

15 Damnable Dams

“Historically, questions about dams have been limited to where or whether to build them in the first place. Given what we now know, it is time to change the terms of the debate. It is time to ask whether or not existing dams should be allowed to remain.”

A Report By



**OREGON
NATURAL
RESOURCES
COUNCIL**

DAMNABLE DAMS

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Oregon Natural
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MAIN OFFICE:
Yeon Building
522 SW 5th Avenue,
Suite 1050
Portland, Oregon
97204
(503) 223-9001

**ONRC AT A
GLANCE**
Founded:
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Idlewild Park, Oregon
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More than 6,000

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The Oregon Natural Resources Council aggressively defends Oregon's wild lands. ONRC's programs emphasize enhancement of watershed integrity, wildlife and fisheries habitat, economic diversification and stability, wilderness, research, education, outdoor recreation and community involvement.

The Oregon Natural Resources Council has operated continuously since 1972 to provide a democratic, grassroots structure for Oregon citizens to become involved in natural resource decision-making. With more than 6,000 individual members, ONRC has become the largest independent statewide conservation organization in the West.

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INTRODUCTION

Too Damn Many Dams

The rivers of Oregon are among the greatest natural resources in the world. Whether you live in the country or in a major city, an Oregon river no doubt influences your life every day. It is safe to say that Oregon is defined by its rivers in a way that no other state is.

Unfortunately, since early in this century, governments and private companies in search of profits have strangled our rivers with massive earth and concrete barriers. According to National Geographic, there are now about 75,000 dams in the United States alone. Thousands of dams and impoundments, some large, some small, block virtually every river in Oregon.

Specifically, this report is about a tiny percentage of those dams. ONRC hopes that by singling out a select group of dams, this report will force the public to give more thought to the significant environmental impacts of dams in general.

Most people believe dams are merely engineering wonders that provide cheap electricity, irrigation and drinking water, and flood control. We are taught from an early age that dams are awesome examples of peoples' ability to control nature. The truth is, dams can be all those things — and unfortunately, a lot more.

In the not-so-distant past, people believed dams were among the most cost-effective ways to heat our homes, quench our thirst and protect us from flooding. Many people still believe that today. But the fact is, the more we learn about dams, the more we understand the havoc they wreak on the environment. As technology advances, more and more dams are becoming unnecessary icons of our ignorant past.

Yes, many dams provide benefits to society. And to date, the alternatives available for matching those benefits are costly to the short-term economy. But many other dams don't fit that category. Water and electricity conservation, alter-

It is time to abandon the questions of where and whether dams should be built and replace them with the question of whether or not dams should be allowed to remain.

native flood control and the changing nature of our economy are making many dams obsolete. And whether you realize it or not, there are literally hundreds of dams in Oregon alone, many of which serve no useful purpose. Instead, they cost taxpayers millions in maintenance and subsidies while they block fish from reaching their natural habitat, destroy that habitat under silt-laden reservoirs, warm water temperatures and kill young fish attempting to migrate to the ocean.

One can hardly pick up a newspaper, watch television or listen to the radio without hearing more bad news about our historic fish runs. Several stocks of salmon are already extinct or on the endangered species list. Hundreds more are being considered for threatened or endangered species status. In response, the government creates a political gridlock by spending bil-

ions of taxpayer dollars to save fish without addressing the underlying reasons for their decline. While our tax dollars are wasted, people who fish commercially are losing their jobs in record numbers. Native Americans are seeing their cultural and economic survival evaporate and recreational fishing enthusiasts are having their fishing seasons reduced from months to weeks to days. It is time to ask why.

Historically, questions about dams have been limited to where or whether to build them in the first place. But given what we now know, it is time to change the terms of the debate. It is time to abandon the old questions of where and whether dams should be built and replace them with the question of whether or not existing dams should be allowed to remain.

On the following pages, this report will make the case against 12 existing, one unfinished and two proposed dams. The report discusses the projects' impacts on the environment, the potential fixes for those impacts, the purposes of the projects, and finally, the politics surrounding each dam. In addition, you will also find information on who you should contact to express your views about each of the dams in question.

Of course, the Pacific Northwest has many more damnable dams than just 15. ONRC recommends that both the state and federal governments initiate a comprehensive and systematic review of every water impoundment in Oregon. Such a review should consider issues of social need, economic efficiency and environmental protection.

INTRODUCTION

Right: Fish managers are literally trying to get around the problems dams cause instead of addressing those problems. The truck in the photo at right is one of many vehicles dam operators use to move young salmon down stream. Dams have made many rivers too dangerous for fish to swim in.

Too many dams are like the GoldRay Dam, the Winchester Dam and the North Fork Dam. They continue to block rivers and streams while literally doing nothing for society and nothing but harm to the environment. The decision is easy: take the dams out.

Another category of dams includes those such as the Savage Rapids Dam, Chiloquin Dam and Threemile Dam which no longer efficiently serve the original purposes for which they were built. It is possible to provide whatever legitimate benefits the dams presently provide in a more efficient manner, removing the dams and installing irrigation pumps for example.

A third category of dams, like the Hells Canyon Complex and Deschutes Complex, includes those that provide significant social benefits, but have more significant environmental costs. Optimum social benefits are better served by dam removal (and fish restoration) and by obtaining the electricity or other benefits by other, less environmentally destructive (and more economically efficient) methods.

A fourth category of dams, none of which are featured in this report, includes those dams where the social benefits dictate the continuation of the dam. However, mitigation measures, such as construction or reconstruction of fish ladders or provision of better flow regimes downstream, are needed to optimize net social benefits.

