

America's
**Most
Endangered
Rivers** *of* **1998**

April 1998

BRINGING RIVERS TO LIFE





About American Rivers

American Rivers, Inc., founded in 1973, is the nation's leading river conservation organization. We are striving to secure a future in which healthy rivers support diverse species of wildlife, fish, and plants, are safe for human consumption and recreation, contribute to sustainable local economies, and improve the quality of life, for all Americans.

Every year, American Rivers issues a report titled *America's Most Endangered Rivers* that examines the problems confronting our nation's rivers. With the release of this report, we hope to expand both appreciation for and conservation of rivers across the country.

American Rivers has a growing membership of more than 20,000. With a staff of 32, we operate a national office in Washington, D.C. and regional offices in Phoenix, Arizona and Seattle, Washington.

There are many ways to support American Rivers' conservation efforts. Basic membership begins at \$20 for individuals and \$15 for students and senior citizens. River Guardian membership begins at \$1,000. Additional contributions including appreciated securities, property, planned gifts, and grants are gratefully accepted. All contributions are tax-deductible to the extent allowed by law.

To find out more about our organization or to receive membership information, please contact us at 202-347-7550 or visit our Web site at www.amrivers.org.

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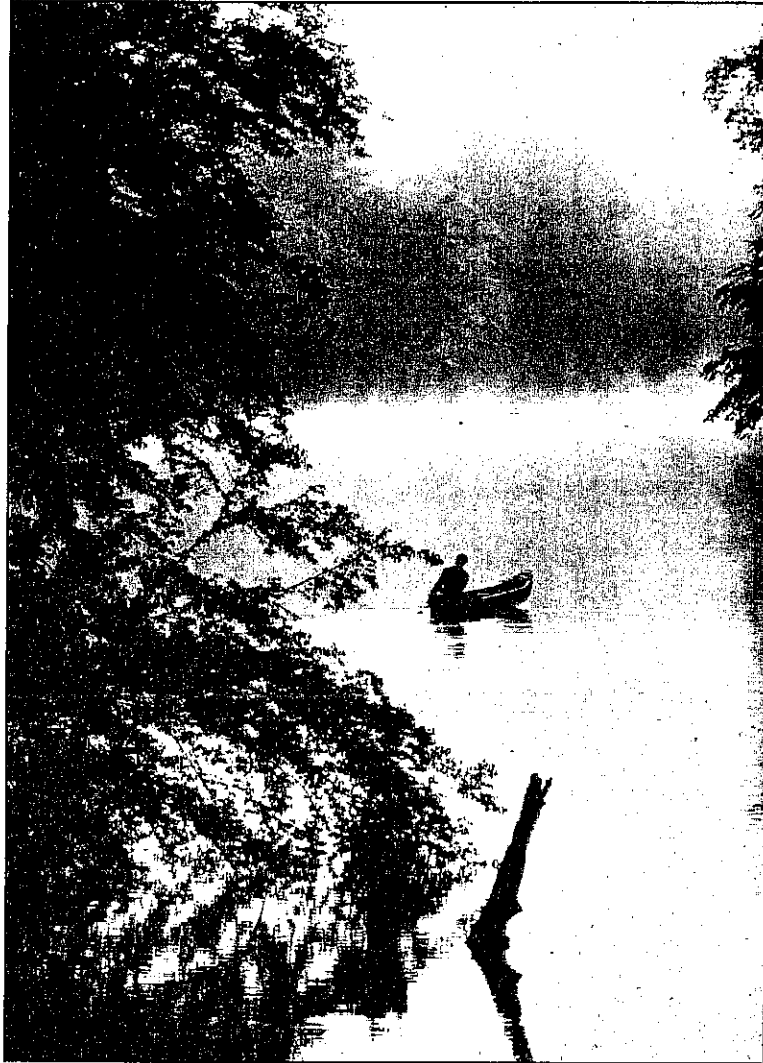
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Bertram J. and Barbara B. Cohn.*



*"If man fails to honor the rivers,
he shall not gain life from them."*

The Code of Hammurabi, 1760 B.C.

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From Nests to Dens: Losing River Habitat

As you read the pages of this report, watch for the following:

salmon, steelhead, bass, trout, black bear, grizzly bear, deer, mountain lion, moose, river otter, beaver, bald eagle, osprey, waterfowl, mussel, cottonwood, willow, water hyssop.

The rivers on this 1998 Most Endangered Rivers list support all of the animal and plant life named above and many other species. This amazing variety of life underscores the crucially important role rivers play as habitat. While we use rivers for recreation, drinking water, transportation, and personal refreshment, our waterways support basic life functions for countless wild creatures.

Rivers serve not only as freshwater aquatic habitat, they breathe life as well into riparian and upland surroundings. Rivers and their environs are wildlife transportation corridors, staging grounds, breeding areas, and simply home for a remarkable diversity of animals and plants. From small streams like Arizona's Pinto Creek to our nation's longest waterway, the Missouri, rivers are the core building blocks of healthy ecosystems.

Unfortunately, rivers are under constant assault, their ability to provide vital habitat weakened by misuse and abuse in their courses, along their banks, and in their watersheds. We have made great strides cleaning up

rivers in the United States over the past quarter century; nevertheless, freshwater species and ecosystems continue to deteriorate. For example, over one-third of freshwater fish species are at risk of extinction, and most states have lost more than 80 percent of their riparian ecosystems.



Photo: Ione Wertbman

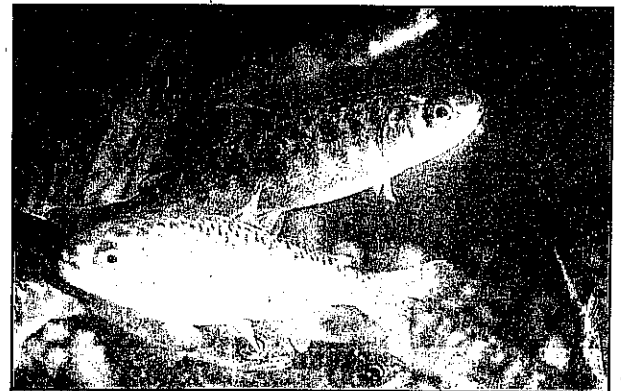
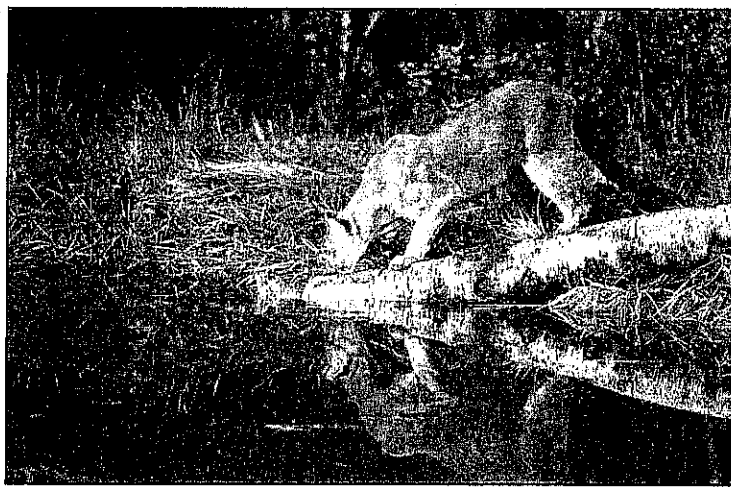
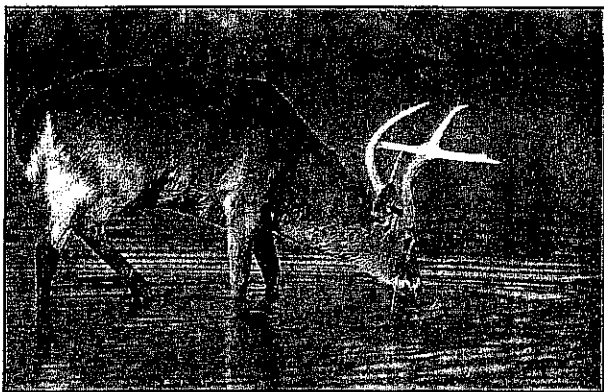


Photo courtesy Bonneville Power Administration



This year, American Rivers identifies America's 20 Most Endangered Rivers, the imminent and serious threats they face, and the steps we must take to protect and restore them. A threat common to several of these rivers is agricultural pollution and overuse. Factory hog and chicken farms are a growing national blight, degrading water quality and killing fish. The conversion of wildlife habitat to irrigated cropland, polluted runoff from farm fields, and overallocation of water for irrigation also play a devastating role. Today, 40 percent of our nation's rivers are unfishable, unswimmable, or undrinkable. At least 60 percent of these rivers are impaired by agriculture.

New river threats arise, while chronic ones will not go away. Development sprawl continues to eat away at the lands along rivers, destroying riparian and upland habitat and contributing to tremendous aquatic habitat loss. Mining companies propose huge projects along some of our most pristine and famous rivers, and major dams and water projects still threaten to dry up riverbeds and alter flows.

Natural river systems and the habitat they provide need our help. The aquatic, riparian, and upland habitats of rivers hold natural systems together, yet our actions are destroying these essential areas. American Rivers hopes that in recognizing the surprising abundance of plants and wildlife that depend on healthy rivers, you will be stirred to action. As we contemplate the status of our rivers, let us not forget what makes them vibrant and rich.

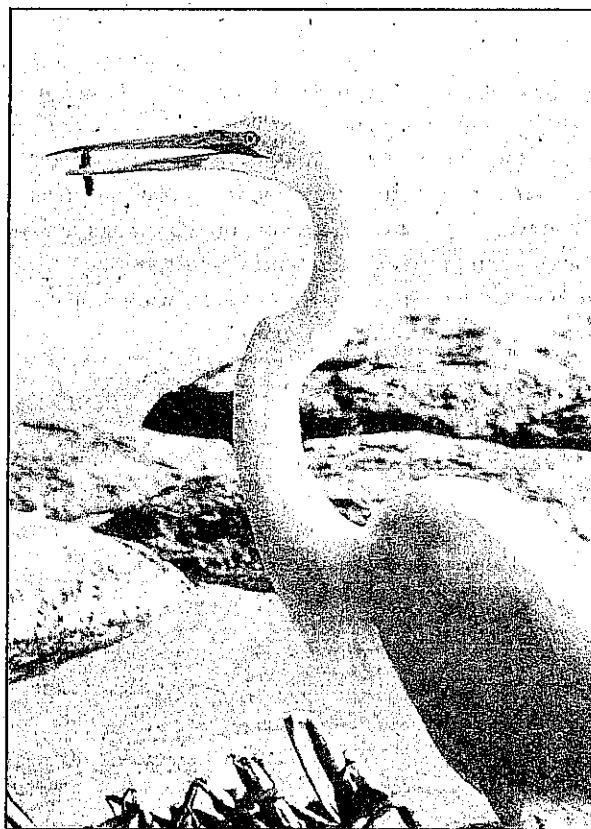
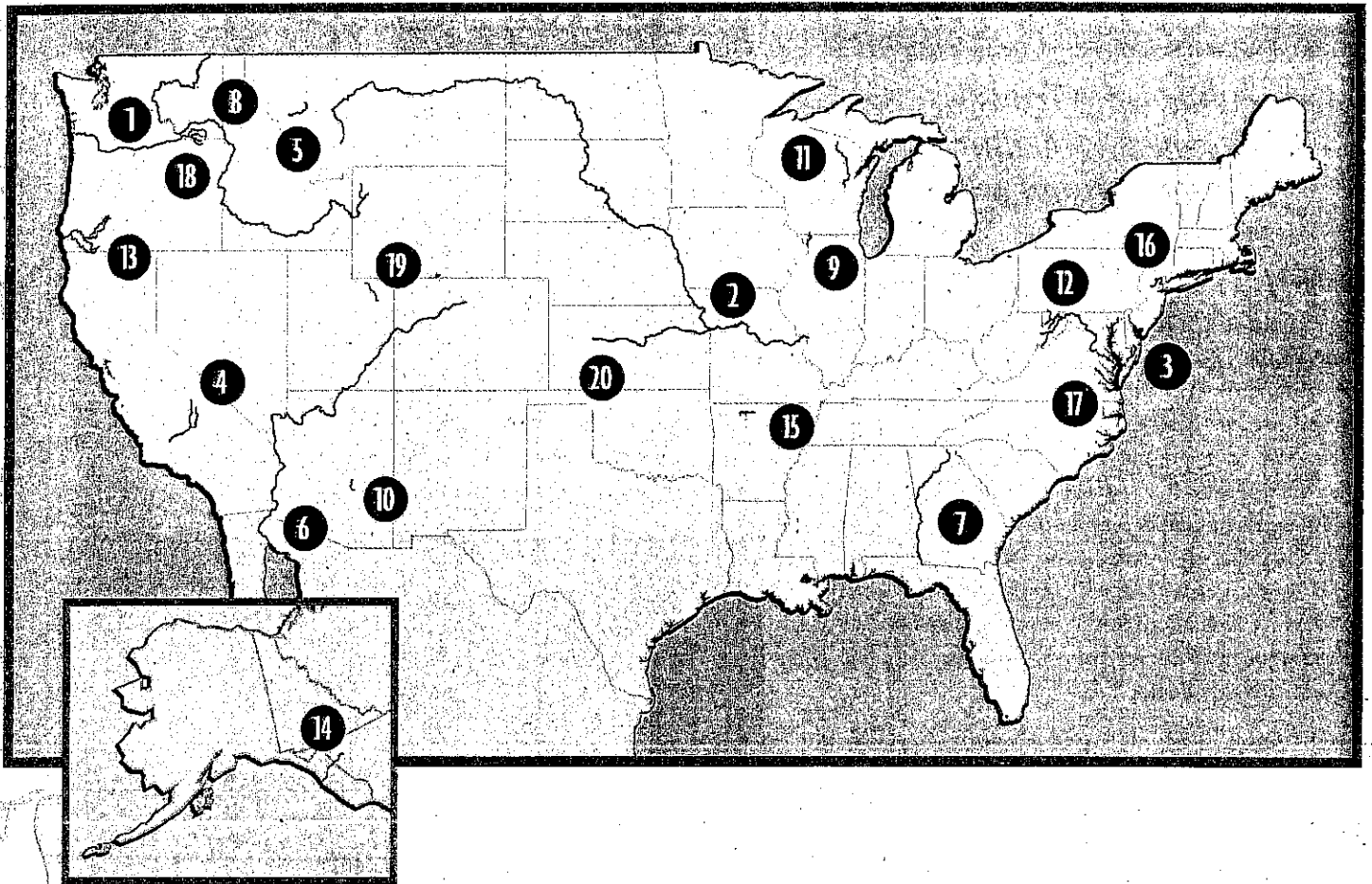


Photo: Tim Palmer

Rebecca R. Wodder

Rebecca R. Wodder, President, American Rivers

Most Endangered Rivers of 1998



1. Columbia River, Hanford Reach (Washington)
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Columbia River, Hanford Reach

*Threat: Public Land Transfer,
Irrigated Agriculture,
Nuclear Waste Contamination*

Most Endangered River of 1998

Summary

The Hanford Reach is the last free-flowing, non-tidal stretch of the Columbia River in the United States. Protected from development by the creation of the Hanford Nuclear Reservation in 1943, the Hanford Reach exists in its natural state — a free-flowing river with wild uplands. It sustains a thriving fishery, the only healthy and harvestable salmon runs anywhere in the upper Columbia and Snake Rivers. Wildlife of remarkable diversity and botanical treasures are found along the Reach. The Hanford Reach is now at risk because the Department of Energy plans to “dispose” of much of the land along its banks.

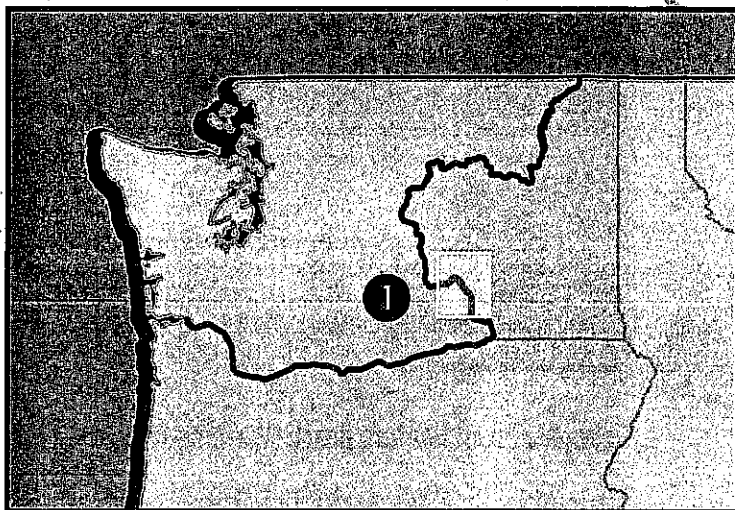
In 1997, Senator Patty Murray (D-WA) and Congressman Norm Dicks (D-WA) introduced legislation to designate the Hanford Reach as a National Wild and Scenic River. Washington Governor Gary Locke, Oregon Governor John Kitzhaber, and Alaska Governor Tony Knowles all support protection of the Reach as a Wild and Scenic River. However, Congressman “Doc” Hastings (R-WA) introduced a bill to give the 1/4-mile wide river corridor to Washington State and 90,000 acres of the adjoining uplands of the Wahluke Slope to three local counties, subject to management by a local government commission and use in irrigated agriculture.

The River

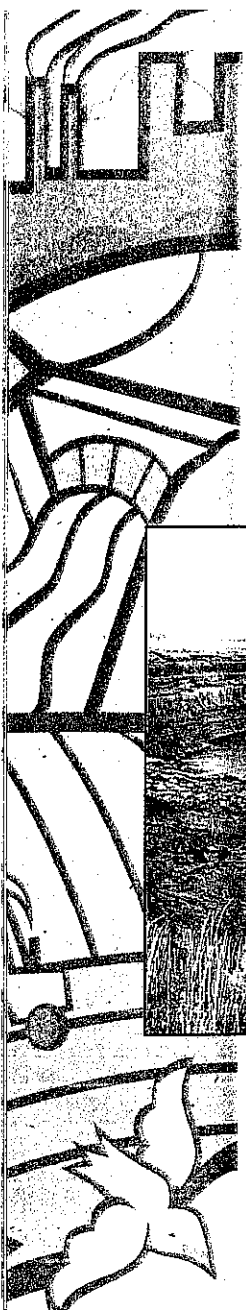
The 51-mile long Hanford Reach is the last wild, undammed, free-flowing stretch of the Columbia River in the United States. Although still affected by upstream dams, the Reach's natural river flows make it the only example of healthy and productive river habitat left on the upper main Columbia and Snake Rivers.

The Hanford Reach was closed to public access and development in 1943 so the United States could produce weapons-grade plutonium for national defense. As part of a security buffer zone surrounding the nuclear facility, the waters of the Hanford Reach escaped the large

hydroelectric projects and other industrial and agricultural projects typical along the rest of the Columbia. About 560 square miles along the Columbia are largely undeveloped, although certain areas of the nuclear facility are among the most toxic sites on Earth. Ironically, 94 percent of the area is still a mostly intact ecosystem.



One of the most important features of the Hanford Reach is that it sustains a healthy fish population, protecting the Columbia's last prime habitat for fall chinook salmon. According to an American Fisheries Society report, these Hanford Reach salmon are the only healthy, harvestable fishing runs in the upper Columbia and Snake Rivers. The significance of the Hanford Reach's spawning and rearing habitat for fall chinook salmon, attributable to its natural river-like conditions, cannot be overstated. These unique fish, called “upriver brights” because they retain their color and flesh tone well into their upstream migration, can weigh as much as sixty pounds. At a time when most Northwest salmon populations are being listed under the Endangered Species Act, Hanford Reach salmon are the only upper river fish run not in serious danger.



For the United States to meet its obligations under many treaties and fisheries management agreements, it is critical to maintain and increase the number of fall chinook. Besides providing spawning habitat for an estimated 80 percent of the Columbia and Snake Rivers' fall chinook salmon, the Reach also supports healthy runs of steelhead, sturgeon, and other fish. Hanford Reach fish are remarkably productive, contributing to commercial, sport, and tribal fisheries in Washington, Oregon, Canada, and Alaska. Fishing provides more than 60,000 jobs and contributes approximately \$1 billion to the regional economy.

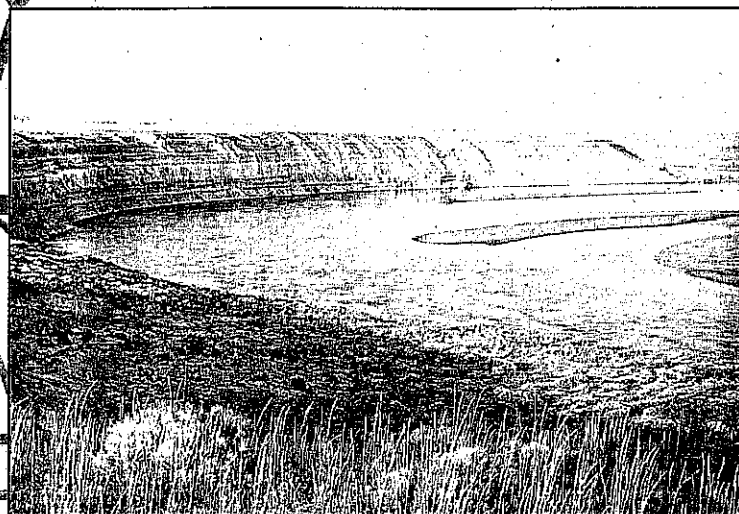


Photo: Joel W. Rogers

The Hanford Reach is the last wild, undammed stretch of the Columbia River.

The Hanford Reach flows through a spectacular landscape of towering cliffs, shifting sand dunes, and sweeping vistas across an arid shrub-steppe. The adjoining uplands include the Saddle Mountain National Wildlife Refuge, the Wahluke State Wildlife Recreation Area, and the Fitzner-Eberhardt Arid Lands Ecology Reserve. Combined, these areas harbor a variety of rare plants and animals and comprise the largest intact area of shrub-steppe in the West.

