmental-industrial complex, which is today full grown and thriving.

Despite the regulations, billions of dollars and the passage of both the 1983 and 1985 deadlines, neither of the law's goals are close to being met. In some ways the nation's lakes, streams and ocean coasts are no better than in 1972. In other ways, they are worse.

After spending at least \$72 billion in federal, state and local funds, barely 60 percent of us are connected to a sewage treatment plant that meets EPA standards. The agency says it would take \$60 billion more to finish the job.

Even without additional expenditures, the program is the second largest U.S. public works project, after the national highway system. But the interstate system has achieved its goal. One can drive from coast to coast and from Mexico to Canada on interstate roads.

By comparison, the EPA can't say if the nation's waters are any cleaner. It certainly can't say that they are all fishable and swimmable. Few of our waters are free of polluting discharges. There are local success stories, but many state water agencies say they are barely able to maintain water quality at 1972 levels.

In addition to the statistical evidence that says the nation's waters are no better than in 1972, anecdotal evidence abounds. Recent reports say estuaries on the East Coast are dying, due in large part to long term build-up of sewage wastes. Along the Atlantic coast, "red tides" come and go; porpoises die mysteriously.

In the interior, rivers and lakes are under intense pressure from rising sewage levels due to population growth. On the West Coast, sewage effluent regularly fouls beaches and coastal waters. In many beach and lakeside communities, the 1960s and 1970s are remembered as "the good old days," while the present is noted for its polluted waters.

Moreover, even as the nation struggles to control plain old sewage, additional pollutants are being found -- including toxins, hazardous chemicals and radioactive elements -- that are more dangerous and complex than the municipal sewage we have been unable to control.

The accumulated threat to water quality is occurring just as many cities and towns wish to take back their riverbanks and lakesides from industrial use or neglect. The drive to reclaim these areas comes from a desire for riverside greenbelts and parks close to where people live. The recreation pressure is abetted by looming water shortages, especially in the West, which make even polluted water more valuable.

Utah's Jordan River, which runs 75 miles from Utah Lake in the south to the Great Salt Lake in the north, is typical of many rivers. Where it passes through rural areas, fertilizer, pesticides and herbicides are washed off the land into the river with each rainstorm, or the agricultural pollutants enter from

canals returning used irrigation water to the river.

In urban areas, imperfectly treated sewage pollutes the river, and this is compounded by grease, metals and other substances washed off city streets by rain.

In industrial areas, factories, mills and plants discharge a wide variety of pollutants into the river.

Nor is the Jordan physically whole. Dredges have straightened it and scraped its bed smooth, destroying fish habitat and sending downstream pulses of polluting material that had settled out of the river. It has also been mined for gravel, lined with concrete walls and auto bodies, and otherwise reworked until in places it is more sluggish ditch than live stream.

Nevertheless, in the water and stream-scarce West, the Jordan is a potentially valuable resource, and pressure is building at the grassroots to restore it to life. A start has been made. For half of its length through Salt Lake City, it is already a state park, called the Jordan River Parkway. Plans exist to expand the riverside park out to the city limits, at the edge of the southern suburbs.

The proposed changes are more than a matter of hauling off rusting car bodies and planting grass and trees. The Salt Lake Water Conservancy District says it even intends to take water out of the Jordan River for drinking.

At present, however, the Jordan's water quality is so poor it is limited to non-contact recreation such as boating and fishing. Before the Jordan's water can be piped into anyone's home, a major filtration plant must be built.

Even as these plans go forward, the river continues to be damaged by a variety of pollutants. Steve Jensen of the Salt Lake City/County Health Department, says the combination of sewage and other material and low oxygen levels make the Jordan very fragile. It is especially vulnerable during the summer, when discharges from the Salt Lake Valley's eight sewage treatment plants can make up half the river's flow.

Sewage is only part of the problem. The Jordan not only must absorb what pours out of sewage treatment plants, but it must also accept the so-called non-point source runoff from fields and streets, and the point source discharges from mills and factories.