There are also dam proposals like Lake Abert Dam, Milltown Hill Dam and Salt Caves Dam (and stalled, but partially completed Elk Creek Dam) which are easy choices: don't start (or finish) them.

Another way to view dams is with an eye towards safety. No dam is 100 percent safe. A recent example in the news is the Ochoco Dam on the Ochoco River above the



Photo courtesy of NW Power Planning Council

city of Princeville. The dam is at high risk of failure and immediate

Conservation, alternative flood control and the changing nature of our economy are making many dams obsolete. There are hundreds of dams in Oregon, many of which serve no purpose.

— and costly — repairs are being undertaken. Society chooses to build and keep such dams because the benefits (hopefully) outweigh the risks. The safest dam is no dam. Non-structural solutions such as flood plain zoning which limits developments on land in harm's way may often provide society with other benefits such as wetlands conservation and restoration and prevent the "need" for dams.

If a dam produces hydroelectric power, the Federal Energy

Regulatory Commission must reconsider the dam's existence at the end of its license period (usually 50 years). In Oregon, the Water Resources Commission has responsibility for dam safety; they should be required to consider the need for dams as well. At the federal level, the Bureau of Reclamation has authority for non-federal dam safety under the Dam Safety Act. The USBR is undergoing a fundamental change of mission under the Clinton Administration. True "reclamation" of dams is a legitimate and necessary purpose of the new BuRec.

In any case, for all the reasons listed above and the ones that follow, the list of "Damnable Dams" should not stop at 15, or even 30. It is in the best interest of our economy and our environment to rethink our reliance on dams. It is ONRC's hope that this report will serve as a catalyst for action on the part of state and federal governments, politicians and citizens, and that we can look forward to a future that isn't dammed.

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HELLS CANYON COMPLEX

Snake River Dams Stop Salmon Cold

THE BASICS

Hells Canyon Dam
Owner: Idaho Power
Height: 330 feet
Length: 1000 feet
Purpose: Power
License: Expires 2005

Oxbow Dam
Owner: Idaho Power
Height: 205 feet
Length: 1150 feet
Purpose: Power
License: Expires 2005

Brownlee Dam
Owner: Idaho Power
Height: 395 feet
Length: 1,380 feet
Purpose: Power
License: Expires 2005

Environment

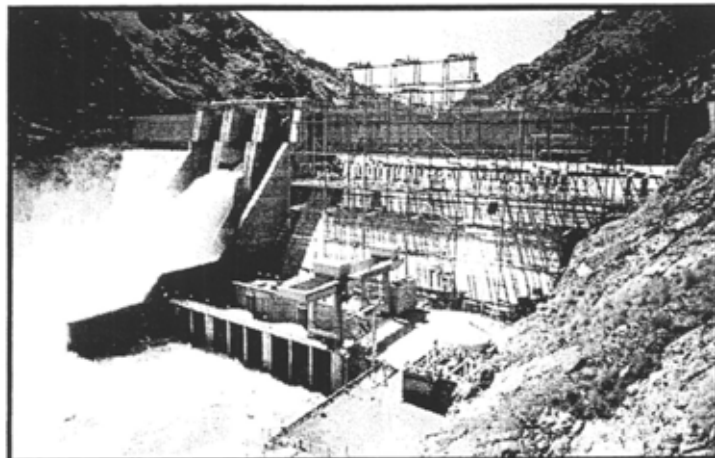
Before the mighty Snake River was clogged by dams it was clogged with salmon. When the Snake ran free, nearly one million steelhead, sockeye, spring and fall chinook

The schemes devised to move fish past the dams were a total failure. As mitigation, fisheries managers decided to build fish hatcheries. By 1971, no salmon passed the complex naturally.

and coho salmon migrated up the river beyond the concrete barriers that now block their way.

Hells Canyon Dam is the major fish impediment. Oxbow Dam is 20 miles upstream from Hells Canyon and Brownlee is 13 miles beyond Oxbow. In 1955, Idaho Power received a license from what is now the Federal Energy Regulatory Commission (FERC) to construct what is commonly called the Hells Canyon Complex.

FERC is the key federal agency that gives non-federal, power producing dams the right to exist. Without a FERC license, dams may not be operated for power production. In many cases, if dams cannot produce power, they won't be built in the first place. Today, many dams are having, or are on the verge of having, their FERC licenses



ONRC Photo

reauthorized. During the reauthorization process, issues of concern to conservationists can be raised. ONRC and other groups will be fighting the reauthorization of many dams in the near future. You can get involved by contacting FERC at the address listed below. Under FERC rules, license applicants must begin the process of reauthorization five years before their existing licenses expire. The reauthorization process is often the only opportunity to raise concerns about the environment.

By 1964, before construction was even completed, fish counts at Oxbow Dam revealed significant declines in spring, summer and fall chinook salmon and steelhead runs. The reason for the decline is as clear as Snake River water used to be: smolts (juvenile salmon) were unable to swim downstream through the vast reservoir that Brownlee Dam created.

When young anadromous fish begin their migration to the ocean, they need to move fast. Before dams, fish could count on fast river velocity to speed them down river.

Without fast flows, the fish spend too much time in fresh water. The fish undergo physical changes that allow them to make the transition from fresh river water to ocean salt water. If they complete that transformation while still in fresh water, the result is often death.