The wildlife of the Hanford Reach is equally notable. The lands along the Reach host 195 species of birds, including bald eagles, hawks, herons, and waterfowl. Resident mammals include mule deer, otters, beaver, and bobcats. The area is a sanctuary for many rare species of plants and animals. Recent surveys of the Hanford site conducted by The Nature Conservancy have discovered three plant and 27 insect species new to science.

The Hanford Reach is also rich in historic resources. The area includes at least 120 registered archaeological sites, including early pioneer settlements and Native American sites that date as far back as 10,000 years. In addition, several structures, including nuclear reactors along the western shore of the river, chronicle the important history of the Manhattan Project.

The Hanford Reach is a model for restoration of rivers and salmon elsewhere in the Columbia Basin. In its precedent setting 1997 report *Return to the River*, a panel of prominent independent scientists recommended protection of the Hanford Reach. Further, they advocated establishing more natural river conditions similar to those in the Reach in other portions of the Columbia and Snake Rivers by lowering reservoirs and breaching existing dams to restore salmon runs.

The Risk

The Department of Energy, the government agency that has managed the Hanford Nuclear Reservation, plans to dispose of much of the land along its banks. Congressman Hastings' bill, H.R. 1811, would give the 1/4-mile wide river corridor to Washington State and 90,000 acres of the adjoining uplands of the Wahluke Slope to three local counties, subject to management by a local government commission and use in irrigated agriculture. In 1997, the Washington State legislature passed a "House Joint Memorial" petitioning President Clinton and the Congress to turn over the Wahluke Slope to local counties for conversion to irrigated agriculture.

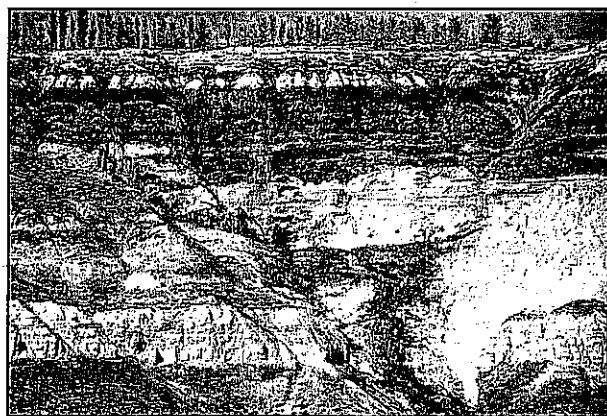


Photo: Joel W. Rogers

Irrigated agriculture would destroy fragile lands and fish habitat. Here, a landslide caused by ground-water saturation dumps sediment into the river.

The introduction of irrigated agriculture would result in the loss of public lands of great and rare ecological value. Landslides along the fragile and now pristine White Bluffs, caused by saturation from irrigation water, would destroy a unique desert environment and would dump sediment into the river, degrading water quality and choking salmon redds (nests). In addition, agricultural chemical runoff would degrade water quality.

Congressman Hastings' bill threatens the long-term protection and coordinated resource management of this nationally significant wild river and its spectacular resources. H.R. 1811 also represents the first time Congress would destroy a National Wildlife Refuge. In addition, the legislation provides for a massive transfer of federal assets — 90,000 acres of the public-owned and ecologically significant Wahluke Slope — to Washington State and county governments, allowing use by private development interests.

What Can Be Done

Senator Murray, joined by Senator Ron Wyden (D-OR), has introduced legislation, S. 200, to designate the Hanford Reach as a National Wild and Scenic River, giving management responsibilities to the U.S. Fish and Wildlife Service (FWS). Congressman Dicks has introduced companion House legislation, H.R. 1477. The governors of Washington, Oregon, and Alaska all support designation of the Hanford Reach as a National Wild and Scenic River, citing the Reach as the last major spawning ground for fall chinook salmon in the Columbia River. Tribal governments endorse Senator Murray's bill, as do numerous local and regional newspapers. In addition, permanent protection of the Hanford Reach is consistent with the federal government's legal obligation to protect Hanford Reach salmon and increase their numbers under international treaties, tribal treaties, and fisheries management agreements.

The Reach's associated lands, including the Wahluke Slope, need protection, either by Congress or through an administrative land transfer from the Department of Energy to the FWS. The Department of Energy must also complete its cleanup of nuclear waste that contaminates portions of the Hanford Nuclear Reservation, a process expected to cost billions of dollars over the next forty years.

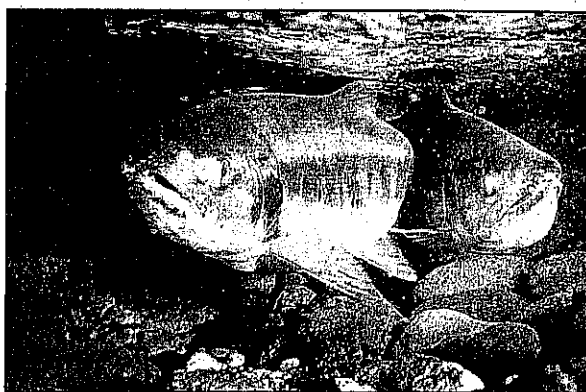


Photo courtesy Bonneville Power Administration

The Hanford Reach supports the only healthy salmon runs anywhere in the upper Columbia basin.

Permanent protection of the Hanford Reach as a Wild and Scenic River can help us understand how natural river flows aid the spawning and migration of salmon. This national treasure should continue to serve as a laboratory and an example for our stewardship of this great resource. If the Hanford Reach and its surrounding lands are lost, as threatened by H.R. 1811, the best hope for restoration of the Columbia's salmon will be destroyed.

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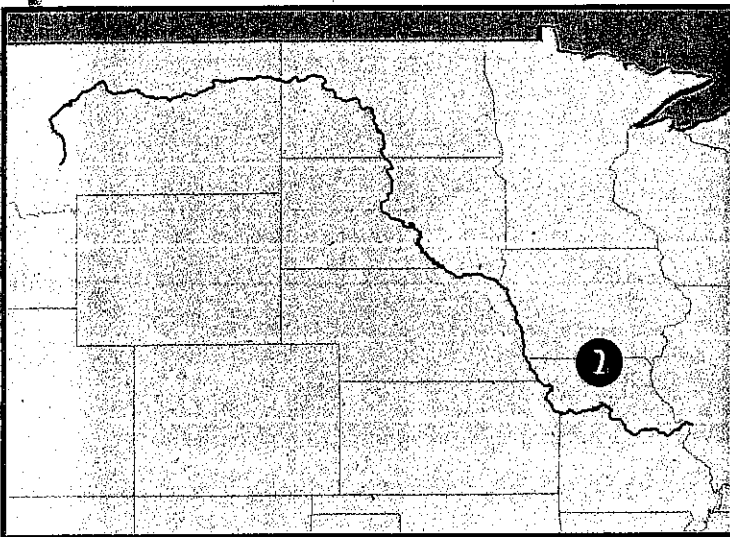
Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, Missouri

Missouri River

Threat: Channelization, Dams

Summary

The Missouri River was once one of the world's most biologically productive waterways. Today, much of the river has been reduced to little more than a stabilized barge canal that doubles as a storm sewer. With chutes and side channels now closed and sandbars destroyed, one-fifth of native Missouri species are on federal and state watch lists. Fortunately, Congressional proposals to restore lost habitat and reviews of public and private dam operations are now pieces of an unprecedented opportunity to revitalize the nation's longest river.



The River

The mighty Missouri begins at the confluence of the Jefferson, Madison, and Gallatin Rivers in Montana and completes its 2,500-mile journey at the Mississippi River just north of St. Louis. Almost 1,000 miles from its source, the Missouri picks up the waters of the Yellowstone River, turns south, and captures the Platte and Niobrara Rivers in Nebraska and the Kansas River in Kansas. The river drains an area covering roughly 530,000 square miles, about one-sixth of the surface area of the United States.

The Risk

In 1804, Lewis and Clark bore witness to some of nature's greatest scenes. Immense herds of buffalo, elk, and antelope were seen "feeding in one common and boundless pasture." Lewis identified many species previously unknown to science, including prairie dogs, coyotes, and least terns. On August 8, he observed a blanket of white coming down the river — a flock of white pelicans over three miles long and 70 yards wide.

Nearly 200 years after their voyage of discovery, Lewis and Clark would hardly recognize the Missouri River. Today, white pelicans are rarely seen on the river, and the least tern is considered endangered by the federal government. The campsite where Lewis and Clark celebrated Independence Day is now a cultivated field, farmed to the river's edge.

Dams and channels created to support navigation, generate hydropower, and reduce flooding have dramatically altered the Missouri, eliminating the natural meanders and oxbows that once supported one of the world's most diverse fisheries. Army engineering reduced the average width of the river between Sioux City and St. Louis by two-thirds, replacing the river's meandering, braided channels with a shorter, more "stable" navigation canal. Nearly all of the river's islands and sandbars are gone. Now, many Missouri River species are present at less than 10 percent of their historic population levels, threatening recreation-dependent industries. In addition, private and public dam operations and poor livestock management practices in Montana threaten trout fisheries and are slowly eliminating the river's cottonwoods.

What Can Be Done

As the nation prepares to celebrate the 200th anniversary of Lewis and Clark's voyage of discovery, we have a once-in-a-lifetime opportunity to restore the Missouri River and revitalize riverside communities. Millions of people already visit the river each year to go sight-seeing, hunting, fishing, boating, and camping (often in areas closely resembling the Missouri chronicled by

Lewis and Clark), generating more than \$100 million in annual economic benefits. While we cannot bring back the river Lewis and Clark knew, we can repair much of it. If we begin now, we can recreate a Missouri River that will attract recreation and tourism, revitalize urban riverfronts, and improve the quality of life of riverside communities.

Residents of riverside communities can take the following steps to revitalize the Missouri River:

- **REVITALIZE RIVERFRONTS.** Local officials should work with business and conservation leaders to promote riverfront revitalization projects. Dozens of programs can help riverside communities establish parks, create trails and greenways, and protect historic riverfront buildings.
- **REDUCE FLOOD LOSSES, RESTORE NATURAL PLACES.** Resource managers should acquire chronically flooded farmland from willing sellers, promote flood-tolerant crops like trees, and reduce the impacts of grazing on riverside cottonwoods. In addition to providing habitat for wildlife, land acquisition reduces the costs of future floods by giving the river more room to spread out and eliminating future disaster payments. In 1998, Congress should pass proposals by Senator Christopher "Kit" Bond (R-MO) and Representatives Pat Danner (D-MO) and Kenny Hulshof (R-MO) to restore lost habitat, and the Big Muddy National Fish and Wildlife refuge should be expanded to 60,000 acres.
- **MANAGE DAMS FOR PEOPLE AND WILDLIFE.** Federal and private dam owners should adopt dam releases that support recreation, wildlife, and riverside communities. To support the Missouri's few barges, the U.S. Army Corps of Engineers (Corps) drains reservoirs in the Dakotas and eastern Montana during the summer, eliminating conditions favoring recreation and wildlife. Instead, the Corps should store water during the summer and release water during the spring and fall to support recreation and water supply, boost hydropower production, and protect economically important navigation on the Mississippi River. In 1998, the Corps and the Federal Energy Regulatory Commission will review public and private dam operations.

For More Information, Contact:

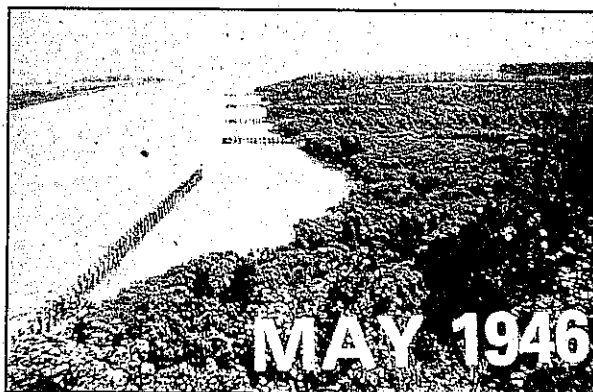
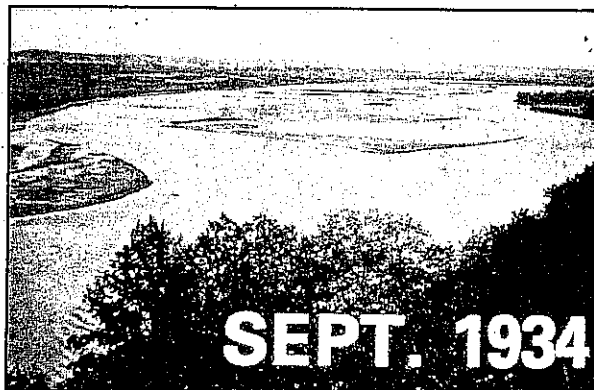
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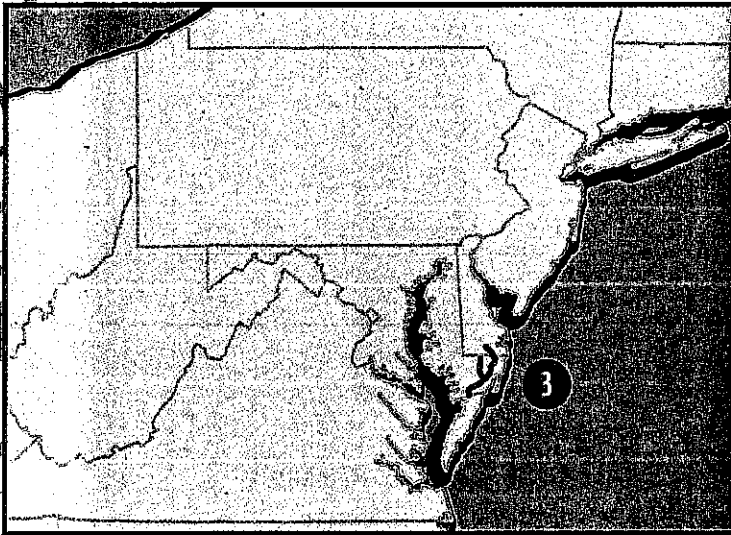
The construction of wing dikes, like those pictured above at Indian Cave Bend in Nebraska, has narrowed the Missouri River to one third of its original width, eliminating river habitat for fish and wildlife.

Pocomoke River

Threat: Toxic Pfiesteria piscicida, Factory Poultry Farms, Nutrient Overloading

Summary

Since 1996, the *Pfiesteria* microbe has been killing fish in the Pocomoke River and making people ill. Last fall, the lower section of the river was closed to commercial fishing and recreational use. Excessive loading of phosphorus and nitrogen from factory poultry farms, other intensive agricultural practices, sewage treatment plants, lawns, septic systems, and other pollutant discharges leave the Pocomoke and the animals and people who use it vulnerable to more outbreaks of toxic *Pfiesteria*.



The River

The Pocomoke River originates in Delaware and flows 49 miles across the southern end of Maryland's Eastern Shore before reaching Virginia and the Pocomoke Sound. The river is the major body of water in the 888-square mile Pocomoke River Basin, and its unique resource values led the State of Maryland to designate it a State Scenic River in 1971. The Maryland Natural Heritage Program considers more than 2,000 acres of land along the Pocomoke to be of exceptional ecological importance.

The Pocomoke's riverine and wetland habitat supports an abundance of fish and wildlife. The basin is one of the best bird environments on the Atlantic coast, and

thousands of anglers each year pursue blueback herring, alewife, white and yellow perch, largemouth bass, and black crappie. The river is a popular spot for hunting, canoeing, swimming, and water-skiing, and it serves local economies as an important waterway for commercial fishing.

The Risk

Starting in the fall of 1996, lower Pocomoke watermen began reporting high numbers of fish with lesions. In early August 1997, hundreds of dead and dying fish were found in the river. The fish kill continued for four days, and officials closed the river for a week. Water samples showed the presence of the toxic dinoflagellate *Pfiesteria piscicida*. A second fish kill began in late August, prompting closure of the river until October 3.

In 1997, researchers from Johns Hopkins University and the University of Maryland examined 13 people for possible *Pfiesteria*-related symptoms, such as fatigue, headaches, respiratory irritation, diarrhea, weight loss, skin irritation, and memory loss. Evidence gathered from 11 of the cases suggests that such consequences as cognitive impairment and skin lesions are a direct result of contact with the toxic form of *Pfiesteria*. Nearly 150 people reported illness from exposure to diseased fish or *Pfiesteria*-contaminated water.

Pfiesteria outbreaks are relatively new phenomena, and scientists are still learning about the microbe's ecology. However, an overabundance of nutrients, such as phosphorus and nitrogen, is a well-documented key to *Pfiesteria* proliferation. Excessive nutrient loading indirectly stimulates the microbe's growth by creating an environment rich in organisms and other food for *Pfiesteria*. In addition, nutrients directly stimulate the growth of *Pfiesteria*, causing an increase in concentrations of the microbe and the likelihood of toxic outbreaks.

Factory poultry farms in the Pocomoke River watershed are a major cause of the river's high nutrient levels. Studies show that 87 percent of the phosphorus and 70 percent of the nitrogen in the Pocomoke arise from

agricultural sources. In the Pocomoke watershed, poultry farming accounts for roughly three-quarters of the agricultural activity, and more than 100 million chickens produce hundreds of thousands of tons of phosphorus- and nitrogen-rich manure each year. Farmers spread it as fertilizer on less than half the cropland in the watershed, which is not enough land to absorb all the manure. As a result, much of it runs off into the Pocomoke. Although many farms in the Pocomoke watershed operate under nutrient management plans, such efforts are primarily voluntary and often fall short when dealing with manure problems of the Pocomoke's magnitude.

To a lesser extent, other sources exacerbate nutrient loading problems in the Pocomoke. Chemical fertilizers applied to crops in the watershed often find their way into the river. Runoff from city streets, lawns, and golf courses is a growing problem, and sewage treatment plants along the river need upgrading to meet higher standards for nutrient loading reduction. But the multi-billion-dollar poultry industry and its factory farms pose the greatest threat.

What Can Be Done

To help the Pocomoke River and to address national animal waste problems, action items should include:

- The Environmental Protection Agency (EPA) released its draft feedlot strategy in March 1998. The strategy recognizes that factory poultry farms (Concentrated Animal Feeding Operations, or CAFOs) are regulated point sources and must be properly permitted under the Clean Water Act. The EPA should fully implement this strategy, although the seven-year implementation timeline should be significantly shortened.
- Each state should consider enacting a moratorium on new and expanding factory livestock farms, as in North Carolina, until the EPA's final feedlot strategy is in place.
- The progressive work of Maryland Governor Parris Glendening in response to animal waste problems should continue.
- Congress should enact legislation setting strong national standards for animal waste management, including a regulatory role for the EPA and a prominent role for the USDA's Natural Resources Conservation Service (NRCS) during development of nutrient management plans. Congressman George Miller's (D-CA) H.R. 3232 and Senator Tom Harkin's (D-IA) S.1323 are steps in the right direction.

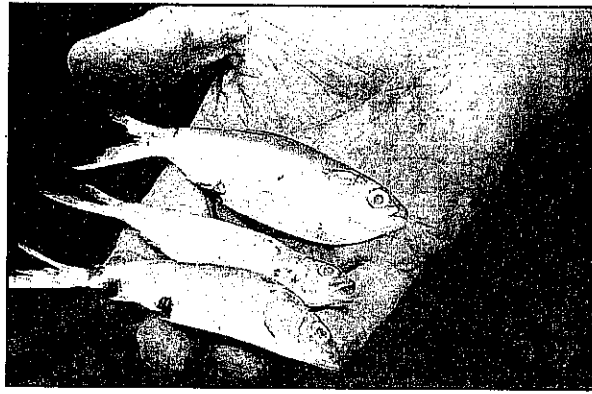


Photo: Art Baltrotsky

Dead fish with lesions caused by *Pfiesteria piscicida*.



Photo: Art Baltrotsky

Pfiesteria may cause headaches, respiratory irritation, and memory loss in humans.

- The NRCS, EPA, and Congress should provide enhanced financial and technical assistance for all livestock owners and operators to deal with animal waste problems through voluntary means like the Environmental Quality Incentives Program, the Riparian Buffer Strategy, Section 319 nonpoint source grants, and other programs.

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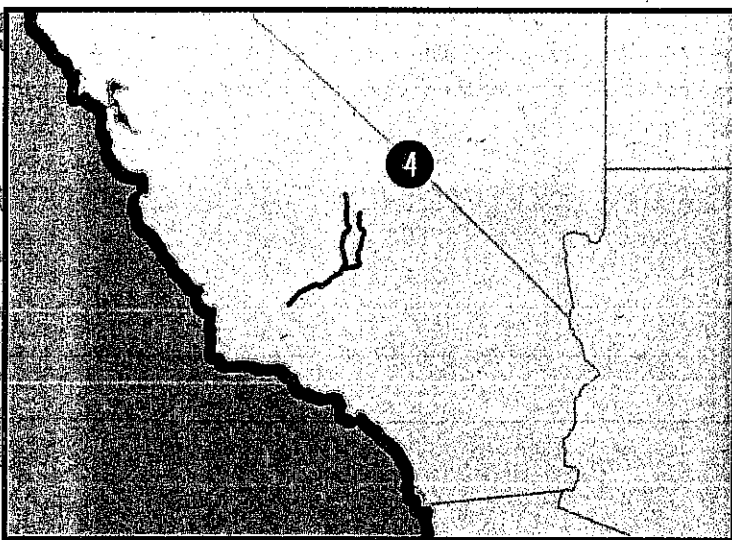
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Kern River

Threat: Small Hydropower Dams

Summary

The spectacular Kern River in southern California is home to six small hydropower projects that divert much of the river's flow. Although these hydropower dams produce very little electric power, they wreak havoc on the Kern River system and the fish and wildlife that depend on a healthy river.