Their effect on the Jordan is both immediate and long term. The decay of the sewage in the river supports an interesting zoo of bacteria, but as the biological material is eaten by the bacteria it consumes the oxygen dissolved

in the water. The result is a chancy environment for fish.

That delicate balance can turn to disaster in rainstorms, which flush more nutrients off fields and streets into the river, chewing up the remaining oxygen and further stressing the fish.

The river is also subject to long-term threats. Municipal sewage has more than biological wastes -- it also contains household chemicals, chlorinated hydrocarbons created when the plant chlorinates its sewage effluent, and other substances.

Runoff from streets and industrial discharges are rich sources of toxic substances. These don't affect oxygen levels. But they may be taken up by the fish, or sink to the bottom to accumulate in sediment, there to await future activation by dredging or high river flows.

Jensen says industrial discharges come from electroplating and semiconductor plants on the lower part of the river. The discharges are often heavily alkalai, and contain solvents and heavy metals. Leaking underground storage tanks, including one found this summer in the Utah Transit Authority terminal in Salt Lake, and oil refineries contribute a variety of petroleum products.

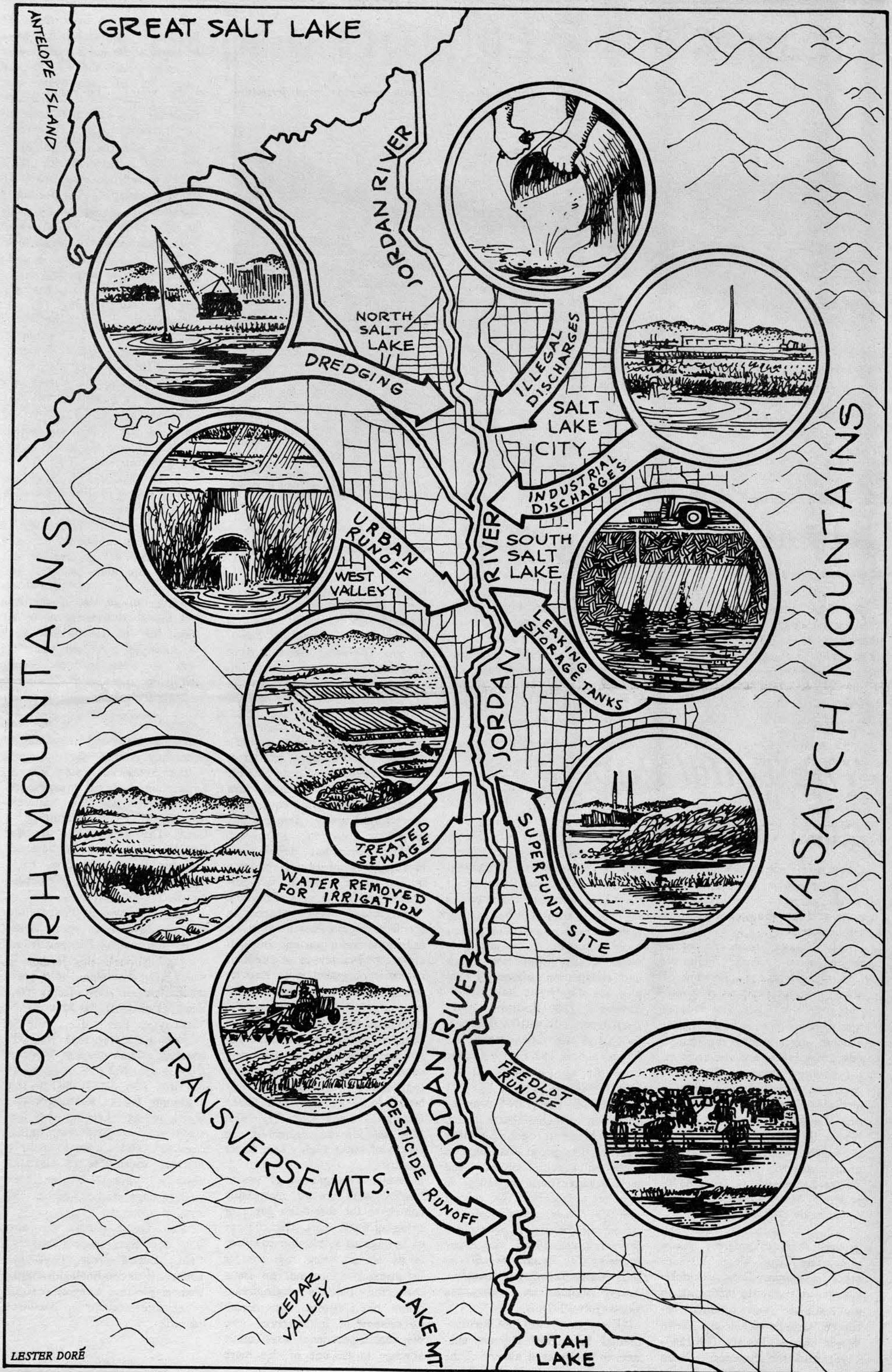
Another major heavy metal source is a 100-acre tailings pile at the now closed Sharon Steel plant, a national Superfund site. Finally, Jensen says, illegally dumped chemicals flow into the river from both storm sewers and domestic drains.