Problems with downstream passage were compounded by the upstream passage problems created when the dams were completed. The schemes devised to move fish past the dams (elevators and the like) on their way upstream to spawn were a total failure. As mitigation, fishery managers decided to build fish hatcheries. The result: by 1971, no salmon passed above the complex naturally. Today, the few remaining wild Snake River spring and fall chinook, and summer steelhead — all listed under the Endangered Species Act — bump their noses on the Hells Canyon Dam if they try to go any farther.

Fixes

Some optimistic fish managers believe adult fish could pass the

dams if fish ladders were installed. Conservationists, based on lots of experience, have little faith in such engineering. The simple fact that the Hells Canyon Complex dams are so tall presents significant engineering stumbling blocks. Hells Canyon Dam is 330 feet tall. Oxbow is 205 feet tall. And Brownlee is 395 feet tall. Salmon are tough, but they don't come equipped with wings or climbing gear.

Even if fish ladders were successful, a limited prospect itself, young fish would still face the threats involved in swimming through the 58-mile-long reservoir behind Brownlee Dam. To ensure effective downstream passage, the reservoir would have to be lowered significantly. And, lowering the reservoir would mean there would be little, if any, water available for use in the fish ladders (Fish ladders use water stored in reservoirs to create "attraction flows" and to keep the ladders themselves wet and river-like). In other words, fixing one half of the fish-passage problem exacerbates the other half of the problem.

Added to the technical difficulties of providing passage is the issue of cost. A conservative estimate of the price tag for a fish ladder at Brownlee Dam alone is \$50 million. Passage at Hells Canyon would cost more. That's a heavy price to pay for a program that probably wouldn't work.

And finally, there is a safety issue. Brownlee Dam is built right on top of the Brownlee fault. Some experts suggest an earthquake with a magnitude of five or lower on the Richter scale could cause a landslide that would jeopardize the earth-fill dam. If Brownlee failed, the rush of water could possibly damage or cause the collapse of the other two dams.

Purpose

The complex produces a maximum 1345 megawatts of power —



ONRC Photo



Photo by Steve Culley

Top: Schemes devised to move fish past the Hells Canyon Complex were a total failure. Hells Canyon Dam (preceding page) is 330 feet tall. Oxbow Dam is 205 feet tall.

Bottom: Brownlee is 395 feet tall. Instead of stopping construction, fish managers built hatcheries. The result: By 1971, no salmon passed the complex naturally. Today, despite the fact that many are listed under the Endangered Species Act, all Snake River salmon literally bump their noses on Hells Canyon Dam.

less than 2 percent of the power sold by the Bonneville Power Administration (BPA is a federal power marketing authority that distributes power in the Northwest). And, that power comes with a steep price. Fortunately, there are alternatives.

Alternatives

The Northwest Power Planning Council says the BPA — the region's largest power supplier and the distributor of Hells Canyon Complex power — can acquire 1500 megawatts of power through conservation and efficiency improvements by the year 2000. The power gained through conservation is more than enough to offset power lost by the removal of the Hells Canyon Complex. In addition, the Council says 2500 megawatts can be gained

through conservation measures shortly after the year 2000. ONRC is pushing the Council to reach its goals by the year 2005. If it does, not only will we be able to replace Hells Canyon Complex power, we'll have enough surplus to remove other fish-killing dams, too. Even if conservation goals are not met, Idaho Power could use the money it would have to spend on fish passage improvements on alternative generation capacity or on more aggressive conservation.

For more information, contact Fish In Northwest Streams (FINS) at P.O. Box 434, Baker City, Oregon, 97814.

DESCHUTES COMPLEX

Deschutes Dams Damage Three Rivers

THE BASICS

Pelton Dam
Owner: Portland
General Electric
Height: 204 feet
Length: 965 feet
Purpose: Power
License: Expires in 2001

Round Butte Dam
Owner: Portland
General Electric
Height: 440 feet
Length: 1,380 feet
Purpose: Power
License: Expires in 2001

At Right:
Construction of the Pelton Dam created the nine-mile-long "Lake" Simtustus. Warm water in the "lake" often kills young salmon. No fish pass Pelton Dam naturally. They have to be loaded on trucks and shipped downstream.

Environment

Pelton Dam and Round Butte Dam are the principle barricades blocking fish access to the upper Deschutes River and its many key tributaries. Pelton Dam created the nine-mile-long "Lake" Simtustus. Round Butte Dam is upstream from

Removing the dams would re-open the Metolius, Crooked and Deschutes River drainages for salmon recolonization. The Metolius is very intact, so removal of the complex would provide access to nearly 40 miles of the best habitat in central Oregon.

the lake in a strategic position that effectively blocks fish access to three rivers, the Deschutes, the Metolius and the Crooked. The 10-mile-long pool of water behind Round Butte is now called "Lake" Billy Chinook.

As with most dams, these two culprits create problems for adult fish migrating upstream to spawn and for juvenile fish attempting to move downstream to the ocean. Because of this dam complex, Deschutes River summer steelhead, fall chinook, spring chinook, sock-eye salmon, lamprey eel and bull trout no longer have free access to their traditional spawning and rear-



ONRC Photo

ing habitat.

In 1964, when both dams were built, engineers installed a fish ladder to help fish swim past Pelton Dam and into Lake Simtustus. If the fish made it through the lengthy reservoir, they entered a salmon gondola (we are not making this up). The gondola went up automatically and dumped the fish into "Lake" Billy Chinook. After swimming through that lake, the fish could then attempt to find their river of origin.