The River

The Kern River once flowed freely from the high Sierra Mountains to the Central Valley, feeding a vast seasonal inland marsh. Although National Wild and Scenic River designation protects 151 miles of the Kern's upper reaches, much of the lower Kern is dammed and diverted by six hydropower projects, and its surrounding lands have been converted into fields of cotton and other irrigated crops. The North and South Forks pass through the Sequoia National Forest before they merge and flow through an increasingly desert-like canyon. Only a few hours' drive from Los Angeles, the Kern River is one of the most popular recreational rivers in California, offering opportunities for camping, hiking, fishing, and whitewater boating.

The Risk

Small hydropower dams are often promoted as environmentally benign "green" power. California's newly deregulated electricity market has increased the pressure to classify all small hydropower dams (less than 30 megawatts) as green. But the Kern River shows the fallacy of this argument. The five small hydropower projects on the Kern (along with one larger project) have significantly degraded a formerly vital river system, while averaging a mere 14 megawatts of power output (18 megawatts counting the river's one larger 40-megawatt dam). On average, an 18-megawatt project provides power for only 12,614 families; a 14-megawatt project, for only 9,811 families.

The Kern River's "big" hydropower dam, Southern California Edison's (SCE) Fairview Dam (Kern River No. 3), is found on the North Fork. Its 40-megawatt capacity is still very small by western dam standards, accounting for a minuscule 0.2 percent of SCE's total generating capacity. Yet to produce this small amount of power, the dam must divert 30 to 90 percent of the river's water (depending on the season) for a remarkable 16 miles. This diversion causes significant damage to the river's fish populations, including destruction of a blue-ribbon trout fishery. The diversion below the dam has reduced wild rainbow trout populations by 98 percent.

The next dam downstream of Kern River No. 3 is Isabella Dam. Built in 1953, Isabella Dam changed the wild confluence of the North and South Forks of the Kern into a 570,000 acre-foot flatwater reservoir used for water supply, flood control, irrigation, and hydropower. Construction of the dam — which generates only 12 megawatts of power — had a devastating impact on fish and wildlife, eliminating native species that used to live in the unique confluence habitat. In addition, the sun heats the water in this wide and shallow reservoir to unnaturally high levels, affecting river temperatures for the remaining river miles.

In the 34-mile stretch of river below Isabella Dam, 58 percent of the Kern's flow is altered to boost hydropower generation at four additional hydropower

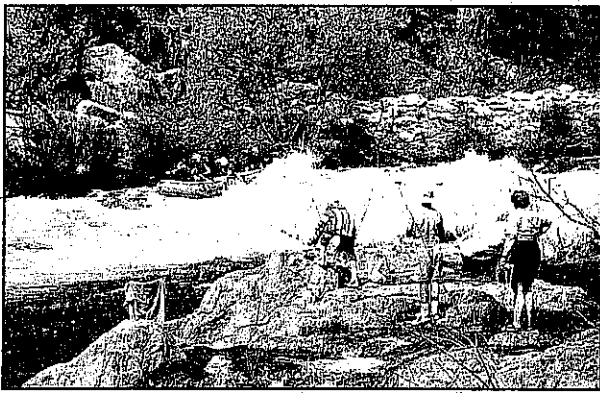


Photo: Tim Palmer

Rare free-flowing stretches of the Kern provide opportunities for boating, camping, and fishing. Unfortunately, the dams wreak havoc on fish habitat and 66 percent of the anglers on the Kern rate fishing as "poor."

projects. River flows for SCE's 12-megawatt Borel powerhouse are diverted directly from Isabella Dam, leaving minimal flow in the seven miles of river between the dam and the powerhouse. SCE's 26-megawatt Democrat Dam (Kern River No. 1), located 13 miles below Borel, diverts up to 94 percent of the Kern's flow for 10.2 miles, leaving only a trickle of water in the channel. And once it is returned to its natural path, the flow is immediately diverted again by Pacific Gas & Electric's 11.5-megawatt Kern Canyon Project. Below Kern Canyon, the flow is returned to the river for less than a mile before being diverted by an independent hydropower producer's 7-megawatt Rio Bravo Project.

The result is a river with water levels insufficient to maintain healthy fish and wildlife populations or support recreational opportunities. Although the weather in the Kern River basin produces hot, dry, summers and wet winters, Lower Kern flows are controlled to produce high flows in the summer and low flows in the winter. This fundamental change to the natural flow cycle of the river disrupts seasonal cues that many fish and wildlife need in order to develop and reproduce. Furthermore, the temperature of the water released from Isabella Dam has changed this lower stretch of river to warm-water habitat, eliminating native aquatic species.

The unsuccessful recreational fishery in the Kern demonstrates the river's poor aquatic conditions. Even though the river is stocked annually with 40,000 to 50,000 non-native rainbow trout large enough to catch, 66 percent of anglers on the Lower Kern rate fishing as

"poor." The self-reproducing smallmouth bass population in the river is also feeling the impact of the unnatural cycles; most fish are too small for anglers to keep. And on both the North Fork and Lower Kern, dam operations also harm popular whitewater recreation opportunities.

What Can Be Done

The damage caused on the Kern River demonstrates that "small" does not necessarily mean "green" when it comes to hydropower dams. Nevertheless, when operated properly, some dams can reduce their impacts on the river system. Two of the Kern's hydropower dams — Kern River No. 1 and Kern River No. 3 — are presently undergoing relicensing before the Federal Energy Regulatory Commission (FERC). Licenses for Borel and Kern Canyon expire in 2005. New FERC licenses should require changes in the operation of these four dams to ensure sufficient river habitat for fish and wildlife and to satisfy the region's high demand for river recreation.

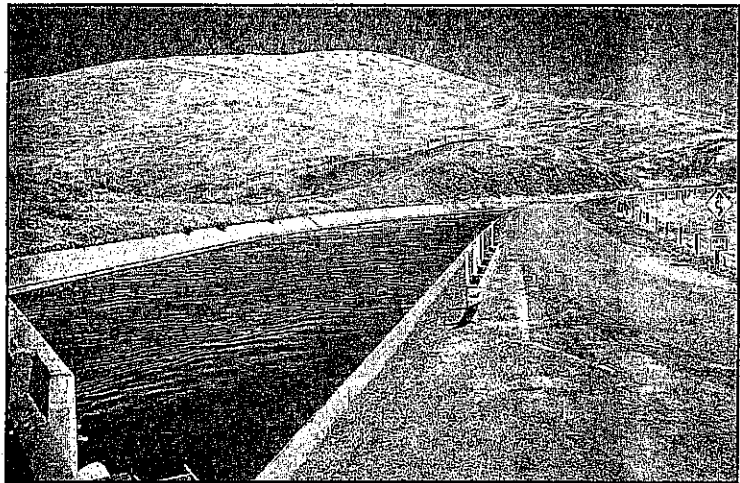


Photo: Maureen Rose

One dam on the Kern diverts 30 to 90 percent of the river's water for 16 miles, but generates a minuscule 0.2 percent of SCE's total capacity.

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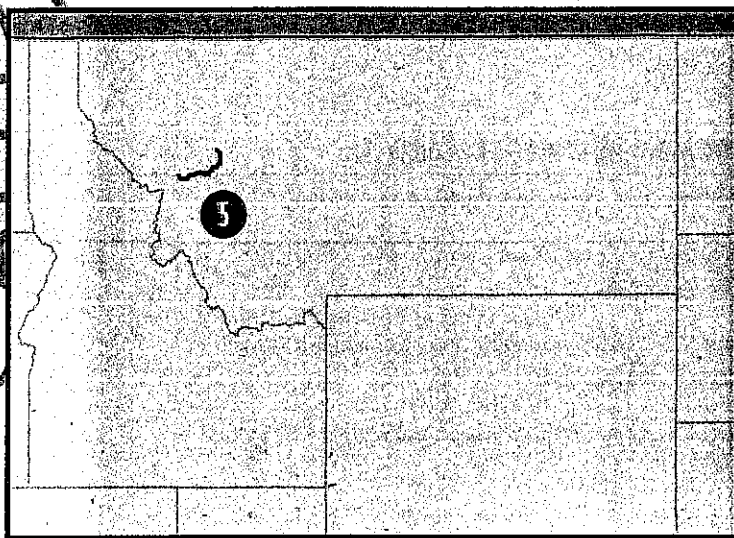


Blackfoot River

Threat: Proposed Gold Mine

Summary

The Blackfoot River, one of Montana's great trout streams, faces serious trouble from one of the world's ten largest cyanide heap-leach gold mines. Colorado-based Canyon Resources Corporation proposes to develop the mine less than a quarter mile from the river's edge. This project threatens the river's high-quality fishery with pollution from cyanide and acid mine drainage, and endangers the area's sensitive groundwater hydrology. In addition, eventual reclamation of the land and long-term cleanup of the mine remain uncertain, particularly in light of the recent financial instability of the gold industry.



The River

The Blackfoot River, made famous by Norman Maclean's novella *A River Runs Through It*, flows 132 miles west from its headwaters at the Continental Divide to its confluence with the Clark Fork of the Columbia River, near Missoula, Montana. In the summer of 1806, Captain Meriwether Lewis traveled up the Blackfoot River through the proposed mine site on his way home after crossing the continent. The river flows through two national forests and across Bureau of Land Management (BLM) lands, corporate forestlands, and private ranches. Besides sustaining rainbow, brown, and brook trout, the

upper Blackfoot supports important populations of native westslope cutthroat trout and bull trout, species petitioned for designation under the Endangered Species Act. In 1995, recreational fishing on the Blackfoot River generated more than \$7 million for local communities.

The Blackfoot is one of the nation's most beloved rivers. Despite years of abuse from mining, timber, and grazing, it remains an extraordinary resource. In the 1970s, local landowners, public agencies, and recreational users forged a landmark partnership to manage access along the river. In recent years, Trout Unlimited, the Orvis Company, and state and federal agencies have invested more than a million dollars on river restoration projects.

The Risk

An immense open-pit gold mine utilizing the controversial cyanide heap-leach technology is proposed near the banks of the Blackfoot River and its Lander's Fork tributary. The size and scale of the mine are enormous. Canyon Resources will move 980 million tons of rock to recover 6.3 million ounces of gold. This translates into roughly 155 tons of rock and ore for each ounce of gold, creating an open pit one mile long, 3/4 mile wide, and 1,200 feet deep. Canyon Resources will not reclaim the pit but will allow it to refill with degraded water and remain a permanent fixture in the Blackfoot Valley.

To keep mine operations dry during ore excavation, the company will pump 10 to 15 million gallons of groundwater a day. This is nearly three times the average amount of water used daily in Helena, Montana's capital city. Waste rock piled 300 to 600 feet high will permanently cover 900 acres of land.

To extract the gold, the ore will be placed in heaps sprayed with sodium cyanide — 114 million pounds of the deadly solution over the life of the mine. A plastic liner will be placed beneath the heaps to protect against cyanide leaks. However, according to the project's Plan of Operations, the Environmental Protection Agency (EPA) has found that such liners suffer an average of

one leak per acre. Every cyanide heap-leach mine in Montana has had cyanide spills, leaks, or discharges that violated its environmental permit.

This mine poses substantial threats to the Blackfoot, including arsenic, iron, and manganese contamination; cyanide pollution of groundwater that feeds the river; increased sedimentation; increased nitrate concentrations; destruction of forty-six acres of wetlands; and destruction of the Landers Fork bull trout habitat by altering the river's path and flow. As with so many mines, increased levels of acid mine pollution threaten to degrade water quality and fisheries habitat in the river. Nationally, acid mine pollution degrades more miles of river than are protected in the National Wild and Scenic Rivers system.

What Can Be Done

This year, the Montana Department of Environmental Quality (DEQ) is expected to release its Draft Environmental Impact Statement (DEIS) evaluating Canyon Resources' application to mine. Ultimately, the DEQ and Montana State Land Board will make the decision on this mine. Among the key issues the Land Board and DEQ must decide are whether Canyon Resources can safely operate and reclaim the mine. Conservationists have urged the DEQ to require Canyon Resources to line both the heap leach area and the waste rock area, and to backfill the open pit at the end of the mine's life. Such measures are essential for protecting water quality in the Blackfoot River.

In recent months, the sharply declining price of gold has led a number of economists to question the stability and future of the gold mining industry. In January 1998, a major international gold company, Pegasus Gold, Inc.,

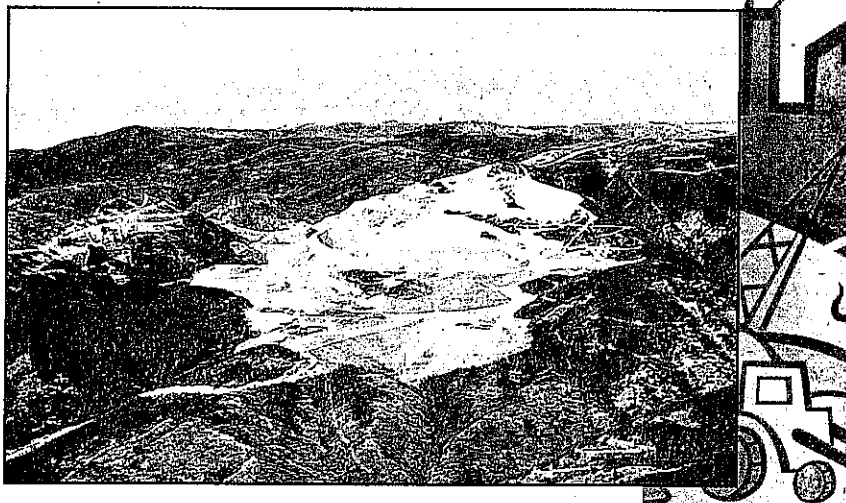


Photo: Will Patric, Mineral Policy Center

The declining price of gold forced Pegasus Gold, Inc. to file for bankruptcy earlier this year and close its controversial Zortman-Landusky gold mine in Montana.

filed for bankruptcy protection. Conservationists and regulatory officials continue to question who will pay for the clean up of the bankrupt company's mining properties.

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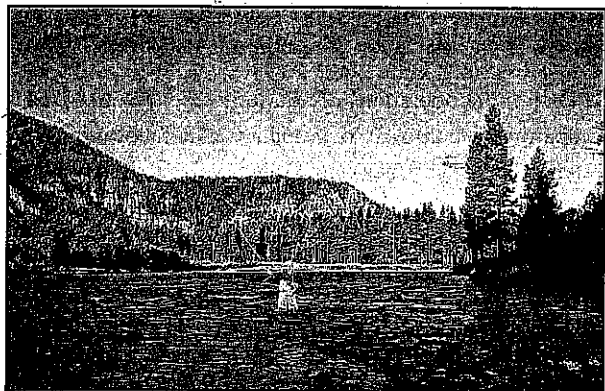


Photo: Glenn Oakley

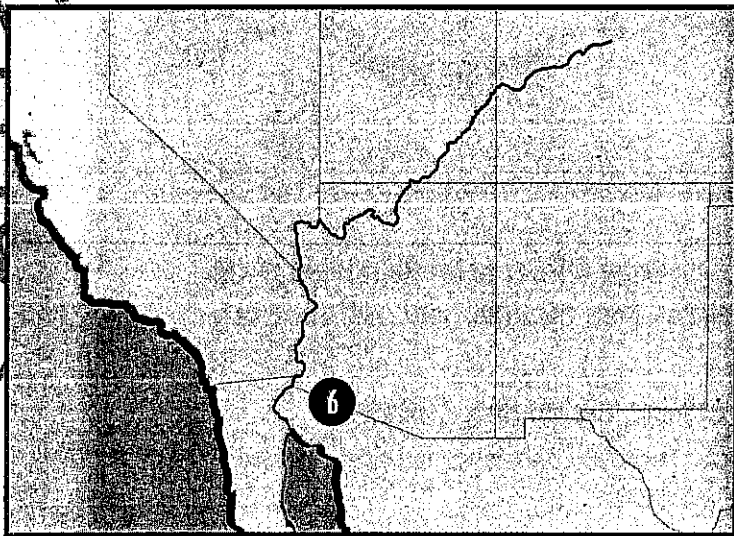
Pollutants from the proposed mine, including cyanide, heavy metals, and acid mine drainage, threaten the Blackfoot and its famous trout fishery.

Colorado River Delta

Threat: Water Use, Water Allocation

Summary

The Colorado River Delta, where the river meets the Gulf of California in Mexico, no longer receives flows from the Colorado in years of normal runoff. Dams upstream in the United States, which help direct Colorado River water to agricultural and municipal uses, and diversions in Mexico have cut off the flow of fresh water and silt to the Delta. Consequently, the once-lush "milk-and-honey wilderness" that Aldo Leopold observed in 1922 has been decimated. This year, many public and private entities in the U.S. will make decisions that could determine whether water can be made available to the Delta in the future.



The River

The Colorado River flows 1,450 miles and drains portions of seven states in the United States. It crosses into Mexico near Yuma, Arizona, cuts through the agricultural region of the Mexicali Valley, and culminates in what was once a broad Delta just above the Gulf of California. Historically, the Delta was a vast area of dense wetlands and salt flats covering about 3,860 square miles in the arid Sonoran Desert. It supported 200 to 400 plant species and prolific wildlife, including beaver, bobcat, fish, and thousands of waterfowl. More than 5,000 people, the indigenous Cucupas, made their living in the Delta by fishing, hunting, and gathering.

Six critical wetland and riparian areas remain: the Cienega de Santa Clara, the Rio Hardy wetlands, and the El Doctor wetlands are the best researched of these. Despite their limited coverage, these wetlands still provide important ecological functions and critical wildlife habitat. The Delta and upper Gulf of California were designated a biosphere reserve in 1993. Flood control releases in the U.S. have begun to help reestablish riparian vegetation in other areas along the river channel.

Today, the Colorado River and its plumbing system of over 30 dams supply water to nearly 30 million people and irrigate approximately 6,000 square miles of agricultural land. These dams have choked off the flow of fresh water, silt, and nutrients that formed and sustained the Delta. The wetlands and wildlife have dwindled, and Cucupas within Mexico number only about 200 people.

The Risk

The limited quantities of fresh water that now reach the Delta come from three main sources. The first is low-quality agricultural drainage water from the Wellton-Mohawk Irrigation District in Arizona discharged directly to the Cienega de Santa Clara. The second source is agricultural runoff from the Mexicali Valley. Finally, the Delta also sporadically receives excess unused water from the United States that has not been diverted at the border for use in Mexico.

The Wellton-Mohawk water provides the most constant supply of water to the Delta region. However, this flow could be eliminated if the Bureau of Reclamation decides to activate the Yuma Desalting Plant. The plant, completed in 1992, was built to treat saline Colorado River water before delivering it to Mexico, but it has never been put into full operation. The Bureau is exploring the option of partially operating the plant and selling the treated water.

The Delta receives water in excess of treaty amounts from the United States only when more water flows downstream than U.S. users have the right to take or the capability to divert. Increasingly, those users are

finding ways to take advantage of previously unused flows. This year, U.S. Interior Secretary Bruce Babbitt proposed regulations for offstream banking of Colorado River water. In addition, the Bureau of Reclamation is developing criteria by which the Secretary can declare a water surplus condition, allowing users to take additional quantities in wet years. These actions would further reduce the frequency with which flood flows reach the Delta.

U.S. interests are also addressing endangered species problems on the lower Colorado through the development of a Multi-Species Conservation Program. It appears that program may not include consideration of the Delta except as a potential site for future mitigation activities. This would be a significant lost opportunity for the Delta.

What Can Be Done

To assure the continued existence of the Cienega de Santa Clara, the Bureau of Reclamation must agree to refrain from operating the Yuma Desalting Plant and allow Wellton-Mohawk water to continue to reach the Delta, or it must replace any water diverted to the plant. Offstream banking regulations, surplus criteria, and other new efforts to use presently unused water should include provisions redirecting part of the water toward the river ecosystem and the Delta. In addition, Mexico would have to agree to leave that water in the channel and not divert it to agricultural uses.

The Multi-Species Conservation Program should commit to examining the species and ecosystem needs of the Delta, despite any dispute regarding U.S. entities' legal obligation toward species south of the border. It should attempt to work with Mexican interests to find voluntary solutions for Delta species. In May 1997, Mexican Environment Secretary Carabias and Interior Secretary Babbitt signed a letter of intent for joint work in natural protected areas in the border region. This initiative should be used to focus on the Delta, and to develop the improved communication and coordination needed to address the Delta situation.

Other potential actions for the Delta include: channeling treated water from the proposed Mexicali II wastewater treatment plant into the Rio Hardy rather than into the New River/Salton Sea; improving management of flood releases in the U.S. to maximize their benefit to the Delta; and dedicating water to the Delta conserved through water conservation practices. Long-term solutions include voluntary reallocation of some Colorado River water to the Delta, and potential negotiation of an environmental provision to the 1944 Mexican treaty.

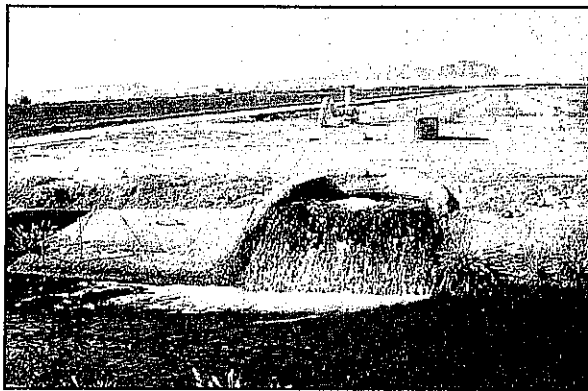


Photo courtesy Environmental Research Lab, University of Arizona

Agricultural drainage is pumped into the Main Outlet Drain Extension (MODE) for delivery to the fragile Cienega de Santa Clara wetlands ...

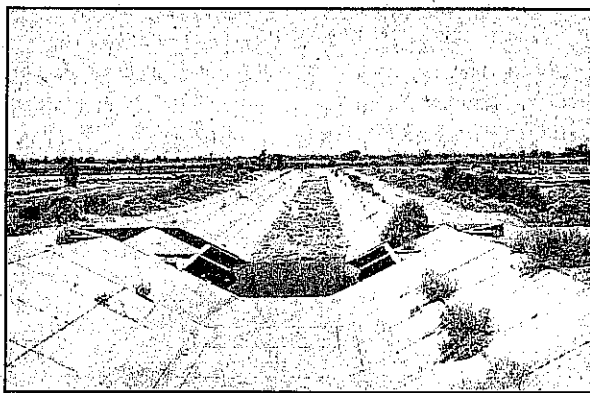


Photo courtesy Environmental Research Lab, University of Arizona

... but water delivery to the Delta is not always reliable. Here, the MODE canal, 1993, lies empty.