The Jordan is handicapped, Jensen continues, by its own limited restorative ability. It is slow moving and has no waterfalls or rapids where the water could be naturally aerated.

Although the Jordan absorbs pollution from a variety of sources, tests in 1982 showed that 77 percent of its oxygen loss is due to the Salt Lake valley's eight sewage plants. The oxygen loss will decrease with completion of the valley's two new treatment plants in 1988. However, the effects of decades of degradation will remain, aggravated by lower but continuing flows of sewage, rural and urban runoff, and industrial discharges.

The cumulative effect is overpowering -- life in the river is a fraction of former levels, according to a 1983 study by the U.S. Geological Survey and the Salt Lake City/County Health Department. That report found the most serious threats to the Jordan to be oxygen loss and toxic trace elements.

(Continued on page 16)



16-September 28, 1987 -- High Country News



Steve Hinchman

Jordan...

(Continued from page 14)

By the time the Jordan reaches the valley's main population center -- Salt Lake City -- it is already burdened by sewage and other pollutants from upstream cities and farms. On its course through that city, demand

for dissolved oxygen doubles, mainly because of the flow of partially treated sewage into the river. So the already scarce oxygen in the water entering Salt Lake City is cut another 52 percent by the time the river reaches the Great Salt Lake.

The study found 11 trace elements and heavy metals accumulating on the bottom of the Jordan. Levels were acceptable

The Jordan River in Salt Lake City

as the river entered Salt Lake City, but halfway through the city metal levels exceeded standards and continued increasing downstream. The worst offenders were arsenic, cadmium, chromium, copper, lead, mercury and zinc.

LaVere Merritt, chair of the

civil engineering department at Brigham Young University, says he expects the low oxygen levels to cause fish die-offs in the lower Jordan once every few years. Jensen says the health department is a bit more optimistic. It thinks most fish species can live with the toxic pollution, but that it may destroy their ability to reproduce and maintain native populations. The Jordan is classified as a cold water fishery in its upper reaches, a warm water game fishery through most of Salt Lake City, and a non-game fishery at the bottom.

State officials warn that the city is taking a big risk by polluting its river and the lake it empties into. Reed Oberndorfer of the state Water Pollution Control Bureau says:

"Everything that comes into the river is pickled in the Salt Lake. Our concern is that we can overload the system too much, because we don't know what's going to happen."

Peter Maier says Salt Lake City is sitting next to an ocean of sewage, toxins and industrial waste in the Great Salt Lake. It has been saved thus far, he says, by the lake's high level of salt, which stops most biological process.