As you might expect, the gondola ride, while no doubt entertaining, had limited success in getting adult fish past Round Butte Dam. In addition, smolts moving downstream rarely survived the ten-mile-long trip through the slackwater "Lake" Billy Chinook. And even if the young fish made it to the end of the reservoir, they followed what remained of the downstream current to the face of the dam, at which point the current curves and heads back up the arms of the three rivers the dam blocks. The result was smolts ended up dying in the reser-

voir. In 1968, the fish gondola was closed and the Oregon Department of Fish and Wildlife and the Warm Springs Tribe began a program for breeding fish as well as trapping and hauling wild fish.

Fixes

ODFW and Portland General Electric fish biologists hypothesize that construction of a new intake system at the top of Round Butte Dam could create a stronger attraction current to get smolts to enter a proposed "passage pipe" that would channel them around the dam. The scheme would provide 4,000 to 5,000 cubic feet of water per second to flow around the dam instead of the original 400 to 500 cubic feet per second. It's an elegant plan, but likely to meet with limited success, particularly when compared with dam removal. Plus, even if the downstream migration problem was solved, the issue of upstream passage remains.

Most importantly, removing the dams would re-open the Metolius, Crooked and Deschutes River drain-

DAMNABLE DAMS

ages for salmon recolonization. The Metolius drainage is very intact, so removal of the complex would provide access to nearly 40 miles of the best salmon habitat in central Oregon.

As you might expect, the gondola ride, while no doubt entertaining, had limited success in getting adult fish past Round Butte Dam.

Purpose

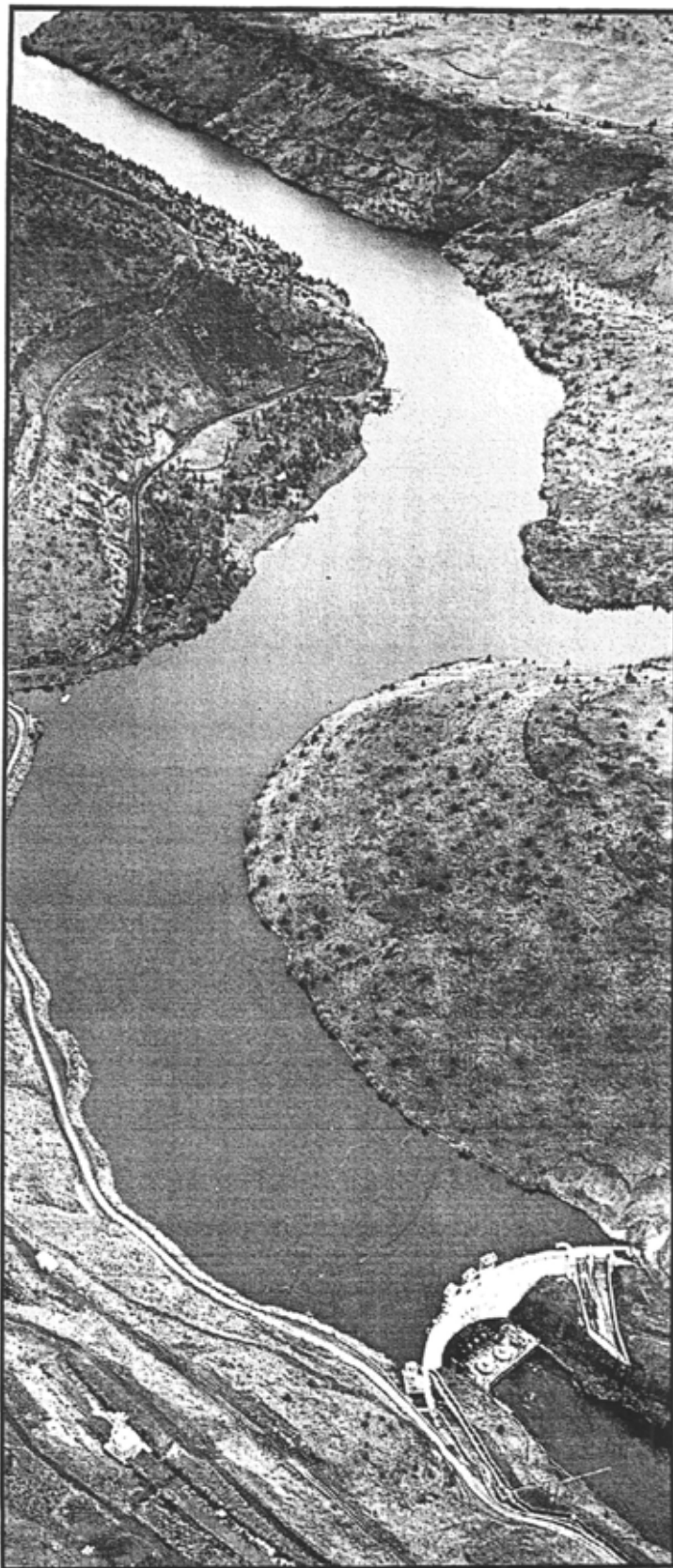
The prime economic benefit Pelton and Round Butte Dams provide is electricity. The complex of dams has a generating capacity of 388 MW. Other facilities on Lake Billy Chinook and Lake Simtustus support, camping, boating, fishing and associated recreation.

Alternatives

The power generated by Pelton and Round Butte Dams could be replaced with conservation and efficiency improvements. In addition, improvements in irrigation efficiencies could reduce the need for the electricity now used to pump water. In terms of renewable alternatives, central Oregon is a prime location for solar energy.