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Georgia, Alabama, Florida

Chattahoochee River

*Threat: Development, Polluted Runoff, Sewage Overflows,
Quality/Quantity Conflicts*

Summary

A myriad of pollutants, including untreated sewage, stormwater runoff, pesticides, excess nutrients, sediment, bacteria, and heavy metals enters the Chattahoochee River from its tributary streams. Urban development and millions of gallons of untreated and under-treated sewage from Atlanta also cause significant problems. For more than 70 miles downstream of Atlanta, communities do not withdraw water from the river because of such high levels of pollution. And, unless the recently ratified Tri-State Compact, an agreement among the three states along the river, results in water allocations by the end of the year, it will dissolve, and the opportunity to secure basin-wide, rather than piecemeal, water resource management will be lost.

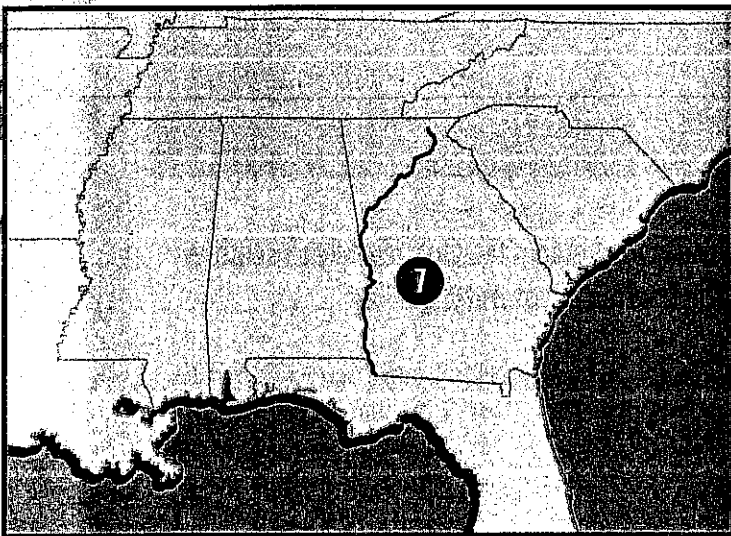
The Chattahoochee, the southernmost trout habitat in the eastern United States, sustains more than 2.8 million people with drinking water. It provides hydropower from 13 dams, fuels businesses and industries, irrigates farms, and offers outstanding opportunities for recreation. The Atlanta metropolitan area, with an expected population of 3.6 million by 2020, is less than 80 miles from the Chattahoochee's headwaters. This is the smallest river basin providing most of the water supply for any metropolitan area in the United States.

The Risk

Half of all Georgians drink from the Chattahoochee every day. Unfortunately, inadequate water and sewer systems, runoff from paved surfaces and agriculture, erosion from construction sites, and seepage from septic tanks threaten the integrity of this water supply. Urban runoff and other nonpoint sources are cited as the cause of 72 percent of water quality violations. More than 300 million gallons of treated municipal wastewater are discharged daily into the Chattahoochee River basin. According to fish tissue and sediment studies conducted by the Environmental Protection Agency (EPA), the Chattahoochee's 70-mile stretch south of Atlanta is one of the most polluted stretches of river in the nation.

The headwaters of the river flow from the Chattahoochee National Forest, an area increasingly threatened by recreational pressures. The roads and campsites in the area contribute sediment runoff, as does expanding residential development. Lake Lanier, the most heavily visited federal recreation lake in the country and a resource that supports a \$2 billion tourist industry, already suffers from sediment overload and a diminishing capacity for water storage.

Because of its dysfunctional sewage treatment plants, combined sewer overflows, and cracked and broken sewer lines, Atlanta is the single biggest polluter of the Chattahoochee. Most of the urban streams in the metro-



The River

The Chattahoochee begins as a spring in the forested north Georgia mountains, then flows southwest to the Alabama border where it becomes the boundary between Georgia and Alabama. The river continues its 426-mile journey to the Florida border, joins the Flint River at Lake Seminole, and becomes Florida's Apalachicola River.

politan area pose a health threat from high fecal coliform levels. In 1995, two environmental organizations, downstream communities, and business groups sued the city for polluting the river by failing to treat its sewage properly. In November 1997, a U.S. District Court judge ruled against the city, finding that it violated its pollution discharge permits and the Clean Water Act.

According to the ruling, Atlanta's combined sewer overflow treatment facilities are dumping massive amounts of proscribed metals and fecal coliform into Chattahoochee tributaries.

The river is also threatened by what is typically considered the "western" water issue of quantity vs. quality. Despite Georgia's annual average of 50 inches of rain, water supply is fast becoming a limiting factor for future growth in the area. Georgia, Alabama, and Florida all depend on the Chattahoochee for water. The result is an ongoing water supply dispute in the Apalachicola-Chattahoochee-Flint River Basin.

In the early 1990s, the three states began a basin-wide study that led to the Tri-State Compact, an agreement to cooperate on water allocation. But the compact is time-limited, and if these states do not negotiate allocation agreements by December 31, 1998, it will disintegrate. Unfortunately, the issues of water quality and habitat protection complicate reaching consensus. Environmentalists, recreational river users, scientists, and others working to protect and restore the Chattahoochee are concerned that the issue of adequate in-stream flows could be lost in quantity discussions.

What Can Be Done

Atlanta remains in negotiations on a consent decree to outline a course of remedial actions. The city council and the mayor must work cooperatively to secure the consent decree and move toward ending Atlanta's degradation of the Chattahoochee.

The Georgia Department of Natural Resources considers the Chattahoochee in need of special attention. The state recently adopted a "zero tolerance" policy against water polluters in the Upper Chattahoochee River basin, which Georgia has deemed a "sensitive high-growth area." The new policy attempts to inflict swift and severe penalties for water quality violations and demands the immediate correction of pollution problems. Georgia has taken an important first step by adopting this policy, but its success will depend on how vigilantly the state enforces it with the City of Atlanta and other chronic violators.

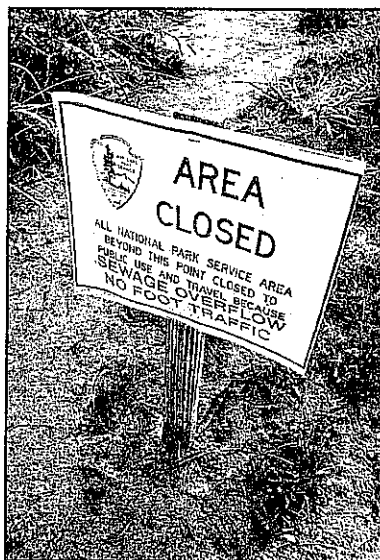


Photo courtesy Upper Chattahoochee Riverkeeper

Overflows of city sewage have made stretches of the Chattahoochee unsafe.

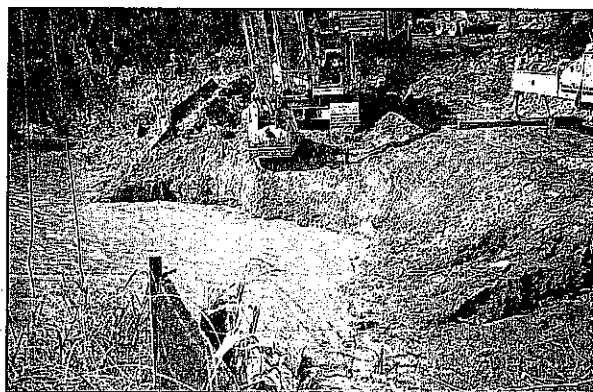


Photo courtesy Upper Chattahoochee Riverkeeper

Development erodes the Chattahoochee's sensitive banks and threatens water quality.

Georgia, Alabama, and Florida must agree to water supply allocations by the end of the year or the Tri-State Compact will dissolve. The agreement must address natural resource, recreational, and quality-of-life issues as well, or the Chattahoochee and its aquatic life could continue to suffer from inadequate flows and environmental degradation.

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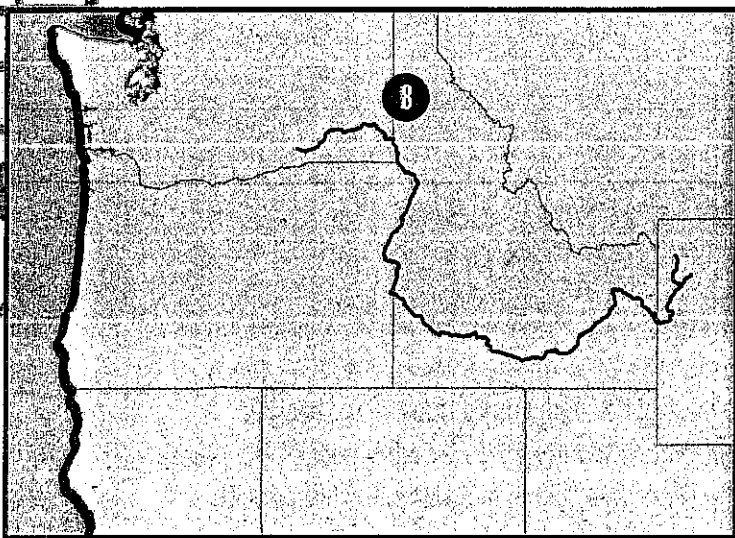
Karen Plant, The Chattahoochee Riverkeeper:
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Lower Snake River

Threat: Dams

Summary

Four dams and reservoirs constructed by the U.S. Army Corps of Engineers on the Lower Snake River eliminate the natural, free flow of the river and create death traps for Snake River salmon and steelhead. As a result, Snake River chinook salmon, sockeye salmon, and steelhead are all listed under the Endangered Species Act. Instead of changing the dams to restore more natural river conditions, the Corps relies on its long-standing, unsuccessful program of trucking and barging young migrating fish around the dams. Federal agencies agree current measures are not adequate and promise to decide dam modifications in 1999. However, the Corps appears likely to miss this deadline.



The River

The Lower Snake River extends 140 miles, from Lewiston, Idaho, to the confluence of the Snake and Columbia Rivers. A large river with flows ranging from 20,000 cubic feet per second (cfs) to 200,000 cfs, it drains an arid canyon area that Native American tribes have occupied for at least 10,000 years. Snake River fish runs once numbered in the millions each year, contributing about half the Columbia Basin's runs of salmon

and steelhead. Snake River and Columbia River fish once supported sport, commercial, and tribal fisheries from Idaho, Oregon, and Washington to Alaska and British Columbia.

The Risk

Shortly after the federal dams on the Lower Snake River were completed in the 1970s, their devastating environmental impacts became clear. The dams disrupt and slow natural river flows, create lethal reservoir temperatures, impede essential salmon passage to and from the sea, and kill young salmon attempting to pass the dams. Snake River fish now number in the thousands, hovering on the brink of extinction. Fishing communities and businesses have paid a heavy price for the cheap power, irrigation, and river navigation that the dams provide.

For 20 years, the federal government has tried and failed to mitigate the impacts of the Lower Snake dams. First, they established and institutionalized a program of fish transportation. Young fish migrating to the sea are literally taken from the water and channeled into trucks or barges. This program has not stabilized the fish runs nor helped them to recover, yet it remains the federal government's primary restoration strategy at the Lower Snake dams. When pressed, the government concedes its current efforts are not enough to save endangered salmon and steelhead.

In the precedent-setting *Return to the River* report published in 1997, a panel of independent scientists recommends restoring more natural river conditions as the key to river health and salmon survival. They suggest lowering reservoirs or breaching some of the Columbia Basin's hundreds of dams (including those on the Lower Snake) to restore areas of healthy habitat and fisheries. In both *Return to the River* and a second peer-reviewed scientific report, experts confirm that the federal government's current efforts to save endangered salmon and steelhead are inadequate.

Unfortunately, it is business as usual for the federal agencies. The federal government repeatedly promises to select an adequate long-term program of dam modifications in 1999 and an implementation strategy in 2000. Yet current studies of dam breaching and reservoir lowering by the Corps will not even be completed by 1999. Federal funds for dam modifications in 2000 would require Congressional approval in 1998, but no budget recommendations have yet been made.

What Can Be Done

More natural river conditions should be restored to the Lower Snake River. The most promising approach is the Natural River Option, or dam breaching, in which earthen portions of the dams would be removed, the concrete structure would be "mothballed," and the river would flow around the concrete. Natural river flows and fish habitat would then return to the Lower Snake.

Breaching the dams would not result in the loss of substantial public benefits. They provide no flood control, and breaching would not adversely affect irrigation. Commercial navigation in the river would need to shift to ground transportation, but since commercial navigation costs are 100 percent subsidized by U.S. taxpayers, these funds could be used to provide a smooth transition to rail or truck transport. Retirement of Snake River electricity generation and payment of construction costs might result in a one-time rate increase of 10 percent or less — a modest increase to electric rates already about 40 percent below the national average.

In fact, dam breaching would provide a net economic benefit to the region and to federal taxpayers. *The Idaho Statesman* recently investigated the Natural River/dam breaching option and concluded that it would result in an annual net economic benefit of \$183 million. American Rivers actively supports the Natural River Option. Retirement of the four Snake River dams is the best method of salmon and steelhead recovery — based on both science and economics.

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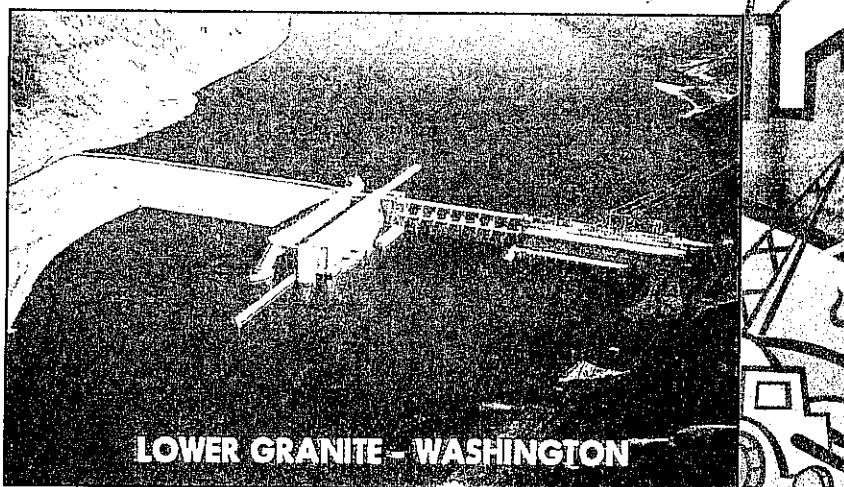


Photo courtesy U.S. Army Corps of Engineers, Walla Walla District

The Lower Granite Dam, pictured above, is one of the four dams on the Lower Snake under consideration for dam breaching.

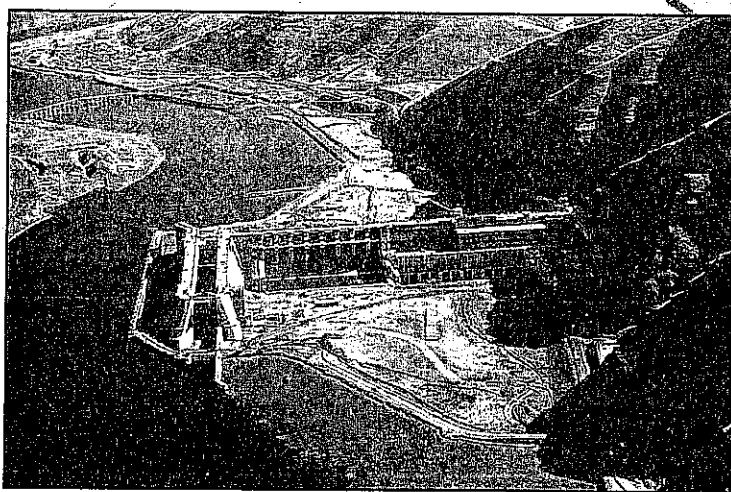


Photo courtesy U.S. Army Corps of Engineers, Walla Walla District

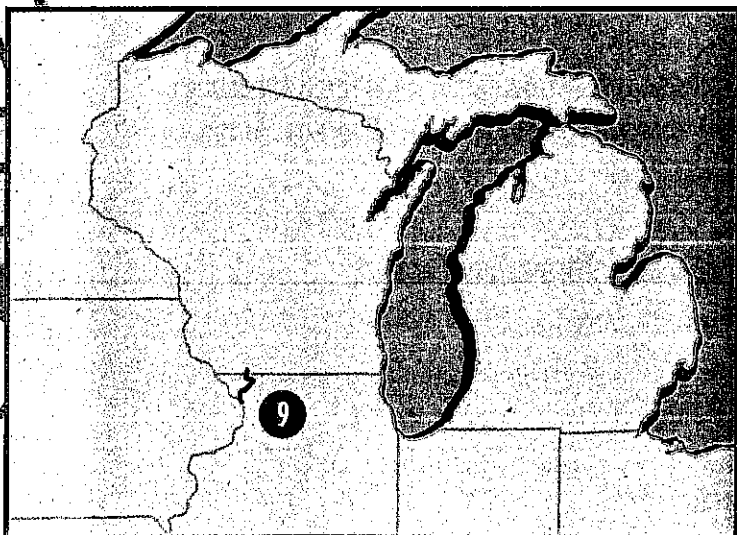
Breaching the dam would remove the earthen section and restore a free-flowing river. If the Lower Granite is breached it will resemble this picture, taken in 1973, of the dam under construction.

Apple River

Threat: Factory Hog Farms

Summary

Two factory hog farms are under construction in the Apple River drainage basin in northwestern Illinois. In recent years, factory hog farms have been the source of large manure spills into rivers, causing fish kills and dramatically degrading water quality. Overapplication of hog manure to crop fields contributes excessive nutrients and bacteria to waterways. Illinois, with some of the weakest factory farm regulations in the nation, is struggling to properly regulate these intensive hog operations and minimize their impact.



The River

The Apple River originates in southern Wisconsin and winds through canyons with massive cliffs of limestone, dolomite, and shale. Small streams and rivers flowing through the rural farmland of Jo Daviess County, Illinois form the Apple, which eventually merges with the Mississippi just above Savanna. The Apple is an attractive angling location and supports many fish species, including smallmouth bass, sunfish, crappie, carp, and suckers. Its clean, clear water provides suitable habitat for trout in the spring, and it is one of few rivers stocked with trout by the Illinois Department of Natural Resources.

The Risk

An example of the growth of factory hog farms can be found in the Apple River watershed. Monticello Pork, LLC, is building both a 4,000-hog facility and an 8,000-hog facility. Each hog will expel 2 1/2 to four times the waste of an average person: combined, the two facilities will generate waste equivalent to a city of 30,000. Cities, however, treat wastewater before releasing it. Monticello Pork will store the waste in deep pits under the hog buildings, creating the constant threat of manure spills, seepage, and leakage. For example, in July 1997, 800,000 gallons of hog manure spilled from a lagoon into Illinois' Bear Creek, another Mississippi River tributary already seriously degraded by suspected spills, releases, and other polluted runoff.

Also, hog manure is often overapplied to crop fields as fertilizer. Components of the excess manure, including nitrogen, phosphorous, potassium, heavy metals, and salts, create polluted runoff that enters the nearest waterway or aquifer.

Monticello Pork intended to establish two farms in Lafayette County in southern Wisconsin, but state laws on livestock and manure management and county zoning restrictions on farm size prevented it from obtaining the necessary permit. This, along with concerns of local citizens for their quality of life, prompted the company to withdraw its Wisconsin application and move just over the state line to Illinois.

Illinois counties are unable to zone agriculture. The state recently passed the Livestock Management Facilities Act, but many of its regulations on factory farms are ineffective. The act requires minor notification and certification steps before hog operations may construct the large lagoons often used to store waste. To counter this requirement, hog operations have stopped using lagoons in new facilities, storing waste instead in deep pits beneath hog production buildings. These pits do not require inspection and can receive permits without a public comment period, and hog operations do not need to report leaks.

Illinois rules on manure application are also grossly inadequate. Facilities with less than 17,500 hogs are not required to file a manure management plan. Currently, only two farms in Illinois out of more than 180 in operation, under construction, or planning to begin construction are large enough to require a waste management plan. Hog operators subdivide their farms to avoid further size-based regulations. In Fulton and Schuyler counties, one company is developing eight sites within a 20-mile radius where more than 40,000 sows will produce 800,000 piglets a year. Though all are owned by Prairie View Farms, they are considered eight independent facilities small enough to avoid filing a waste management plan with the state.

After many years of fish kills, outbreaks of toxic *Pfiesteria piscicida*, and other problems related to hog factories, North Carolina passed a two-year moratorium on new large hog farms. Unfortunately, other states have not followed suit and are competing with Illinois to lure new hog operations, often through regulatory leniency. The portability of hog farming makes it easy for corporate interests to move across state lines to areas of least regulation. State legislatures are reluctant to pass strong regulations because they fear the loss of the industry's perceived economic benefits.

What Can Be Done

To help the Apple River and to address national animal waste problems, action items should include:

- The Environmental Protection Agency (EPA) released its draft feedlot strategy in March 1998. The strategy recognizes that factory poultry farms (Concentrated Animal Feeding Operations, or CAFOs) are regulated point sources and must be properly permitted under the Clean Water Act. The EPA should fully implement this strategy, although the seven-year implementation timeline should be significantly shortened.
- Each state should consider enacting a moratorium on new and expanding factory livestock farms, as in North Carolina, until the EPA's final feedlot strategy is in place.
- Congress should enact legislation setting strong national standards for animal waste management, including a regulatory role for the EPA and a prominent role for the USDA's Natural Resources Conservation Service (NRCS) during development of nutrient management plans. Congressman George Miller's (D-CA) H.R. 3232 and Senator Tom Harkin's (D-IA) S.1323 are steps in the right direction.