But, he warns, if the lake continues to freshen, as it has done for the past several years because of increased water levels, the toxic soup could come back to life with disastrous effects for the neighboring area.

The Toilet Papers and other sources

The issue of sewage treatment is carefully monitored by several organizations and has spawned numerous publications.

The major industry trade-group is the Water Pollution Control Federation, a network of plant operators and water pollution control officials. The federation's *Journal* runs self-policing articles investigating the methods, successes and failures of the sewage industry. The peer-reviewed, monthly publication is available from the Water Pollution Control Federation at 601 Wythe St., Alexandria, VA 22314 (703/684-2400). Other trade groups are the American Water Works Association (202/628-8308) and the American Public Health Association (202/789-5600).

Several industry watchdog groups monitor progress made under the Clean Water Act and other legislation. They also lobby Congress, provide information and advice, and conduct research. Groups include the Clean Water Action Project (202/547-1196) and the American Clean

Water Association (202/363-0297).

Where there are major bodies of water around the nation, research and conservation groups have emerged to investigate water quality, pollution levels and reclamation efforts. Examples are the Great Lakes Commission at 2200 Bonisteel Blvd., Ann Arbor, MI 48109 (313/665-9135) and the Chesapeake Bay Foundation at 162 Prince George St., Annapolis MD 21401 (301/268-8816).

The U.S. General Accounting Office investigates current and past problems in the EPA's many water-quality programs. Reports focus on specific projects and include suggestions on how to do it better next time. Two reports are: *Key Unanswered Questions About the Quality of Rivers and Streams* (Sept. 1986), and *Better Planning Can Reduce the Size of Wastewater Treatment Facilities, Saving Millions in Construction Costs* (July 1982).

Every two years the Environmental Protection Agency submits to Congress a survey of the

current status of the nation's network of sewage treatment plants. Called the *Needs Survey*, the report also estimates how much construction is required to meet future sewage demand and its cost.

The press has done some investigations of its own. Notable is Patrick E. Tyler's five-part series on "America's Pollution Floodgates" that appeared in the *Washington Post* in 1981. It examined corruption and bureaucratic inefficiency in the EPA's construction-grants program for sewage-treatment plants. Jon R. Luoma's "The \$33 Billion Misunderstanding" in the Nov. 1981 issue of *Audubon* magazine examined difficulties the EPA encounters in making clean water legislation work. Rochelle L. Stanfield's "Enough and Clean Enough" in the Aug. 15, 1985, *National Journal* connected the issues of water quality and water quantity.

Any investigation of water quality and sewage eventually comes to the forbidden topic of re-using wastewater. The concept of sewage as a valuable resource is as old as using manure for fertilizer, but it is not an issue that the nation's mainstream press often covers. Yet recent successes of innovative land disposal experiments have made sewage re-use one of the more

promising solutions in sewage technology.

The American Water Works Association's annual symposium in Denver, Colo., this summer focused on "Implementing Re-Use." The proceedings of the four-day meeting should become available this winter from 1010 Vermont Ave. N.W., Washington, D.C. 20005.

The Freshwater Foundation recently devoted an entire issue of its *Journal of Freshwater* to the topic, "Rethinking Re-Use," which is available from the foundation at 2500 Shadywood Road, Box 90, Navarre, MN 55392.

Future Water by Jon R. Sheaffer and Leonard A. Stevens (New York, N.Y.; William Morrow and Co., 1983) makes the argument for an alternative national sewage network that reclaims and re-uses wastewater. Sheaffer and Stevens include historic examples of circular sewage systems as well as modern case studies and demonstration projects.

The Toilet Papers, by Sim Van der Ryn (Santa Barbara, Calif.; Capra Press, 1980) examines re-use technology ranging from single-unit compost designs to sewage reclamation facilities for cities.

--Steve Hinchman