As far as recreation alternatives go, new fishing, rafting and other associated benefits of whitewater, instead of slackwater, recreation could compensate for changes dam removal would require.

For more information on how you can help bring back the Deschutes River and its fish, please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.



The Round Butte Dam blocks fish access to three key rivers, the Deschutes, the Metolius and the Crooked. The power generated by the dam could be replaced with conservation and efficiency improvements.

Oregon Department of Transportation

ELK CREEK DAM

Pork-Barrel Politics Puts Rogue River At Risk

THE BASICS

Owner: U.S. Government
Height: 83 feet
Length: 2580 feet
Purpose: Flood control, irrigation
License: No power production, so no license

Environment

Elk Creek Dam is located about one mile from Elk Creek's confluence with the Rogue River. The creek currently flows through a 310 foot tunnel in the base of the dam. The tunnel only accommodates a flow of 300 cubic feet of water per second. Flows greater than that back up and/or spill over the top of the unfinished project.

Both the Forest Service and the Bureau of Land Management — the agencies responsible for preserving the lower Rogue River's wild and scenic status — say that if it is completed, Elk Creek Dam will destroy important habitat for and block upstream passage of wild coho salmon and steelhead trout, both of which are potential candidates for endangered species protection. Already, the unfinished dam effectively blocks upstream migrations of coho salmon, summer and winter steelhead, scarun cutthroat trout, sucker fish and native trout. Even the U.S. Army Corps of Engineers, the builder of the dam, admits the project creates serious environmental problems.

To reduce the fish passage problem, the Oregon Department of Fish and Wildlife has devised a costly program that (we are not making this up) traps fish at the base of the dam, loads them onto trucks, carries them above the dam, and then releases them back into the creek. As you might expect, since fish like to be in the river, not on trucks next to the river, trapping and hauling doesn't work too well.

In 1991, about 400 adult steelhead milled around the base of the dam, avoided the trap, and eventu-

ally went back into the mainstem of the Rogue. During 1992, only about 125 summer and winter steelhead, 40 coho and 10 native trout were trapped by ODFW and hauled above

Elk Creek is the last dam built entirely with taxpayers' money. The Corps of Engineers' own cost-benefit study, which was affirmed by the non-partisan General Accounting Office, said the dam would provide only 20 cents in benefits for every dollar spent on it.

the dam, the rest were forced back downstream. The salmon that move back downstream, however, generally don't fare too well. The Rogue can reach temperatures of more than 80 degrees and does not provide viable spawning and rearing habitat. Plus, Lost Creek, the next major tributary, is five miles up the Rogue beyond Elk Creek. And surprise, surprise, it's been dammed, too.

Fixes

Construction of Elk Creek Dam was stopped in 1987 by a court-ordered injunction won by ONRC and other conservation groups (the case went all the way to the Supreme Court and back). Recently,

the Corps of Engineers asked the court to lift the injunction. In turn, ONRC filed a new lawsuit asking the court to order the Corps to remove the dam's spillway so fish could swim past the unfinished structure. The judge in the case recently ruled that ONRC "presented a compelling case" for removing the dam. But instead of ordering the dam removed, he ordered the Corps to conduct more studies on fish and habitat problems.

Because ODFW and other agencies testified in court that fish passage would be expensive and would likely be ineffective in preserving wild fish runs, and several government scientists said ONRC's plan to remove all or part of the existing structure was the best way to ensure fish passage, conservationists have appealed the judge's failure to order the dam removed.

Purpose

The Elk Creek Dam was authorized by Congress to provide flood control on the Rogue River and irrigation water to communities in the area. The project was one of a three-dam package that included Lost Creek Dam and Applegate Dam, both of which are now complete.

Flooding on the Rogue has been controlled adequately by Lost Creek and Applegate Dams, and existing irrigation water from other sources goes unused on a regular basis. Analysts, including those with the Corps, say it is unlikely there will be a demand for additional irrigation water in the foreseeable future.

Alternatives

Since there is virtually no justifiable need for the Elk Creek Dam, there is no need for alternatives to it. To provide additional flood control for communities on the Rogue River, it is conceivable that a series of levees could be constructed instead of the dam.

Elk Creek has a long list of opponents outside of the conservation movement. Oregon Governor Barbara Roberts is against it. The U.S. Fish and Wildlife Service is against it. The Oregon Department of Fish and Wildlife is against it. The National Marine Fisheries Service is against it. And, Oregon newspapers condemn the dam, labeling it "an embarrassing boondoggle" and "a monument to ... pork-barreling."

Problems

The Elk Creek Dam, or what there is of it, was made with roller compacted concrete, which has a tendency to degrade over time. The Willow Creek Dam, in Heppner, Oregon, was also constructed with roller compacted concrete, and is