- The NRCS, EPA, and Congress should provide enhanced financial and technical assistance for all livestock owners and operators to deal with animal waste problems through voluntary means like the Environmental Quality Incentives Program, the Riparian Buffer Strategy, Section 319 nonpoint source grants, and other programs.

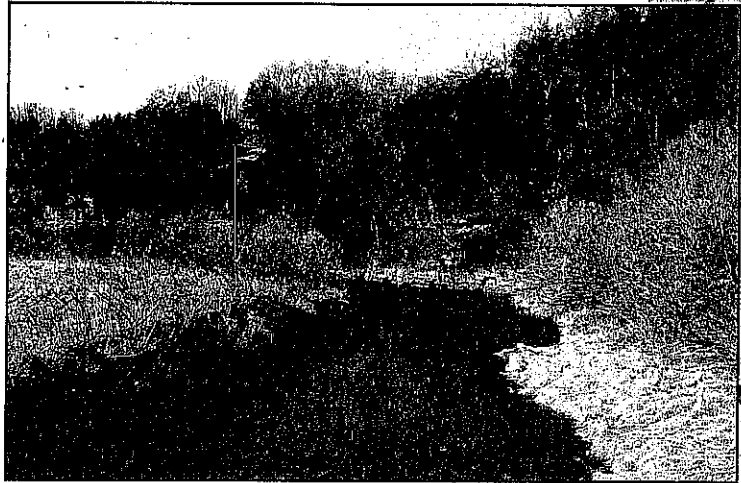


Photo: Steve Ellis

Polluted runoff from factory hog farms threatens the abundant fishery that now flourishes in the Apple River.

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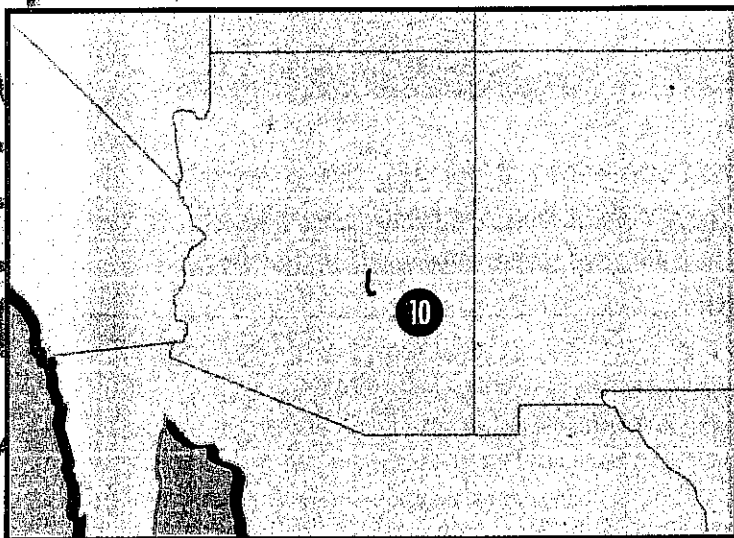
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Pinto Creek

Threat: Proposed Copper Mine

Summary

A proposed copper mine in the streambed of Arizona's Pinto Creek threatens one of the Sonoran Desert's last intact streams. The Carlota Copper Project, proposed by Canada-based Cambior, Inc., would destroy some of the highest quality and rarest riparian communities in the Southwest. Moreover, recent mining mishaps in Pinto Creek raise concerns about the safety of the project. The life of the Carlota mine is planned to be about 20 years, but the destruction of Pinto Creek would be permanent.



The River

Pinto Creek flows through the Sonoran Desert about one hour's drive east of Phoenix. Its headwaters begin in the Pinal Mountains above the town of Miami, at an elevation of 5,750 feet. The creek flows for a total of 28 miles, mostly through the Tonto National Forest, before emptying into Roosevelt Lake, Phoenix's drinking water source. A large portion of the stream is perennial, providing water for fish and wildlife even in the blistering desert heat. With its verdant riparian vegetation, Pinto Creek provides a dramatic contrast to the surrounding chaparral country.

Pinto Creek supports huge sycamores, cottonwoods, willows, and ash; the cottonwood-willow combination is one of the rarest vegetative communities on the globe. This lush riparian area provides valuable habitat for breeding neotropical birds and serves as a vital migratory corridor for many other species, including bear, mountain lion, deer, javelina, nine species of reptiles, four of amphibians, and six of fish. The rare eared trogon, a neotropical bird prized by birdwatchers, has been sighted along Pinto, and botanists have discovered the hornwort, a small, water-loving moss that is extremely rare in Arizona. The area also has historical value, as ancient native peoples inhabited the area along the creek.

The Environmental Protection Agency recognizes Pinto's vital ecological role, recently declaring it "an aquatic resource of national importance." The U.S. Forest Service also recognizes Pinto Creek's outstanding resource values, finding more than eight miles eligible for designation under the National Wild and Scenic Rivers Act.

The Risk

Carlota plans to begin construction of the copper mine in 1998. The entire project will alter or destroy 3,050 acres of national forest and patented lands. To extract the copper ore, Carlota plans to reroute an entire mile-long stretch of Pinto Creek, permanently diverting it into a channel lined with soil cement so that Carlota can dig the mine pit in the creekbed itself.

The company intends to divert not only Pinto Creek, but a tributary, Powers Gulch, as well. Roughly 100 million tons of spent ore from the mine will be placed in a 313-acre heap leach pad in Powers Gulch. Here, the ore will be cured with 59,500 gallons of new sulfuric acid per day added to recycled acid, threatening Pinto Creek's water quality. The mine will use an average of 750 gallons of water per minute around the clock for 20 years, with greater water use in the summer, when sur-

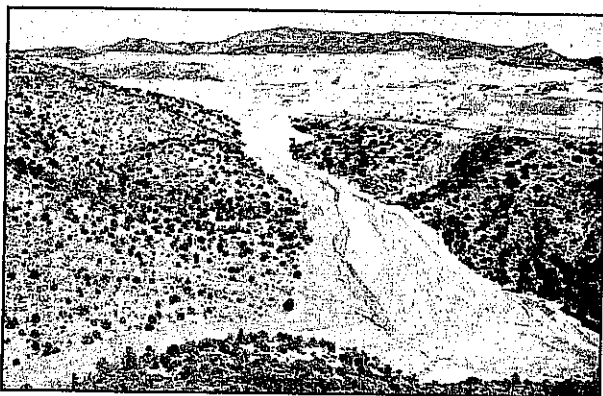


Photo: Donna Goodale

The 1997 BHP mine spill, pictured above, choked the creekbed with 294,000 cubic yards of waste rock.

face flows are lowest. In 1989, the annual discharge of the creek was 246 acre-feet, less than one-sixth the mine's anticipated water demand.

Carlota's track record raises even more questions. This proposed mine is Cambior's first in the continental United States. Its projects include the environmentally disastrous Omai gold mine in Guyana, which suffered a 300-million gallon cyanide spill in 1995. The spill poisoned the entire river system, killing fish and wildlife and terrorizing communities along the river.

In October 1997, the second slope failure in four years occurred at BHP Copper's Pinto Valley mine, less than one mile downstream of the proposed Carlota mine. The accident filled one-half mile of the dry creekbed with 294,000 cubic yards of waste rock material, effectively cutting off the lower perennial stretches of Pinto Creek from the valuable seasonal rains that help sustain both flow and streamside habitat. This spill shows the inherent dangers of mining and the uncertainties concerning mining impacts on a watershed.

In 20 years, when the Carlota mine is retired, Pinto Creek and Powers Gulch will be left with permanent soil-cement diversion channels, a partially backfilled pit, a leach pad with spent ore, and a devastated ecosystem without the Sonoran Desert riparian habitat and wildlife it once supported.

What Can Be Done

The Forest Service's Final Environmental Impact Statement and Record of Decision approved Carlota's planned operations in June 1997. Several groups, including American Rivers, unsuccessfully appealed this action. Additional courtroom challenges are pending. Besides

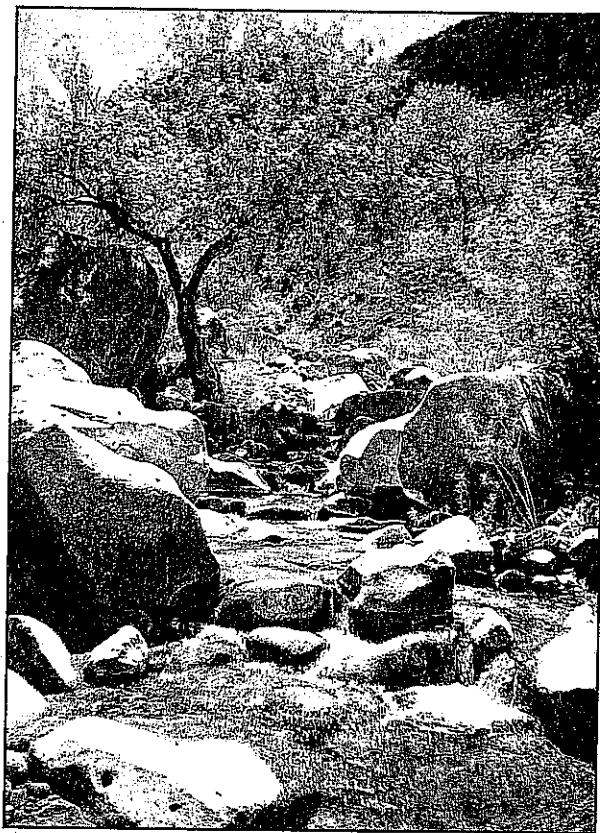


Photo: Pam Hyde

Pinto Creek's water and lush vegetation are essential to fish, mountain lions, and breeding neo-tropical birds. A proposed copper mine would destroy Pinto Creek.

this litigation, only the U.S. Army Corps of Engineers' (Corps) decision on the mine's dredge-and-fill permit and the Environmental Protection Agency's (EPA) decision on the mine's 402 permit stand in the way. Public pressure against the mine should be mounted during both agencies' decision-making processes. If the Corps permit in particular is granted, it should be challenged and the EPA should veto the permit.

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Wolf River

Threat: Proposed Zinc/Copper Sulfide Mine

Summary

Wisconsin's Wolf River, one of the last wild riverways in the Midwest and part of the National Wild and Scenic Rivers System, faces permanent ruin by a proposed Canadian zinc/copper sulfide mine. An estimated 44 million tons of mine waste laced with mercury, lead, zinc, arsenic, and sulfuric acid threaten to destroy the river.

ing bald eagles and osprey, depend on habitats provided by the Wolf. The Wolf River is of deep economic, cultural, and spiritual importance to the Menominee and Chippewa tribes. It supports abundant wild rice beds and provides essential habitat for sturgeon of the Lake Winnebago system.

The Risk

Nicolet Minerals Company (NMC), a venture of Canada-based Rio Algom, proposes to mine an immense zinc/copper sulfide deposit near Crandon, Wisconsin. One-half the wastes from the underground shaft would be used to refill the mine itself, placing groundwater and, ultimately, surface water in jeopardy of pollution. The remaining mine wastes would be placed in a dump at the headwaters of the Wolf River. This waste heap would cover an area the size of 350 football fields and would stand 90 feet high, making it the largest toxic waste dump in Wisconsin history — larger than most towns in the state.

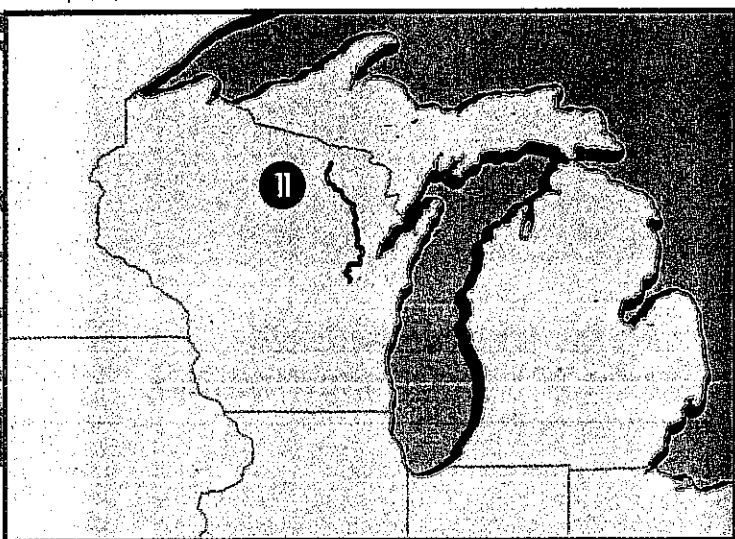
Once exposed to oxygen and water, the fine tailings from the mine would produce sulfuric acid that would accelerate leaching of toxic heavy metals from the waste mountain. This acid mine pollution will likely find its way into the underlying groundwater, the surrounding wetlands, and the Wolf River. More than 12,000 miles of river have already been ravaged by acid mine pollution in the United States, more miles than are currently protected in the National Wild and Scenic Rivers System. NMC proposes to line the top and bottom of the waste dump with bentonite clay and a plastic liner in an attempt to prevent any acid mine drainage from reaching the waters of the Wolf. Few, if any, similar sulfide mines and their waste dumps have remained free of leaks and been successfully reclaimed.

During the mine's expected ore-producing life of about 28 years, at least one million gallons of water per day will be diverted from nearby groundwater. The result will be a dramatic drawdown of groundwater and surface water in lakes and streams in the Wolf River

The River

The Wolf originates north of Mole Lake Reservation in northeastern Wisconsin. In its upper portions, high granite walls form cascades, rapids, and waterfalls. Whitewater rafters consider the Wolf, with its wide range of Class III and IV rapids, a primary Midwestern destination. In 1968, 24 miles of the river were designated as one of the original eight National Wild and Scenic Rivers. Recognizing its excellent water quality and first-rate fisheries, Wisconsin has designated the river an Outstanding Resource Water. Today, the Wolf retains much of its scenic beauty and has no substantial development on its shores and adjacent lands.

Along its 223 miles, the Wolf remains one of the premier trout fishing rivers in the region, recognized for its fine brown, brook, and rainbow trout populations. At least seven endangered and threatened species, includ-



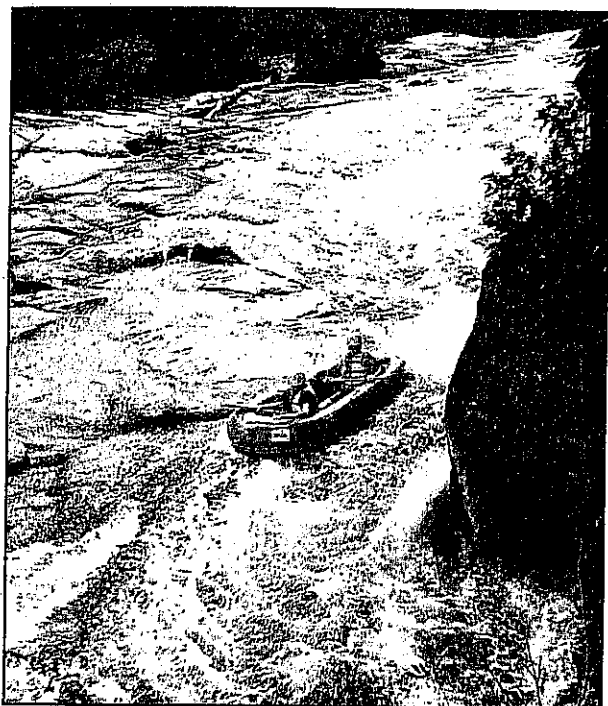


Photo courtesy Menominee Indian Tribe

A proposed mine would dump an estimated 44 million tons of waste into the Wolf, a popular recreation spot.

watershed. Conservationists believe that mitigation proposals for this drawdown are inadequate.

The Crandon mine threatens the health of the Wolf's trout fishery, the spawning grounds of the Lake Winnebago sturgeon, and its other wildlife communities. Contaminated water and decimated trout populations would destroy a primary destination for Midwestern river-based recreation, depressing the important tourism- and recreation-based economy of the area. Mine pollution would also harm wild rice beds that depend on the Wolf River and its wetlands. In turn, the wild rice harvest, which continues to play an important role in the life of many families in the Chippewa and Menominee tribes, faces possible ruin.

The project also threatens the Wisconsin River. NMC proposes to pipe one million gallons a day of mine wastewater 38 miles to the Wisconsin River (a Mississippi River tributary), subjecting it to increased loading of toxic heavy metals. Michigan Governor John Engler expressed concern over this potential transfer of water outside the Great Lakes basin in a January 1998 letter to Wisconsin Governor Tommy Thompson. Governor Engler indicated such a transfer likely requires approval from all Governors of the Great Lakes states under the Water Resources Development Act of 1986.

What Can Be Done

In February 1998, the Wisconsin Legislature approved the Mining Moratorium Bill. The bill would require the Wisconsin Department of Natural Resources (DNR) to refrain from issuing a permit for a new sulfide mine until a similar mine has been operated elsewhere for at least 10 years and has been closed for at least 10 years without polluting ground- or surface water. Numerous conservation and citizen groups banded together to promote the bill, obtaining over 40,000 supporting petitions. Also, a 1998 poll of Wisconsin residents shows heavy opposition to the Crandon mine.

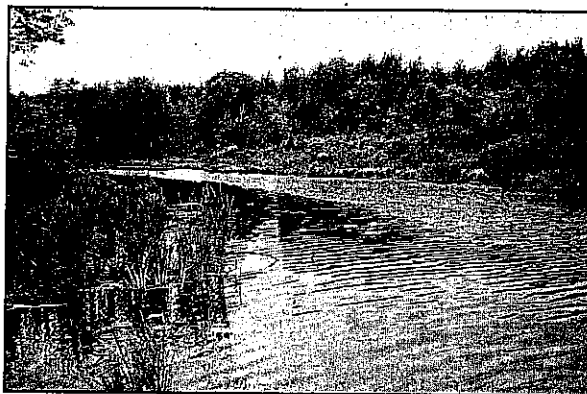


Photo: Zev Ross

The Wolf River runs through the Mole Lake Reservation and is one of the premier trout fishing rivers in the region.

Governor Thompson should sign the measure into law, likely delaying progress on the mine. If the bill becomes law, the DNR will formally develop rules to implement the measure. During public comment periods on these new rules, conservationists, community leaders, tribal representatives, and interested citizens should continue to push the DNR to protect the integrity of the Wolf River and other Wisconsin resources potentially impacted by sulfide mines.

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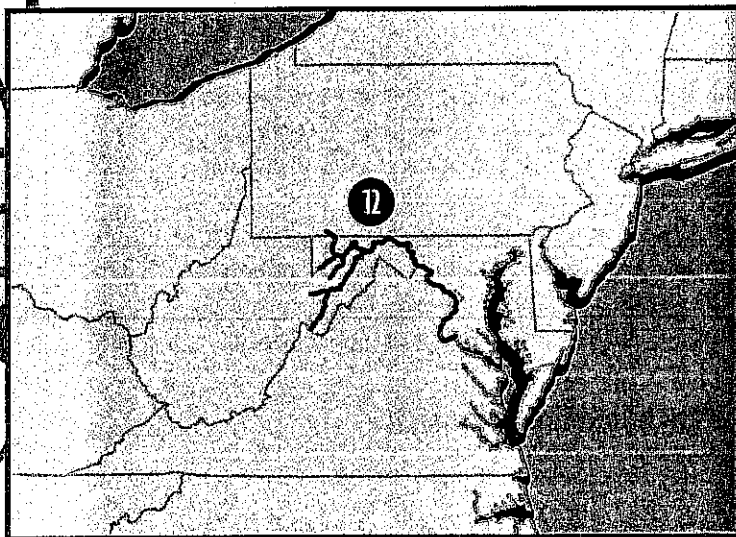
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Potomac River

Threat: Factory Poultry Farms and Cattle Feedlots, Development

Summary

Factory poultry farms and cattle feedlots continue to degrade the Potomac's headwaters, threatening local drinking water supplies and recreational opportunities. The historic Potomac system is further threatened by inappropriate land uses and suburban sprawl. Chapman's Landing, a proposed development the size of a small city, would replace the ecologically and historically significant Chapman Forest and degrade the healthiest fishery in the upper Chesapeake Bay.



The River

The 400-mile long Potomac is the fourth largest watershed on the East Coast and the second largest river nourishing the Chesapeake Bay. Its headwaters cut through breathtaking cliffs and rocks and provide some of West Virginia's most spectacular scenery. Recreation and tourism in the Potomac Headwaters annually generate an estimated \$205 million to West Virginia's economy and employ nearly 4,000 people.

The river's ecological integrity depends on the health of tributaries like Mattawoman Creek, a small waterway on the lower Potomac that supports one of the country's top largemouth bass fisheries. The annual economic value to the area of this tidal bass fishery is conserva-

tively estimated at \$25 million. Healthy riparian habitat like the old-growth Chapman Forest plays an important role in protecting water quality, sensitive species, and recreational opportunities.

The Risk

The Potomac's South Branch, which provides much of the river's water supply in its headwaters, is contaminated with excessive nutrients and bacteria from factory poultry farms and cattle feedlots. Over 95 million chickens produce hundreds of thousands of tons of phosphorus- and nitrogen-rich manure each year. Farmers spread it as fertilizer on cropland in the five-county headwaters area, and this small amount of land cannot assimilate all the manure. Much of it runs off into the Potomac, causing increased algae blooms and disturbing levels of waterborne bacteria.

West Virginia state agencies and the U.S. Department of Agriculture (USDA) published an alarming report that stated a "high potential exists for contraction of waterborne illnesses in the Potomac headwaters because of the widespread presence of bacteria throughout the watershed and heavy dependence on the stream for drinking water and for water contact recreation." The report correlates that finding with the number of poultry houses and feedlots along the river. A 1997 assessment by the Interstate Commission on the Potomac River Basin similarly concluded that widespread fecal coliform levels are of concern and pose public health implications for recreational use of the river.