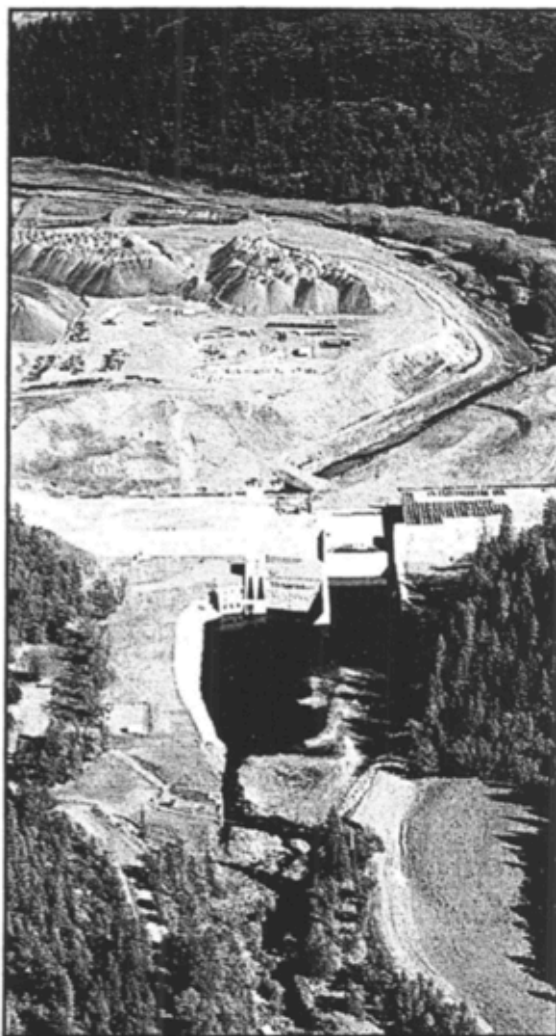
losing structural integrity due to a chemical change in the concrete. If finished, the same problem may occur at the Elk Creek Dam as well. Corps officials already are contending with cracks in the dam's concrete and other problems. If it is finished, Elk Creek will present a significant safety hazard to downstream residents.

In addition to the dam's environmental and safety problems, it has significant economic problems. The dam is the last project of its kind authorized before federal law was changed to require local cost sharing — in other words, this is the last dam built entirely with taxpayers' money. The Corps of Engineers' own cost-benefit study, which was affirmed by the non-partisan General Accounting Office, said the dam would provide only 20 cents in benefits for every dollar spent on it. In 1992 alone, despite the injunction barring any construction, Congress appropriated \$2.5 million for Elk Creek.

Politics

Unlike most of the damnable dams, Elk Creek has a long list of opponents outside of the conservation movement. Oregon Governor Barbara Roberts is against it. The U.S. Fish and Wildlife Service is against it. The Oregon Department of Fish and Wildlife is against it. The National Marine Fisheries Service is against it. And, Oregon's major newspapers condemn the dam, labeling it "an embarrassing boondoggle" and "a monument to ... pork-barreling."

For more information on how you can help remove Elk Creek Dam please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.



The Elk Creek Dam is killing fish and wasting taxpayers' money. It is the last project of its kind built entirely with federal funds.



Oregon Senator Mark O. Hatfield is the leading proponent of Elk Creek Dam.

ONRC photo

ONRC photo

GOLD RAY DAM

Useless Rogue River Dam Hurts Fish In Four Ways

THE BASICS

Owner: Jackson County
Height: 35 feet
Width: 395 feet
Purpose: Power, but none produced for 30 years.
License: none, since no power is produced.

Environment

Rogue River coho, winter and summer steelhead, spring chinook, and fall chinook all must pass the Gold Ray Dam on their up and downstream migrations. The American Fisheries Society says Rogue coho and fall chinook face a high risk of extinction and the Rogue summer steelhead face a moderate risk of extinction.

Although Gold Ray Dam was designed to provide electricity, the dam has not produced a single watt of power for decades. It has, however, transformed two to three miles of the Rogue River into the Kelly Slough.

The dam hurts fish in at least four ways. First, upstream migrating adults must negotiate the dam's two ladders with a total length of 200 yards. The adult fish returning upstream to spawn stack up at the ladders. As a result, they experience considerable stress and delays. Second, young fish traveling towards the ocean spill over the top of the 35-foot dam into relatively deep water. The fall can stun the fish, making it easier for mergansers and other predators to eat them. Third, the dam warms the Rogue River, which contributes to prob-

lems for fall chinook salmon downstream from the dam. The reservoir behind the dam obliterates fish habitat. And finally, the dam blocks nutrient and gravel flows that help create and maintain habitat.

In addition to helping fish, removing Gold Ray Dam would make 20 additional miles of river free flowing. Many rafters, kayakers, motor boaters and floaters from nearby Medford, Grants Pass and throughout the state enjoy this stretch of river and would benefit from Gold Ray's removal.

Fixes

It might be possible to improve upstream passage so fish would not be delayed. And it might be possible to address the risks fish face going over the top of the dam. However, both improvements would be expensive and would provide little in the way of net benefits. Removal is the best fix.

Purpose

Although Gold Ray Dam originally was designed to provide electricity, the dam has not produced a single watt of power for decades. It has, however, transformed two to three miles of the Rogue River into the Kelly Slough. This wetland provides habitat for waterfowl and other wildlife and is used by birders and canoeists. The ODFW uses equipment in the dam for fish monitoring.

Alternatives

You don't need a dam to count fish. Even ODFW doesn't seem alarmed about losing Gold Ray's

counting station. In terms of the wetland habitat the dam created, restoring the river to its natural condition will provide more environmental benefits than maintaining a human-created wetland.

Problems

Lots of sediment has built up behind Gold Ray Dam. If the dam is removed, the sediment would either need to be flushed by high river flow or, if this is not ecologically acceptable, it would need to be removed as part of the restoration effort.

For more information on what you can do to help remove Gold Ray Dam, please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.

SAVAGE RAPIDS DAM

Scrapping Savage Rapids Would Save Money & Fish

Environment

The Savage Rapids Dam is a deadly obstruction to Rogue River fall and spring chinook, coho, and winter and summer steelhead. The American Fisheries Society lists the Rogue fall chinook and coho as facing a high risk of extinction and the summer steelhead as facing a moderate risk of extinction.