Large-scale development like the billion-dollar Appalachian Corridor-H four-lane highway and the massive National Harbor project in Maryland's Prince George's County poses risks to the Potomac's unique natural and historic resources. One of the most serious development threats is a proposed new city along 2.25 miles of now-forested Potomac riverfront virtually unchanged for centuries. The Norwegian syndicate that owns Chapman Forest proposes to cut down roughly half its 2,250 acres in a bucolic, historically significant

area of Maryland's Charles County to build 4,600 housing units and 2.25 million square feet of commercial space. Most of the 634-acre Mount Aventine colonial estate would also be developed.

Chapman's Landing would seriously degrade Mattawoman Creek. In 1995, the National Park Service added Mattawoman Creek to the Nationwide Rivers Inventory, which identifies the nation's outstanding rivers and streams. Published reports indicate that a private conservation group is negotiating with the owners of Chapman Forest to buy all or part of it. A state-federal-public partnership would probably be necessary to purchase all of Chapman Forest, bought by the current owners in late 1996 for around \$9 million.

What Can be Done

About animal waste in the Potomac and nationally:

- The Environmental Protection Agency (EPA) released its draft feedlot strategy in March 1998. The strategy recognizes that factory poultry farms (Concentrated Animal Feeding Operations, or CAFOs) are regulated point sources and must be properly permitted under the Clean Water Act. The EPA should fully implement this strategy, although the seven-year implementation timeline should be significantly shortened.
- Each state should consider enacting a moratorium on new and expanding factory livestock farms, as in North Carolina, until the EPA's final feedlot strategy is in place.
- Congress should enact legislation setting strong national standards for animal waste management, including a regulatory role for the EPA and a prominent role for the USDA's Natural Resources Conservation Service (NRCS) during development of nutrient management plans. Congressman George Miller's (D-CA) H.R. 3232 and Senator Tom Harkin's (D-IA) S.1323 are steps in the right direction.
- The NRCS, EPA, and Congress should provide enhanced financial and technical assistance for all livestock owners and operators to deal with animal waste problems through voluntary means like the Environmental Quality Incentives Program, the Riparian Buffer Strategy, Section 319 nonpoint source grants, and other programs.

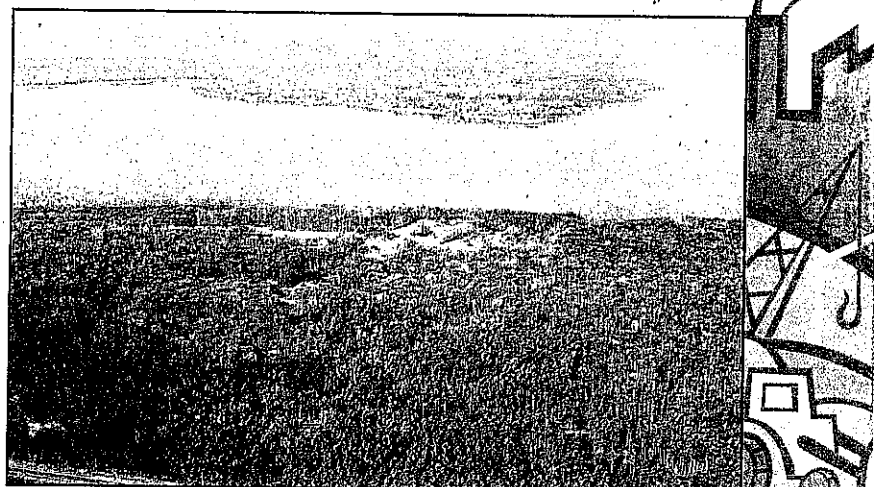


Photo courtesy Friends of Mount Aventine

This bioreserve on the banks of the Potomac would be destroyed by the proposed Chapman's Landing development.

About Chapman Forest:

In June 1997, the U.S. Army Corps of Engineers issued a permit for Chapman's Landing. Litigation is now pending in federal courts. Regardless of the court decision, the EPA can and should veto the permit. Maryland Governor Parris Glendening and his Department of the Environment should deny pending permit applications to fill wetlands and for water withdrawal. State and federal officials should collaborate to identify funding adequate to purchase all of Chapman Forest for public benefit.

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Joy Oakes, Sierra Club: 410-268-7411 (development)

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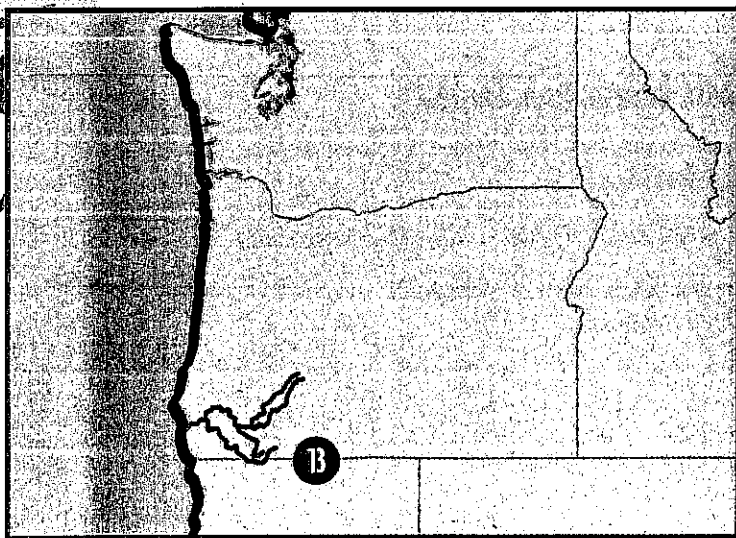
Rogue/Illinois River System

(including Elk Creek & Rough and Ready Creek)

Threat: Dams, Nickel Laterite Mine

Summary

Savage Rapids Dam on the Rogue River, and a dam on its tributary Elk Creek, threaten the salmon and steelhead runs of this premier fly fishing river. The Grant's Pass Irrigation District wavers on its commitment to remove Savage Rapids Dam. And, while the U.S. Army Corps of Engineers intended to breach Elk Creek Dam this summer so fish could access some of the Rogue's best habitat, Congressman Robert Smith (R-OR) stopped the necessary Congressional funding. Meanwhile, proposed mining operations associated with one of the largest pending purchases of public lands for private mining in the U.S. endanger the ecological health of Rough and Ready Creek, a tributary of the Illinois National Wild and Scenic River, which flows into the Rogue.



The River

From its headwaters in the High Cascades near Crater Lake National Park, the Rogue River flows west through an interior valley and drops into the rugged wild canyons and ancient forests of the Siskiyou Mountains before reaching the Pacific Ocean. An original component of the National Wild and Scenic Rivers System, the Rogue is a legendary "big fish" river.

The pristine Rough and Ready flows through the Siskiyou National Forest in southwestern Oregon. The Siskiyou is one of the most biologically diverse regions in the entire nation, and the Rough and Ready watershed represents a unique and particularly fragile example of this diversity. Because of the stream's outstanding values, the U.S. Forest Service (USFS) found it eligible for inclusion in the National Wild and Scenic Rivers System.

The Risk

Savage Rapids Dam spans the Rogue River west of Grant's Pass, Oregon. The dam is used to divert water to the irrigation canals of the Grant's Pass Irrigation District. The dam provides no storage, flood control, or hydropower services.

Five runs of salmon and steelhead, including the threatened Southern Oregon and Northern California coho, must pass through the dam as they travel between the Pacific and their spawning grounds. The dam's out-moded ladders and screens kill more fish than any other structure on the Rogue River. According to the Bureau of Reclamation, removing the dam would result in an annual increase of some 114,000 salmon and steelhead in the Rogue.

After years of litigation, the Corps decided not to complete Elk Creek dam and that notching the dam is the cheapest, most biologically sound method of providing passage for threatened salmon and steelhead. Despite studies by the Corps concluding notching is the best financial alternative, and state/federal fishery agency concurrence that it is the best biological choice, Congressman Smith managed to stop this sensible way of solving fish passage while maintaining the dam's basic structure. It is his stated goal to prevent notching not only this year, but at any time in the future.

In another area of the Rogue basin, a small mining company proposes to construct a nickel laterite strip mine and access roads in and around sensitive Rough and Ready Creek. In January 1998, the USFS issued a Draft Environmental Impact Statement (DEIS) for the company's plan of operation, including mining of four sites totaling 35 acres, development of new and reconstructed roads, and 16 stream crossings. The DEIS concludes that the mining operations are "likely to adversely affect" salmon proposed for listing or now listed under the Endangered Species Act, will increase the risk of spreading Port Orford Cedar root disease, and will affect sensitive plant species.

Fortunately, the USFS decided not to approve the mining operation until the mining company identifies a smelter to process the ore. The proposed operation, however, represents only a small fraction of the 4,360 acres of public land the miner is seeking to purchase from the United States for \$2.50 an acre to mine nickel laterite. Pursuant to the archaic 1872 Mining Law, this is the single largest patent, or purchase, application now pending in the United States.

What Can Be Done

The National Marine Fisheries Service (NMFS) and the Bureau of Reclamation agree that removing Savage Rapids Dam and installing irrigation pumps is the least expensive and most biologically sound way to pass fish and serve the District's water patrons. The Oregon Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and Oregon Governor John Kitzhaber also support dam removal.

The NMFS should deny the District a "take" permit (required for dam operation under the Endangered Species Act) for the 1998 irrigation season unless the District submits a firm dam removal plan. The NMFS directed the District to do so in February 1998. Governor Kitzhaber and the Oregon Department of Water Resources should withhold additional water rights for which the District seeks approval. For both Savage Rapids Dam and Elk Creek Dam, public funds should only be spent on the least-cost alternative of dam removal.

Before approving any mining operation on Rough and Ready Creek, the USFS should, at minimum, determine whether the miner has even discovered a "valuable mineral" within the meaning of the 1872 Mining Law. The USFS and Interior Secretary should withdraw the watershed from mineral entry and patenting. The USFS should also require a bond sufficient to ensure reclamation of the site. Finally, Congress should reform the archaic 1872 Mining Law.

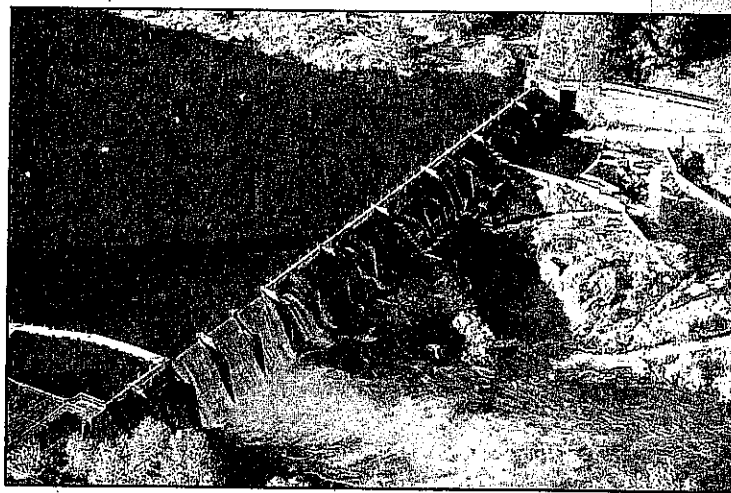


Photo: R. G. Hunter

The Savage Rapids Dam provides no flood control or hydropower services and kills endangered salmon.

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Bernie Moore, Rogue Fly Fishers: 541-779-2333 (dams)

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541-474-2265 (mining)

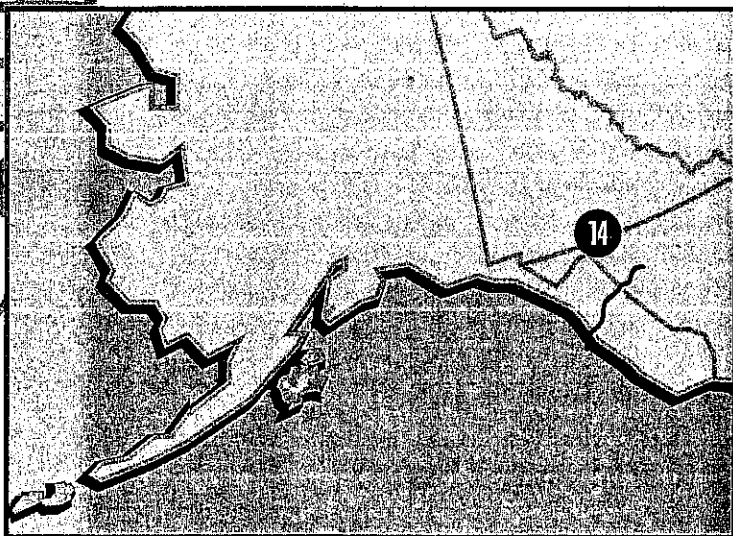
Roger Flynn, Western Mining Action Project:
303-473-9618 (mining)

Taku River

Threat: Proposed Copper/Gold Mine

Summary

Redfern Resources Ltd., a small Canada-based mining company, has asked British Columbia for permission to reopen a copper/gold mine near the confluence of the Taku River and its tributary, the Tulsequah River. To reach the mine, the company proposes to construct a 99-mile road that would cross multiple streams and pass through valuable timber stands. The Taku River is one of the last intact and undisturbed large watersheds in North America, and one of the largest producers of salmon in southeast Alaska and British Columbia. Acid mine pollution from the proposed mine and development of the road threaten to devastate the outstanding natural resources of this ecologically sensitive wild river.



The River

The Taku River forms the heart of a 7,000-square-mile watershed in British Columbia and Alaska. To date, the entire watershed is untouched by commercial logging, significant mining, or settlement activity. The Taku River is the largest unprotected wilderness river system on the western shore of North America and the largest watershed south of the Alsek-Tatshenshini river system and north of the Stikine River.

The source of the Taku is approximately 105 miles northeast of Juneau, Alaska. The lower 25 miles of the river flow through Alaska's Tongass National Forest and have been found eligible for inclusion in the National Wild and Scenic Rivers System because of their outstanding fish and wildlife, scenic, and geologic values. The Taku River in British Columbia has been nominated for inclusion in the Canadian Heritage Rivers system based upon its natural and cultural values.

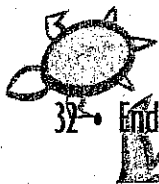
The Taku supports all five species of Pacific salmon and a fishery worth millions of dollars. It also boasts the largest population of cutthroat trout in any drainage in southeast Alaska. Commercial, sport, and subsistence anglers harvest crab, shrimp, and halibut from the Taku River and Inlet. The upper drainage is the traditional home of the Taku River Tlingit First Nation, who establish traditional fish camps each summer along the river to harvest salmon for winter use.

Moose, mountain goats, black bears, and grizzlies are present throughout the Taku watershed, and the upper reaches are important wintering grounds for woodland caribou. Sensitive fish and wildlife near the mouth of the river include eulachon and harbor seals. Bird life is rich and varied with a teeming population of bald eagles and a lone Steller's sea eagle — a rare Asian variant virtually never found further east than the Aleutian Islands.

The Risk

Cominco, Ltd. first operated the Tulsequah Chief Mine, at the confluence of the Tulsequah and Taku Rivers, in the 1950s, but depressed copper prices closed the mine after only six years. Redfern Resources Ltd. now owns the properties.

Acid mine pollution from the abandoned mine continues to leach toxic sulfuric acid into salmon-bearing streams. Draft reviews of Redfern's proposal by the British Columbia government state that "reactivation of the [mine] could result in chronic discharge of effluent contaminated with acids, heavy metals, petroleum prod-



ucts, and/or toxic reagents." In addition, failure of the proposed tailings impoundment would devastate downstream water quality and fisheries — both protected by international treaties.

Redfern plans to extract mostly copper and gold from the reopened mine for 10 years. The company proposes to put tailings impoundments in wetlands next to the Tulsequah and to transport and store hazardous materials beneath avalanche paths. Redfern's proposal to build a 99-mile road with 69 stream crossings from Atlin, British Columbia, to the mine further threatens the Taku River system. This road would open undisturbed wilderness to increased development, including timber harvest and additional mining operations. Loss of critical habitat and degradation of water quality could destroy salmon runs shared by the Tlingit River First Nation, Canada, and Alaska.

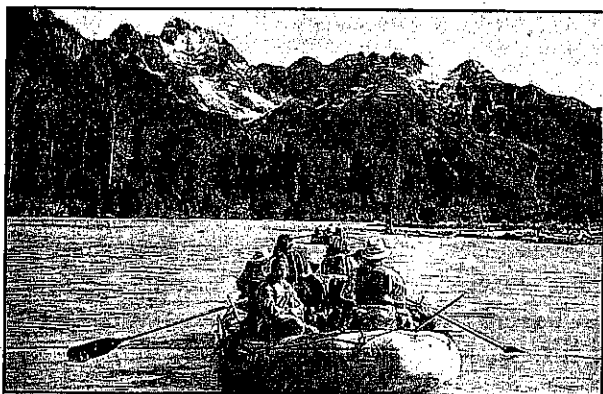


Photo: Ian MacKenzie

The Redfern mine would contaminate the pristine Taku watershed with acids, heavy metals, and petroleum products.

What Can Be Done

In November 1996, Redfern filed its "Tulsequah Chief Project Report" with provincial and federal government agencies in support of its application for a Project Approval Certificate. After Redfern satisfied the government's request for additional information, British Columbia opened the proposal to public comment. Alaska Governor Tony Knowles requested a public evidentiary hearing process. The Environmental Assessment Office will make its recommendations to the relevant ministries, which will, in turn, make their recommendations concerning the Project Approval Certificate. Governor Knowles' request for a public hearing should be granted, and public opinion in opposition to the mine should be entered in the record. The Project Approval Certificate for this mine should be denied.



Photo: Phil Timpany

The Taku supports moose, caribou, grizzly bears, and all five species of Pacific salmon.

The Taku River Tlingit First Nation has stated that the mine should not be considered until the conclusion of land claim treaty negotiations and the completion of a land protection plan. In addition, conservationists on both sides of the border have called for greater environmental review and protection of fishery resources now safeguarded by international treaties.

In recent months, the sharply declining price of gold has led a number of economists to question the future of many mining companies. In December 1997, a major international gold company, Pegasus Gold, Inc., filed for bankruptcy protection. Conservationists and regulatory officials continue to question who is responsible for cleaning up the company's mining properties, including the Zortman-Landusky mine in Montana. Pegasus' bankruptcy, like the infamous 1992 Summitville mining disaster, emphasizes the need to require companies to purchase sufficient bonds to ensure that even bankrupt ventures can clean up their mines.

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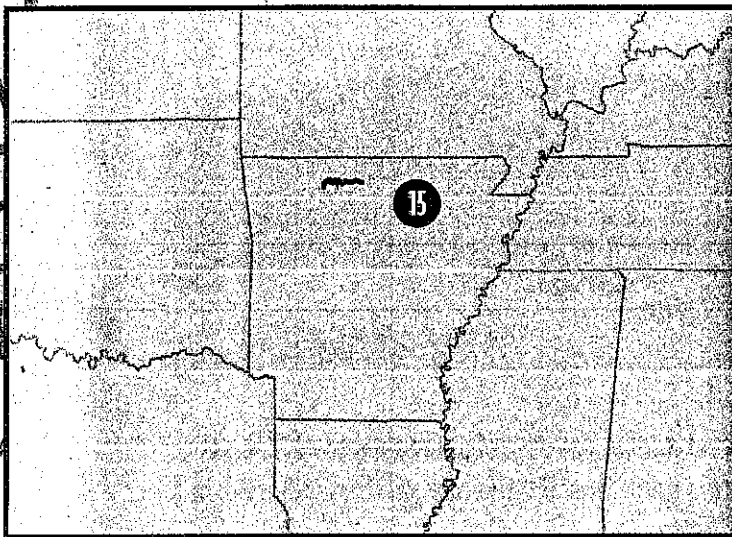


Crooked Creek

Threat: In-Stream Gravel Mining

Summary

Crooked Creek, a world-renowned smallmouth bass fishery, is under siege from several commercial in-stream gravel mining operations. In-stream gravel mining adversely affects the physical, chemical, and biological characteristics of the stream. A lawsuit filed by Arkansas Attorney General Winston Bryant and a 180-day mining moratorium provide an opportunity to permanently protect Crooked Creek from in-stream gravel mining degradation.



The River

Crooked Creek originates in north-central Arkansas and flows east for 82 miles, where it empties into the White River. As it meanders across northern Arkansas, Crooked Creek passes through typical Ozark landscapes featuring rolling hills, cedar glades, bluffs, and lush pasturelands. The streambed consists of deep gravel that acts as a filter, preserving water quality.

More than 40 species of fish swim in the waters of Crooked Creek. Many, including the smallmouth and Ozark bass, Arkansas saddled darter, and the dusky stripe shiner, are sensitive to habitat alterations. Numerous mammals and an abundant assortment of water-oriented

birds, including kingfishers, ospreys, and great blue herons, live along the stream corridor.

The Risk

Studies conducted on several Ozark streams have demonstrated several adverse effects related to in-stream gravel mining. Dr. Art Brown, a stream ecologist with the University of Arkansas, conducted an extensive study in 1992 that culminated in the report *Impacts of Gravel Mining on Ozark Ecosystems*. In his results, Dr. Brown states that "gravel mining significantly degrades the quality of Ozark stream ecosystems" and disturbances resulting "from gravel mining practices in Ozark streams profoundly impact the game fish, nongame fish, and invertebrates in these stream communities."

Smallmouth bass are sensitive to environmental disturbances and serve as an "indicator species" of good water quality. They require cool, clear water with deep holes for habitat. In-stream gravel mining threatens the natural habitat of smallmouth bass by altering the natural flow of water. When gravel is removed from the streambed, upstream banks erode to replenish the missing gravel, washing away trees and other riparian vegetation. The upstream erosion causes the stream to become wider and shallower, increasing water temperatures and degrading aquatic habitat. The alterations to the stream channel, banks, and water quality have a negative impact on the habitat of Crooked Creek's sensitive fish species. The warmer water and disturbances to spawning beds and nursery habitat continue to degrade the health of the smallmouth bass population.

A study conducted by Arkansas State University also concluded that in-stream gravel mining on Crooked Creek and other Arkansas streams is an economic liability to the state. The report found that gravel mining in Crooked Creek and the Kings, Spring, Illinois, and Caddo Rivers costs the state \$7.6 million in money lost from farms, real estate, fisheries, and recreation.



Photo courtesy Save Our Streams

Mining operations destroy vegetation, fill streams with excess sediment, and endanger fish habitat.

What Can Be Done

In January 1997, despite pressure from environmentalists, the Arkansas Pollution Control and Ecology Commission (PCEC) refused to designate Crooked Creek as an Extraordinary Resource Water, which would have halted gravel mining in the creek. The Arkansas Legislature also failed to declare Crooked Creek an Extraordinary Resource Water when a bill giving the stream designation died in a House committee. Since the Arkansas Legislature meets only biannually, a special session of the legislature should be called to consider the Extraordinary Resource Water designation.

In August 1997, Attorney General Bryant filed suit against two Marion County landowners to remove barbed-wire fences they built across the channel. The barbed wire posed a threat to anglers and floaters who use the creek. Attorney General Bryant's lawsuit also asks the court for a declaratory judgement on who owns Crooked Creek. His suit cites the case of the Mulberry River, decided before the Arkansas Supreme Court, which ruled that the river was state property due to its navigability. Attorney General Bryant needs to prove Crooked Creek's navigability to have the stream declared state property. While the Attorney General's suit does not directly address gravel mining, the state could restrict mining along Crooked Creek if the court declares that the people of Arkansas own the streambed. The lawsuit will go to court in May 1998.

In October 1997, the Arkansas PCEC imposed a 180-day moratorium on the issuance of new gravel mining permits in the stream. The order identified gravel mining as presenting "an imminent peril to the public welfare." The moratorium affects only the issuance of new mining



Photo courtesy Crooked Creek Coalition

Many species of mammals and birds, including kingfishers, osprey, and great blue herons, live along Crooked Creek.



Photo courtesy Crooked Creek Coalition

Gravel mining has degraded Crooked Creek habitat to such a point that the smallmouth bass fishery is in jeopardy.

permits in Crooked Creek, and does not alter the mining operations of three companies that already hold permits to take gravel from 13 sites along the creek. The PCEC should extend the moratorium until the state resolves questions surrounding Crooked Creek's navigability and its potential designation as an Extraordinary Resource Water.

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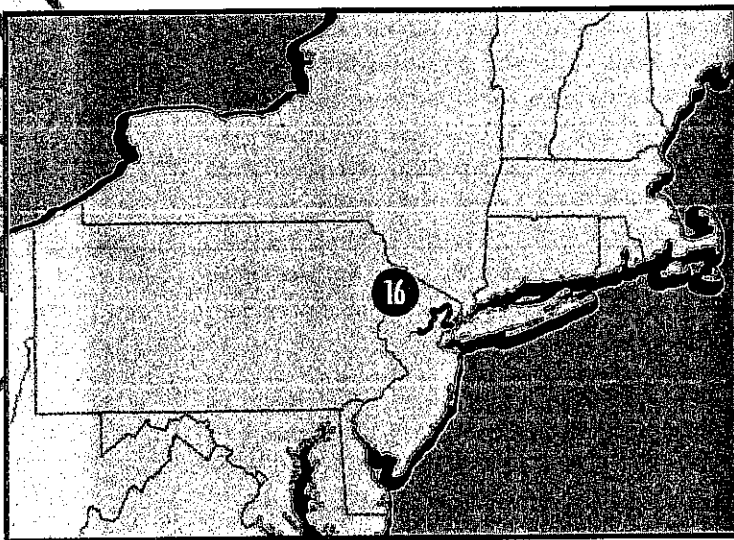
Emily Whitlock, Crooked Creek Coalition: 870-481-6120

Passaic River

Threat: Contaminated Sediments

Summary

Levels of contaminated sediments that may adversely affect aquatic life and human health threaten the lower Passaic River and 95 other watersheds across the country. A new Environmental Protection Agency (EPA) report concludes that 10 percent of all sediments in U.S. rivers, lakes, and bays are contaminated with toxic pollutants. The lower Passaic River, threatened by dioxin, is a key river on this list. State and federal agencies have been slow to order action to clean up the river, which should include dredging and disposal of contaminated sediments.



The River

The Passaic River Basin drains approximately 935 square miles of northern New Jersey and southern New York State. The river finds its source behind a school in Mendham Borough, New Jersey, and flows to Newark Bay through one of the most densely populated urban regions in the United States.

While much of the upper Passaic River has been revitalized, the lower Passaic remains typical of a neglected urban system. The 173-square-mile lower Passaic River basin extends from Little Falls to Newark Bay. The Lower Valley is flat, and the flow of the Passaic slows as

it broadens and empties into Newark Bay. The Lower Valley is the most extensively developed area of the watershed. It includes such cities as Paterson, Passaic, and Newark, where waterfronts are entirely developed and public access to the river is limited.

The Risk

In January 1998, the EPA released *The Incidence and Severity of Sediment Contamination in Surface Waters of the United States*, its first-ever national inventory of contaminated sediments. The report concludes that although sediments in most watersheds across the U.S. do not pose probable risks, a significant number do. About 10 percent of the sediments underlying all surface waters are sufficiently contaminated with toxic pollutants to present a risk to aquatic life and human health. In particular, the report identifies 96 watersheds with sediment contamination of probable concern. The areas of sediment contamination occur in clusters around larger municipal and industrial centers and in regions affected by agriculture and urban runoff.

The EPA listed the Passaic River because of its dioxin contamination. From 1951 to 1969, the Diamond Alkali Company (subsequently known as the Diamond Shamrock Chemicals Company) owned and operated a pesticide manufacturing plant on the banks of the Passaic in Newark that left behind a legacy of dioxin in the river and on the neighboring land. The Occidental Chemical Corporation (OCC) is the successor company to Diamond Shamrock. Dioxin, pesticides, volatile organic compounds, and other hazardous substances have been detected in sediment samples taken from the Passaic River and in groundwater near the river. Although this groundwater is not used as a source of drinking water, it migrates toward the Passaic River, where it may add to the contamination of fish and shellfish.

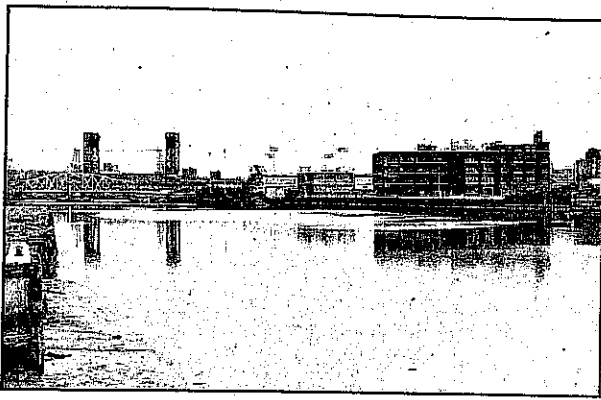


Photo courtesy Passaic River Coalition

In cities such as Newark, Harrison, and Passaic, waterfronts are entirely developed and public access to the river is limited.

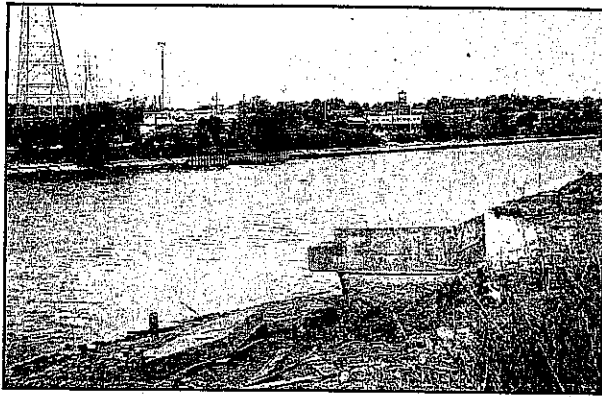


Photo courtesy Passaic River Coalition

Sediment contaminated with dioxin lies beneath the surface of the Passaic, threatening human and aquatic health.

The Diamond Alkali Superfund Site, included on the National Priorities List in 1984, encompasses the former pesticides manufacturing facility and the adjoining six-mile reach of the Passaic River known as the Passaic River Study Area. Because OCC owned the abandoned Diamond Alkali facility, the company financed the investigation of the site under an April 1994 agreement with the EPA. OCC is one of nine parties deemed potentially responsible for chemical contamination in the Passaic River Study Area.

Because the lower Passaic is a tidal river, the flux of water in the system has shifted dioxin-contaminated sediments away from the Superfund study area. Aquatic life throughout the river has begun to show traces of dioxin, and in the early 1980s, the State of New Jersey banned the sale and consumption of striped bass, blue

crab, and other seafood taken from the Passaic River. Dioxin contamination has also spread to sediments in the Port of New York/New Jersey and has already had an economic impact on the port. The cities of Newark and Elizabeth face difficulties in dredging the port for commerce because of concern that dioxin-contaminated sediments could be disturbed.

A 1994 EPA report concluded that dioxin and related chemicals cause a range of negative health effects, including reproductive and immune system disorders, alteration of fetal development, and cancer. People who consume fish from contaminated waters are at even higher risk than the general population, as are young children. Approximately 40,000 people live within one mile of the Diamond Alkali site; roughly 367,000 live within three miles.

What Can Be Done

The EPA has been slow to conduct its remedial assessment of the Passaic River's contaminated sediments. The assessment has taken more than six years, with no completion date in sight. Once the assessment is complete, the EPA must restore the river. Environmental restoration should include dredging and disposal of the Passaic's contaminated sediments. The New Jersey Department of Environmental Protection (NJDEP) has the authority to file a Natural Resources Damage claim that would compensate the public for environmental losses in the Passaic River basin. Although such a claim can be conducted concurrently with the EPA's remedial assessment, NJDEP has decided to delay the claim until the assessment is complete.

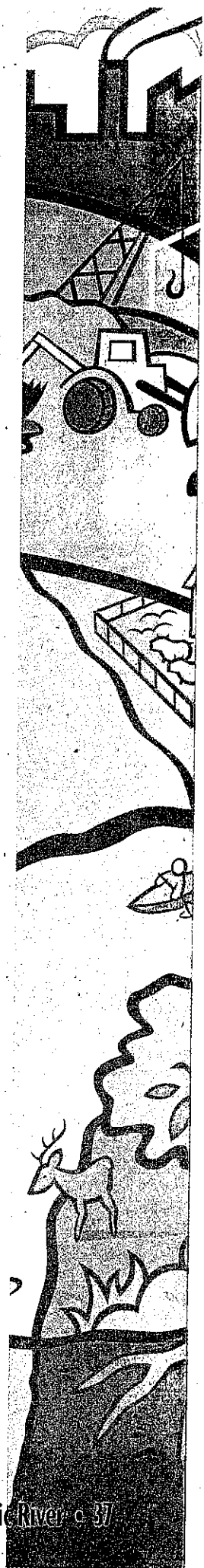
While state and federal agencies assess responsibility for the cleanup of the lower Passaic River, the severity of the threat requires immediate dredging and disposal of the contaminated sediments. Federal and state-trustee agencies should begin cleaning up the Passaic now and seek compensation from the responsible parties later.

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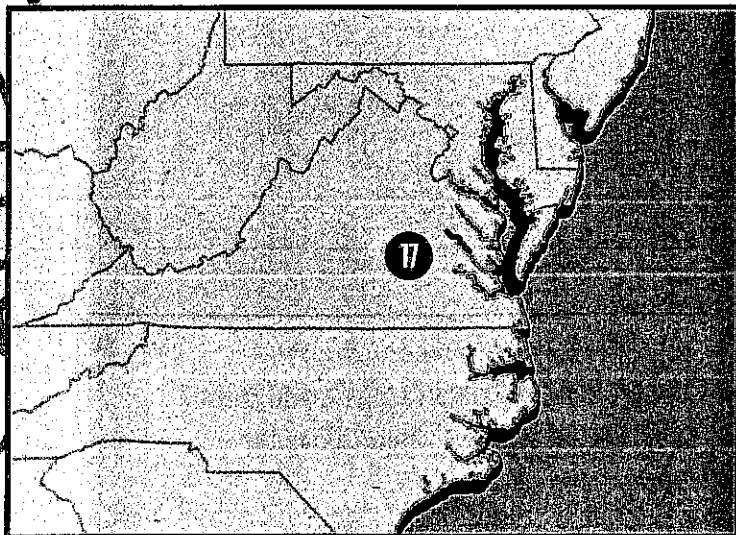


Mattaponi River

Threat: Proposed Water Development Project

Summary

A proposed reservoir and water supply scheme for Virginia's tidewater region threatens the ecological integrity of the Mattaponi River, one of the most pristine estuarine river systems on the eastern seaboard. The King William Reservoir project, proposed by Newport News Waterworks, would severely alter the Mattaponi's flows, destroy hundreds of acres of sensitive wetlands and important archaeological sites, and infringe on long-standing tribal hunting, fishing, and water rights.



The River

The Mattaponi River flows 85 miles across Virginia's coastal plain, draining the northernmost portion of the upper York River watershed. This clean, free-flowing waterway joins its sister river, the Pamunkey, to form the York River near West Point. The Mattaponi's tea-colored waters retain high water quality, and The Nature Conservancy describes the river as "the heart of the most pristine freshwater complex on the Atlantic Coast."

The river and its freshwater tidal wetlands support many species of birds and fish. Bald eagles, osprey, herons, geese, ducks, and other birds make the Mattaponi one of the richest avian waterways in Virginia. Striped bass, shad, blueback herring, and shellfish support healthy

sport, commercial, and subsistence fisheries. The Mattaponi and its wetlands also boast an impressive inventory of nationally and globally significant plant species. Plants like the mat-forming water hyssop and the sensitive joint-vetch, identified by the federal government as a threatened species, thrive along the Mattaponi because of its unspoiled nature.

Numerous historic, cultural, and archaeological resources grace the river. For thousands of years, the Mattaponi and Pamunkey Tribes have relied on the river and its resources for sustenance. Native American artifacts and remnants of the rural historic landscape abound in the area. The Mattaponi Tribe regards the river as the lifeblood of its nation, and today, Mattaponi fishers ply the river with drift nets and operate a shad hatchery to restore and replenish shad populations.

The Risk

Under its preferred alternative, Newport News Waterworks (NNWW) proposes to construct a 78-foot high by 1,700-foot long earthen dam on Cohoke Creek between the Mattaponi and Pamunkey Rivers. The dam would impound 1,526-acres of water at a volume of 12.2 billion gallons, forming the King William Reservoir. The project includes a pumping station equipped to withdraw a maximum of 75 million gallons per day (mgd) from the Mattaponi River to maintain reservoir levels. Water from the reservoir would be pumped by pipe under the Pamunkey River into an existing network of reservoirs.

The project would drain, fill, excavate, or flood more than 437 acres of sensitive wetlands and destroy nearly 1,400 acres of upland habitat, further threatening rare plants and bald eagle habitat. Numerous sites potentially eligible for designation as Traditional Cultural Properties or listing on the National Register of Historic Sites would be lost forever. Massive water withdrawal could drive up salinity levels in the Mattaponi, and also raise water temperatures and lower oxygen levels in the summer. Cumulatively, this would devastate the nursery areas of anadromous shad and herring.

The purpose of the project is to serve regional water demands for the cities of Newport News, Hampton, and Williamsburg and the counties of York and James City. Projections of future consumption in this area are based on outdated 50-year water use estimates and growth predictions from the 1980s. Two independent studies suggest NNWW analyses overstate future water demand by at least 20 mgd over the life of the project.

The Mattaponi and Pamunkey Tribes, conservation groups, and many local residents oppose the reservoir. Both the Environmental Protection Agency and the U.S. Fish and Wildlife Service (FWS) maintain strong concerns regarding NNWW's wetland mitigation proposal, and neither are satisfied that potential changes to the salinity and hydrology of the Mattaponi River have been properly considered. In recommending denial of the U.S. Army Corps of Engineers (Corps) permit to destroy the wetlands existing within the project area, the FWS concludes that "the King William Reservoir... will result in substantial and unacceptable impacts to aquatic resources of national importance."

What Can Be Done

In December 1997, the Virginia Department of Environmental Quality (DEQ) issued a draft Virginia Water Protection Permit required for project approval. The draft permit requires NNWW to more completely address wetland mitigation, minimum flows, and salinity encroachment. The next day, NNWW notified the DEQ that it would file an appeal of the permit to avoid its enhanced environmental conditions. Conservation orga-

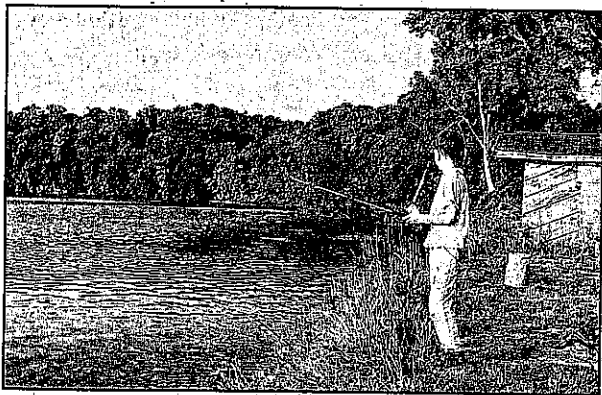


Photo: Warren Cook

A boy fishes for striped bass in the Mattaponi, one of the most pristine rivers on the eastern seaboard.

nizations, Virginia's King and Queen County, and local landowners have jointly appealed the permit as well, citing the need for judicial review. The DEQ should deny the necessary Water Protection Permit unless NNWW fully meets its environmental obligations.

The Corps is expected to decide in 1998 whether to require an additional study, a Supplemental Environmental Impact Statement, or to issue the required wetlands permit. It should deny this permit to prevent destruction of nationally important wetlands and marshes and to prevent dramatic degradation of the Mattaponi River. While the Corps considers its decision, the public should enter comments opposed to the reservoir and destruction of the Mattaponi River.



Photo courtesy Mattaponi and Pamunkey Rivers Association

The Newport News Waterworks plan would destroy over 1,400 acres of sensitive habitat along the Mattaponi.

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Eugene Rivara, Alliance to Save the Mattaponi: 804-769-0568

Tyla Matteson, Sierra Club: 757-722-5550

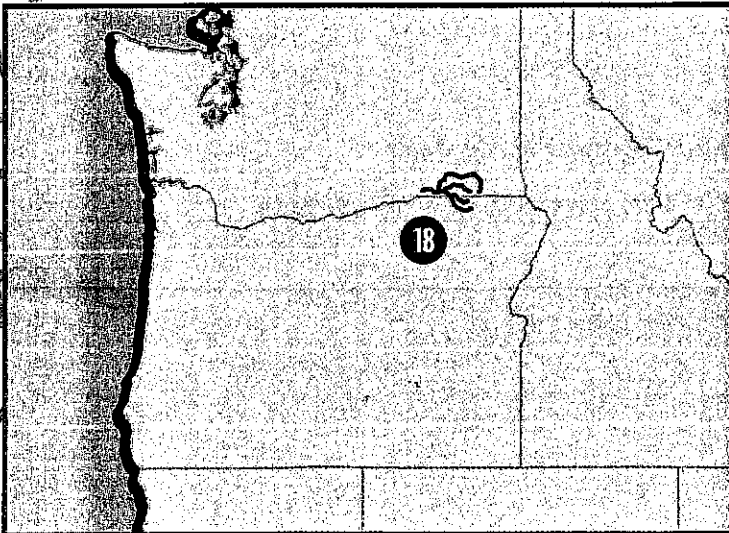


Walla Walla River

Threat: Instream Flow Depletion, Agricultural Pollution, Channelization

Summary

Human development has devastated the Walla Walla River's once bountiful fisheries, causing the extinction of salmon and near-extinction of bull trout and steelhead. Irrigated agriculture diverts all the river's flow from its channel, leaving the river bed dry and returning runoff laden with chemicals and damaging nutrients. A series of dikes and concrete channels constrains the Walla Walla, exacerbating flooding problems. Channelization also takes an enormous toll on the ecological health of the river.



The River

The Walla Walla River originates in the Blue Mountains of Northeast Oregon and flows west and north into Washington to join the Columbia River, draining a 1,758-square mile area. Land use in the Walla Walla's headwaters is predominantly timber harvest, domestic livestock grazing, and off-road vehicle recreation. Mid-elevation lands are principally devoted to farming and grazing. The Walla Walla River valley is extensively and intensely irrigated.

The Risk

Irrigated agriculture has taken a heavy toll on the Walla Walla River. Irrigation dams divert its entire flow out of the river into irrigation canals. The water returns to the river downstream carrying sediment, pesticides, and fertilizers from farm fields. Depleted stream flows elevate water temperatures to lethal levels for coldwater fish. As a result, salmon no longer migrate upstream to spawn, and trout habitat is severely limited. Fish and wildlife agencies and local tribes identify wasteful irrigation practices as the biggest obstacles to fish production in the basin.

The negative impacts of irrigated agriculture are present on hundreds of Western waterways. Many rivers, including the Walla Walla, no longer provide healthy fisheries, recreational opportunities, or drinking water because too much water is diverted for wasteful irrigation practices. In turn, these practices pollute miles and miles of rivers and streams in the arid West.

Threats to the Walla Walla may increase in severity. Although new surface water diversions are prohibited, groundwater permits continue to be issued. Groundwater flows underground to the Walla Walla and Columbia rivers, and depletion of the aquifer will reduce stream flow in these waterways. Permits for more than 100 cfs (cubic feet per second) of new water use are pending in Washington State — more water than is found in the river during much of the year. If these groundwater rights are granted, the basin's low flows and "no flows" will intensify and extend over longer periods of time.

A series of dikes and concrete channels and riverbed gravel mining have also altered the river's natural flows. Constraining the channel prevents the river from overflowing its banks onto the floodplain, where high flows would naturally be absorbed and contribute cool base flows to the river. The development and clearing of riparian lands also send runoff into the Walla Walla at a greater rate. Together, these land-use patterns exacerbate the flooding of homes, farms, and businesses, and wreak havoc on fish habitat.