Every salmon not killed at Savage Rapids Dam could generate \$300 in spending on travel, lodging and gear for fishing. Removing Savage Rapids could result in about \$5 million per year in created fisheries and associated economic value.

The Bureau of Reclamation estimates that approximately 27,000 more salmon would spawn above the dam site every year if Savage Rapids were removed. Estimates suggest that if 27,000 more fish spawned, there would be nearly 88,000 more fish for sport and commercial harvest, and 100,000 more fish in the Rogue system.

Although no firm estimates are available, there is extensive agreement among biologists that thousands of salmon are injured or killed

on their annual up and downstream migrations as they attempt to pass, or are delayed in passing the Savage Rapids Dam. A main cause is the fish ladder on the north side of the dam. The ladder passes virtually no adult fish. The south ladder passes some fish but is still poorly designed. The warm temperature of the reservoir behind the dam adds to the overall temperature problems in the Rogue River basin. In addition, migrating smolts frequently are spilled over the dam and often die on rocks below. If they survive the fall, the smolts are frequently susceptible to predation.

The Oregon Department of Fish and Wildlife estimates that for every salmon not killed at Savage Rapids, the direct value of the fish and indirect value of money spent on travel, lodging and gear for salmon fishing totals between \$200 to \$300. Removing Savage Rapids could result in \$5 million per year in created fisheries and associated economic value.

But the dam doesn't just kill fish. It's also a problem for other river users. The Rogue River between Medford and Grants Pass gets a lot of recreational use. However, rafters and other boaters heading downstream reach a two-mile slackwater prior to the dam and cannot pass it without portaging. Removal of the Savage Rapids Dam would allow river users to enjoy an additional 20 miles of free flowing river from the Gold Ray Dam downstream to the Savage Rapids site. Freeing this extra stretch of river would benefit floaters, drift fishers, kayakers, rafters and power boaters.

Fixes

The Savage Rapids Dam is owned by the Grants Pass Irrigation District. The dam is 70 years old. Its sole purpose is to divert water for irrigation. The Savage Rapids Dam is like an old car that doesn't run well and will soon cost a lot in repairs (\$2.8 million for turbine and pump replacement alone). It's time to scrap it.

The Grants Pass Irrigation District recently voted to remove the dam after the consulting firm David R. Newton & Associates estimated it would cost \$14.7 million to put new fish ladders in place, and \$2.8 million to replace the dam's turbines.

Purpose

The dam provides irrigation water to the Grants Pass area. Withdrawals from the reservoir behind the dam irrigate about 8,000 acres of land, a majority of which is hobby farms and other suburban tracts. The dam's turbines generate the power needed to run the irrigation pumps, but nothing more. The reservoir behind the dam also provides some flat water recreational benefits that could be replaced with river recreation.

Alternatives

Customers already are dropping out of the Grants Pass Irrigation District because its water delivery costs have tripled over the past two years. According to ODFW, there were 272 buyouts from the irrigation district last year. About 85 percent of the district's customers are within the Grants Pass or Rogue River city limits or

THE BASICS

Owner: Grants Pass Irrigation District
Height: 39 feet
Length: 464 feet
Purpose: Irrigation and electricity to run irrigation pumps
License: The dam does not create excess hydropower for sale and does not need a permit.

DAMNABLE DAMS

Top: A view of Savage Rapids Dam from the north side. Despite the fact that it would be cheaper to remove the dam than to fix it, some local citizens are fighting to keep the dam in place. They've even gone so far as to sue ONRC and other conservationists for speaking out against the dam.

Bottom: A view of the north fish ladder at Savage Rapids Dam. The ladder passes virtually no adult fish. It would cost nearly \$15 million to replace the ladder. But even with a new ladder, the problems caused by the aging dam would not be solved.

urban growth boundary and can therefore use municipal water sources.

The district's consulting firm estimates removing Savage Rapids Dam, restoring the reservoir area and establishing new pumps for continued provision of water will cost \$9 to 12 million plus \$326,000 annually for operations and maintenance. The district would actually save \$100,000 annually by removing the dam and providing water with pumps instead.

As *The Oregonian* put it in a recent editorial, "This 72-year-old dam kills too many young salmon; it's cheaper to remove it than fix it."

Problems

Supporters of the 72-year-old structure have formed a group called the Association to Save the Savage Rapids Dam and Lake. One of the leaders of the committee calls conservationists and people who know how to read a balance sheet "parasites" and "masters of deceit." The committee has sued ONRC, other conservation groups, and state and federal officials in an effort to stop the irrigation district from following through on its decision to remove the dam.

Flat water users and homeowners who have invested in lake access also will fight dam removal. What they rarely mention however, is the fact that the reservoir behind the dam already is drawn down during winter months. Dam removal would simply make the drawdown permanent.

Politics

The irrigation district's vote to remove the dam is contingent on a long list of other conditions, including the continued right of the district to pump lots of water from the river. The directors of the irrigation district know that removing the dam is the best economic alternative. Now however, they are intent upon



Photo by Glade Walker, Bureau of Reclamation



Photo by Glade Walker, Bureau of Reclamation

making taxpayers foot the bill for both dam removal and for continued power and water subsidies that will ensure the existence of the irrigation district. A better alternative would be to abandon the district and instead have its customers hook up to the City of Grants Pass' water system.

For more information please contact Water Watch of Oregon at 921 SW Morrison Street, Suite 534, Portland, Oregon, 97205.