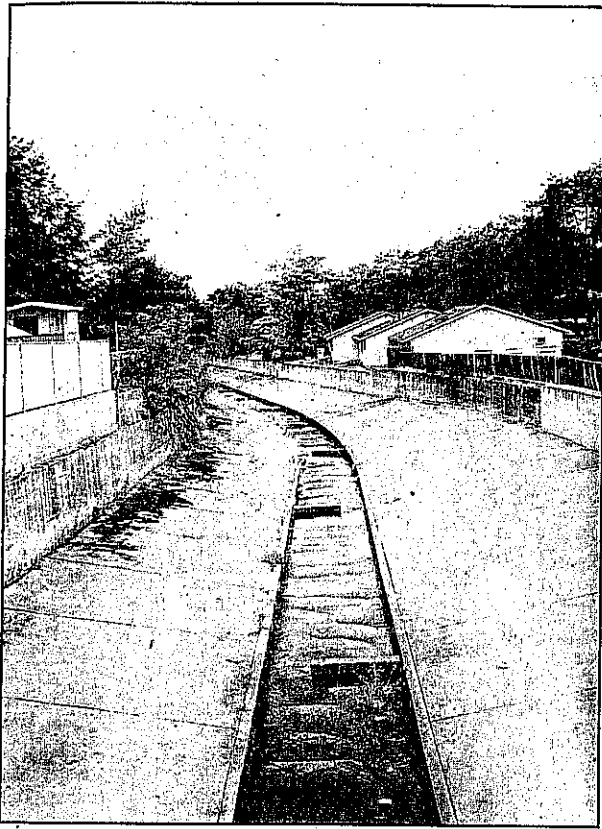


Photo: Margaret Delp

A concrete channel diverts water away from the Walla Walla for agricultural irrigation.

What Can Be Done

The primary source of surface water pollution in the United States is polluted runoff from careless agricultural practices. In the West, wasteful irrigation results not just in pollution but also in the unnecessary diversion of river water, loss of critical aquatic habitat, disruption of natural flood control, degraded drinking water, aquifer depletion, and lowered ecological integrity of rivers like the Walla Walla.

Although the Supreme Court ruled that the Clean Water Act must regulate water quantity when it affects water quality or impacts fisheries, recreation, or drinking water, the Environmental Protection Agency (EPA) refuses to integrate water quantity into its water quality decisions. The EPA should not continue to ignore the biological and physical components of water pollution. More efficient use of water in the West can alleviate quantity and quality problems, but the EPA must use the Clean Water Act to lead the way. By ignoring low flow problems, the EPA will exacerbate water pollution and cause economic turmoil for pollution dischargers trying to adjust discharge amounts for an ever-depleting quantity of water in our rivers.

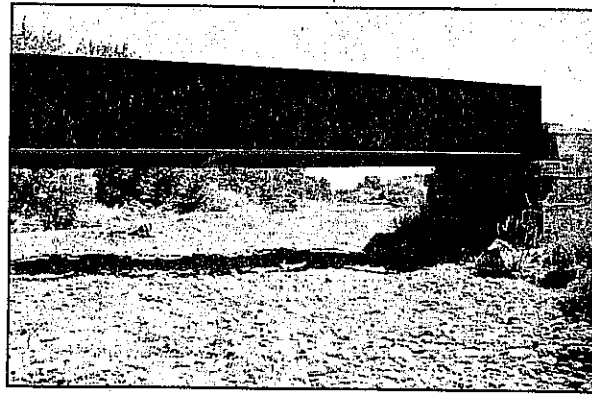


Photo: Margaret Delp

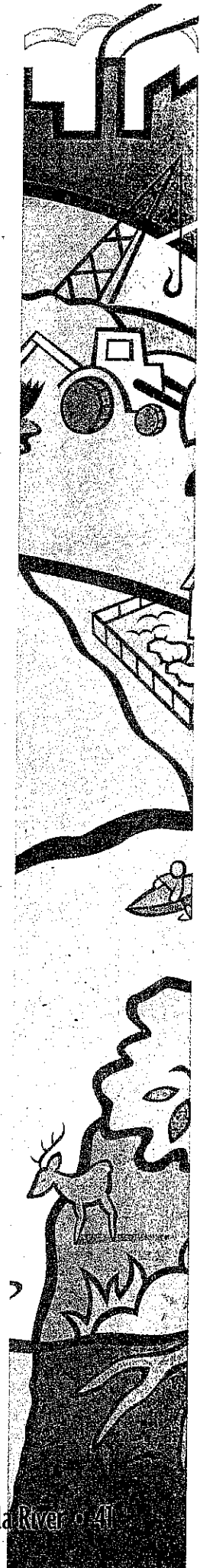
The Walla Walla is bone-dry during the irrigation season.

In addition, the U.S. Army Corps of Engineers has completed a reconnaissance report and will be developing a plan with the Confederated Tribes of the Umatilla Indian Reservation to restore instream flows and open up the floodplain for salmon reintroduction. Public support for removing levees to open the floodplain and promoting water conservation will help the Walla Walla to recover some of its ecological integrity.

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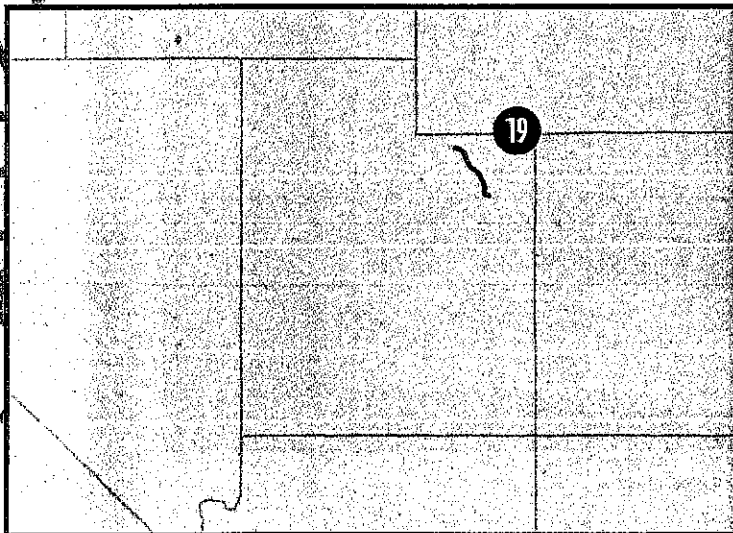


Uinta River

Threat: Proposed Diversion Dam

Summary

Utah water interests hope shortly to begin construction of a dam on the Uinta River, part of the Central Utah Project (CUP), a 42-year-old, \$3.5 billion complex of dams designed to seize the state's share of Colorado River Basin water. This component of the project would capture the flow of the wild Uinta River so alfalfa farmers in the Vernal area can extend their growing season by three to five days. The Uinta dam threatens some of the most important habitat remaining in the upper Colorado River for four endangered fish species.



The River

Located in northeastern Utah about 140 miles east of Salt Lake City, the Uinta River drains the southern slope of King's Peak, Utah's highest point at 13,500 feet. The alpine basin of the upper river is awe-inspiring with its glacially carved high-country setting. An extensive network of tributary streams and mountain lakes makes the Uinta River the largest on the south slope of King's Peak.

A clear, cold stream in its higher reaches, the river flows for 50 miles through the pristine High Uinta Wilderness Area and rugged canyons of the Uinta Mountains before meeting the Duchesne River, a tributary of the Green River. The downstream stretch of the river meanders

through the Uinta and Ouray Indian Reservation. Here, the Uinta's natural braiding allows it to harbor aquatic and terrestrial habitats vital to countless species of fish and wildlife. The Uinta serves as a migration corridor and critical wintering habitat for mule deer and elk, and as year-round habitat for moose, river otter, beaver, many birds of prey, and trout species.

The Uinta River gives hikers, equestrians, and anglers the chance to find solitude amid alpine wilderness. Populations of three trout species support a strong fishery. The Uinta River canyon provides a popular access point to the High Uinta Wilderness and tributary lakes and streams of the river itself. The Ashley National Forest has declared the upper reach of the Uinta eligible for further study as a Wild and Scenic River.

The Risk

The Central Utah Water Conservancy District (CUWCD) proposes to build the Uinta project within the boundaries of the Uinta and Ouray Indian Reservation as part of the decades old CUP. Plans include a 210-foot high dam on the Uinta that would create a 2.5-mile long reservoir and destroy the best fishery on the reservation. Diversions would diminish flows into the Duchesne and Green rivers, which serve as refuge for the endangered Colorado squawfish and the razorback sucker. Agricultural return water would degrade water quality in the Uinta.

The purpose of the dam is to provide water for farmers in the area to extend their growing season by three to five days. The estimated cost of delivering this water to newly irrigated lands is \$4,260 per acre-foot, with farmers repaying only \$3 per acre-foot of project costs. Surprisingly, both Utah urban residents and U.S. taxpayers, who have financially supported the CUP for 40 years, will bear most of the costs of the dam. The urban Utah constituency will receive no water from this project. Furthermore, Indian Development Fund money will cover 65 percent of the local cost of the project, although Utes on the reservation will receive less than half the water.

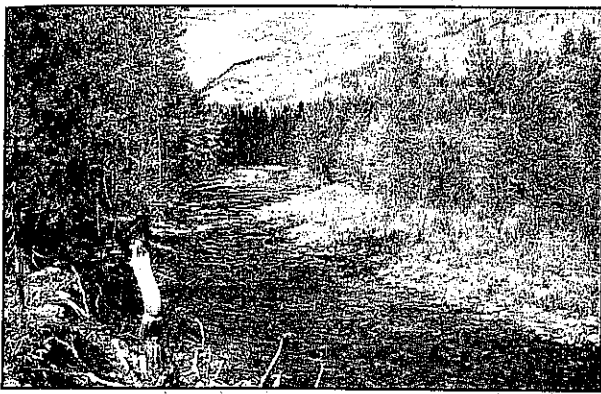


Photo: Eric Wilden

The Central Utah Project would dam the wild Uinta to add a mere three to five days to the alfalfa growing season.

Congress specifically deauthorized the Uinta project five years ago, but the CUWCD found access to old Bureau of Reclamation funding. This money, when combined with CUP and Native American funds, may enable the water district to dam one of the last free-flowing aquatic ecosystems on the south slope of the Uinta Mountains.

What Can Be Done

The Uinta project has recently drawn environmental opposition from both the U.S. Fish and Wildlife Service (FWS) and the Army Corps of Engineers (Corps). According to the FWS, the CUWCD failed to recognize that the proposed dam and diversion might harm endangered fish in the lower Duchesne and Green Rivers. Because this opinion involves "jeopardy" of the fish species, the FWS requires further consultation with the water district. The project's plans may require further modification to increase water flows for the fish, possibly delaying construction and likely raising costs even more. And, in a recent letter to the CUWCD, the Corps questioned the need for the Uinta project, suggesting it is not in the public's interest.

Upset by these agency opinions, the project has taken on political importance for the Utah Congressional delegation, particularly Senator Bob Bennett (R-UT). Senator Bennett has taken the case for damming the Uinta straight to U.S. Interior Secretary Bruce Babbitt. Members of the public interested in protecting the Uinta and Upper Colorado Basin should write these officials and express opposition to the Uinta project.

The Final Environmental Impact Statement for the Uinta project is expected during 1998, potentially bringing the project nearer to construction. Currently, local groups are fighting to protect the Uinta through Wild and Scenic River designation and a public education campaign highlighting the costs to taxpayers and Native Americans. Utes on the reservation have expressed their opposition to the dam to the tribal council. Local groups plan a public education and grassroots campaign on the reservation to involve tribal members in the process.

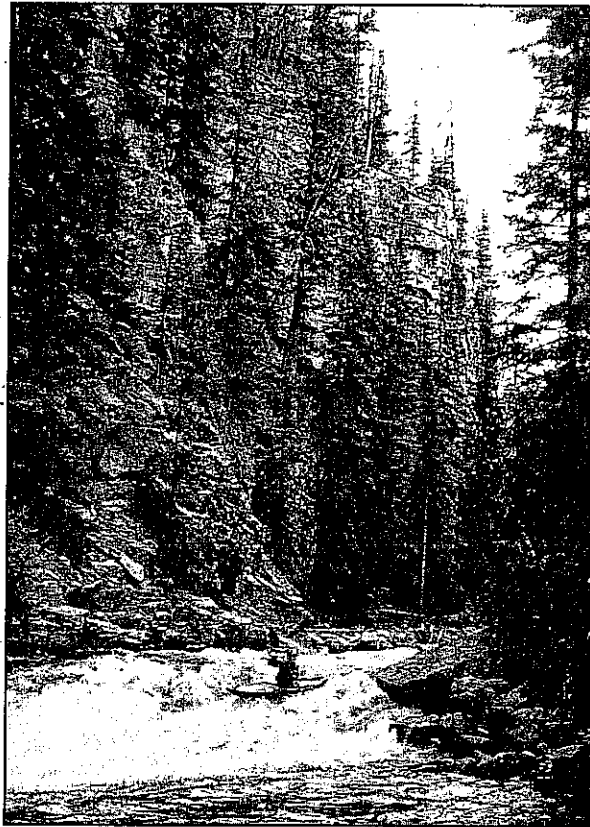


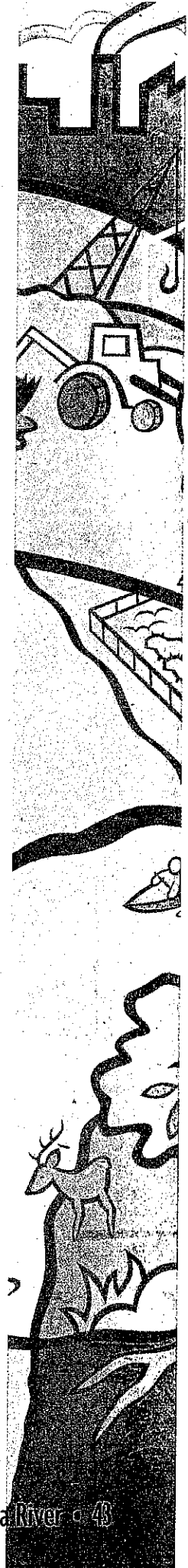
Photo: Eric Wilden

The Uinta provides excellent recreation opportunities and sustains a strong trout fishery.

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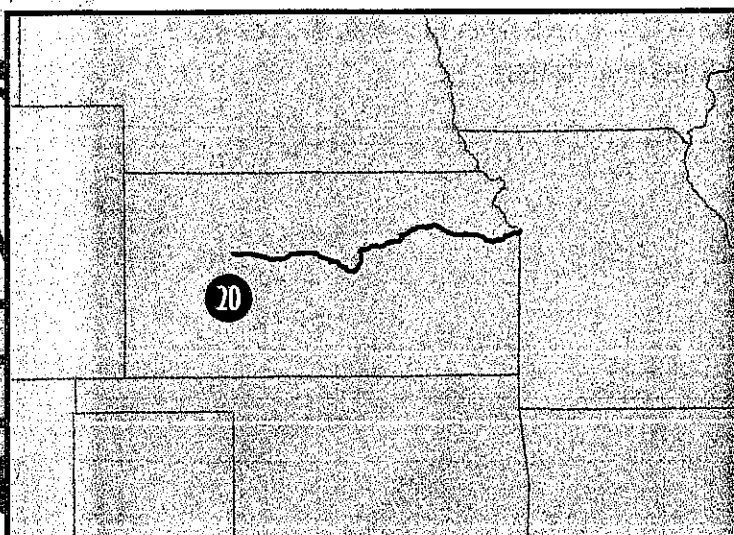


Kansas River

Threat: Agricultural and Municipal Pollution

Summary

Municipalities and agribusiness associations hope to weaken water quality standards in a state with some of the nation's most polluted rivers, threatening the ecological integrity of the Kansas River and the drinking water of 500,000 people.



The River

Formed by the confluence of the Smoky Hill and Republican Rivers, the Kansas drains parts of nearly 40 counties and collects the Big Blue, Delaware, and Wakarusa Rivers before reaching the Missouri River at Kansas City. Besides supplying drinking water for residents of Kansas City, Topeka, and Lawrence, the Kansas River hosts 60 fish species, provides crucial staging grounds for 110 species of migratory birds, and serves as winter habitat for the bald eagle. Between Lawrence and Lecompton, where large sandbars remain, nearly 200 bald eagles have been seen roosting in mature sycamore and cottonwoods native to the river's floodplain. In 1997, a pair of nesting bald eagles was sighted along the Kansas for first time in more than a century. The river is also one of the state's most popular for boating and recreation.

The Risk

Rivers in Kansas remain among the most polluted in the nation, and the Kansas River continues to be a sink for pollution from factories, farms, and city streets. According to a 1996 report by the Kansas Department of Health and Environment, 97 percent of the state's rivers and streams are too polluted to support their designated uses, such as drinking water and recreation.

Although Kansas River pollution has many sources — including municipal discharges and urban runoff — the leading contributors continue to be fertilizers and pesticides washed off farm fields. Kansas farmers apply 18 million pounds of herbicides to their fields every year, most of which enter the Kansas River. In 1996, concentrations of the herbicide atrazine exceeded the aquatic life criterion in 32 percent of the samples taken at Topeka and 44 percent of the samples at Manhattan.

More than 30 cities need to upgrade their sewage treatment plants to meet water quality standards. In particular, Johnson County's Mission-Turkey Creek sewage treatment plant has been operating without a valid permit since 1991, and the permit for Topeka's antiquated Oakland plant expired in 1995. Some cities have joined forces with the Kansas Farm Bureau and associations that represent corn and milo producers to weaken state standards by expanding the size of "mixing zones." This change would allow larger areas of the Kansas River and other waterways to exceed water quality standards while allowing pollutants more time to dilute. Another effort seeks to suspend standards for ammonia, atrazine, and chlorides designed to protect aquatic life.

Pollution from sewage plants and feedlots renders large portions of the Kansas River unsafe for recreation. In addition, commercial sand and gravel mining has lowered the river bed in the Kansas City area by 4.6 meters, steepening and destabilizing the river's banks and causing increased erosion and channel widening. These poorly monitored operations, which now threaten to expand upstream of Lawrence into a potential Wild and Scenic River segment, have degraded the lower 30 miles



Photo: Mike Catwell

The Kansas River provides habitat for 60 species of fish and 110 species of migratory birds.

of the Kansas River. In January 1998, the Kansas Geological Survey effectively vetoed a compromise that would have permitted gravel mining in some sections of the river but set aside others for recreation and wildlife.

These threats could further contribute to the decline of the bald eagle, least tern, piping plover, peregrine falcon, pallid sturgeon, flathead chub, sicklefin chub, sturgeon chub, western silvery minnow, and the Topeka shiner. The Topeka shiner may receive endangered status this year under the Endangered Species Act.

What Can Be Done

The State of Kansas should not weaken water quality standards, but instead work with farmers to adopt practices that reduce polluted runoff. If Kansas weakens water quality standards and fails to require upgrades for antiquated sewage treatment plants, the Environmental Protection Agency should revoke the state's authority to regulate polluters. In addition, the Kansas City District of the U.S. Army Corps of Engineers should not issue dredging permits in river segments that are now used for recreation and wildlife, and sand and gravel mining operations should instead mine 74 floodplain sites identified by the Kansas Geological Survey.

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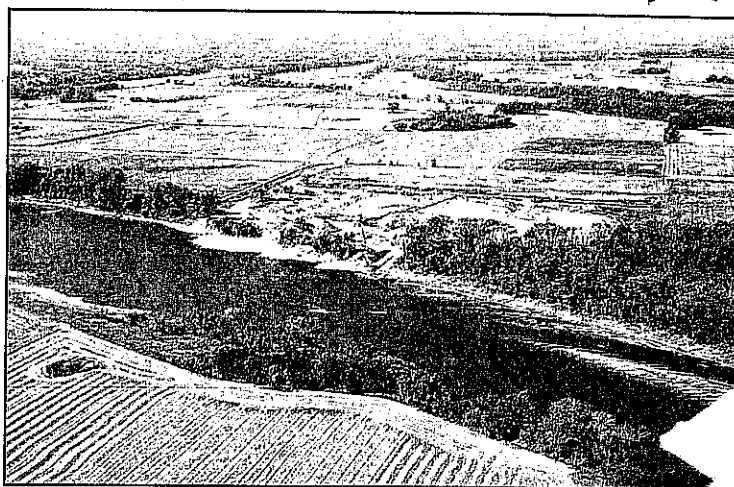


Photo: Jon Blumh

Kansas farmers apply 18 million pounds of herbicides to their farms each year, much of which washes into the river.

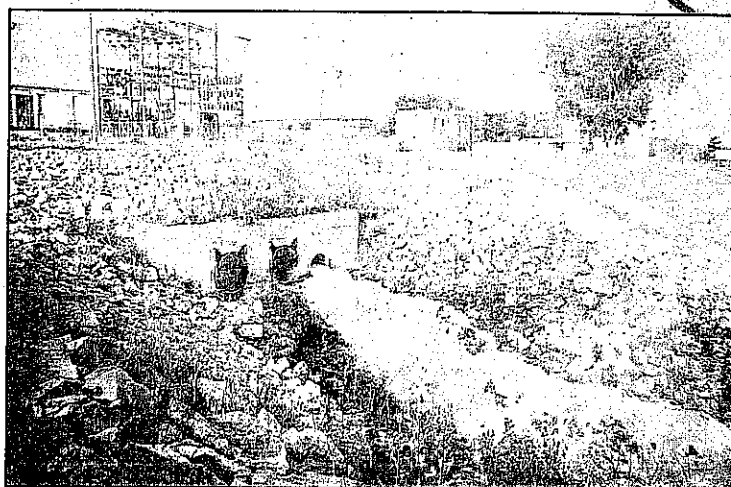


Photo: Mike Catwell

Pollution from sewage treatment plants threatens recreation opportunities and the drinking water of 500,000 people.

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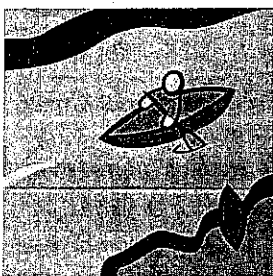
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