HINES MILL DAM

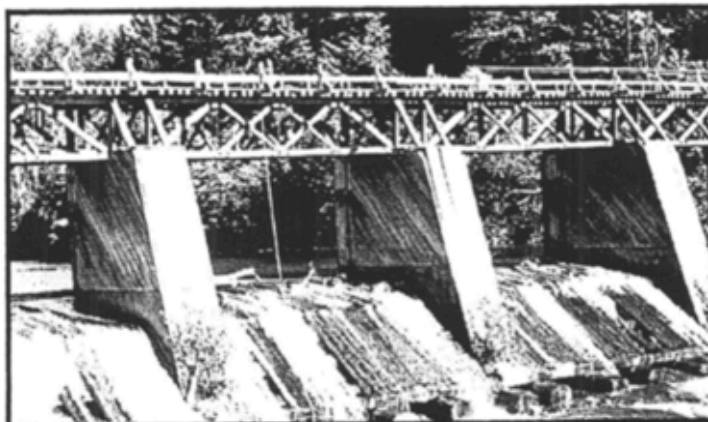
Abandoned Dam Threatens Safety And Fish

Environment

The Hines Mill Dam was built by the Hines Lumber Co. in the 1960s to form a log pond which was used by the company's mill located along the river. The mill was closed, and eventually burned down, leaving the dam in place, but serving no useful purpose. The company that owned the mill site and dam site, Westfir Energy, went bankrupt. Lane County seized the property in a tax foreclosure in 1993.

According to the Oregon Department of Fish and Wildlife, the dam has reduced the productivity of the fish in the North Fork of the Middle Fork of the Willamette River. Before the dam was in place, trout would migrate downstream where more and bigger food was located, resulting in bigger fish. The fish would then migrate back upstream to spawn. Since the dam inhibits migration, biologists are finding fewer big fish upstream.

In addition, county officials say the dam is a hazard when logs and other debris build up behind it during high water. The dam has five gates for water to pass through. Logs and other debris frequently get lodged across one or more of the gates, which leads to more debris and logs getting trapped. And, since the mill near the dam burned down, there is no one to remove the backup. During 1986, logs piled up 50 to 75 yards behind the dam. If the dam were to burst, the resulting flood of water and debris would likely knock out the Hemlock Bridge, located about a quarter mile downstream. The county also is worried someone could fall through the dam's wooden superstructure.



Oregon Department of Fish and Wildlife

Fixes

Conceivably, some sort of fish passage facility could be installed at the dam, but since the dam is not serving any useful purpose, the appropriate fix (and the cheapest) is to remove it. Hines Mill is a perfect example of dam that does not need to be fixed, it needs to be removed.

Purpose

As mentioned above, the dam created a log pond which once was used by a lumber mill. The pond behind the dam also helped the city of Westfir with its water supply. The city's water intake is located about two-thirds of the way up what was once the dam's reservoir.

Alternatives

A discussion of alternatives assumes there is a need for a dam in the first place. In the case of Hines Mill Dam, the need died due to overcutting and automation, and in the end due to a fire. In terms of Westfir's water system, the intake could be extended at relatively little cost. Besides, the dam is currently holding back very little water due to

its dilapidated condition. It is more pragmatic for Westfir to address its needs now, rather than having to address them on an emergency basis when the dam washes out.

Problems

Although Lane County officials and the ODFW are anxious to remove the dam, there is always the issue of cost. The county has authority to spend up to \$32,000 to remove the superstructure of the dam, which is their main concern. Removing the superstructure however, will not address the fish passage problem. ODFW is looking for ways to fund removal of the rest of the dam. The county is willing to work with the agency as long as things move quickly.

For more information on what you can do to remove this unsafe dam and help the resident trout in the North Fork of the Middle Fork of the Willamette, contact the Springfield office of the ODFW at 3150 East Main Street, Springfield, Oregon. 97478.

THE BASICS

Owner: Lane County
Height: 30 feet
Length: 120 feet
Purpose: To impound water for a now abandoned log pond
License: No power production, so no license

At left: Hines Mill Dam is a threat to people and fish. The dam was abandoned after a nearby timber mill went bankrupt. The dam highlights the need for new laws to force people who build dams to set aside money for removing them, too.

WINCHESTER DAM

Salmon And Safety Or Waterskiing?

THE BASICS

Owner: Winchester Water Control District
Height: 13 feet
Length: Approximately 400 feet
Purpose: Power production for a mill
License: No power being produced, so no license

At right: The Winchester Dam's only benefit is its reservoir. If the dam were removed, reservoir-side homeowners would have valuable riverfront property, and they would have more of it. Removing the aging dam also would eliminate serious threats to human safety.

Environment

Winchester Dam is a major impediment to passage of North Umpqua summer steelhead, winter steelhead, sea-run cutthroat trout, fall chinook, spring chinook, coho and resident trout. Sea-run cutthroat trout, coho and steelhead are being considered for listing under the Endangered Species Act by the National Marine Fisheries Service.

Fish migrating upstream follow the river's current which leads them

There are no simple fixes for Winchester Dam. The dam is old. It is dangerous. Its turbines were lethal to fish. It leaks. The cost of upgrading the dam for safety alone is likely to be prohibitive.

along the south side of the river until they run into the dam, where they must traverse its 400-foot length to reach its fish ladder, which is located on the north side of the river. As a result, salmon, steelhead and trout experience stress and energy loss passing above the dam as adults.

In 1964, a flood destroyed the dam's original power turbines. In 1969, then-owner Pacific Power and Light deeded the dam to the Winchester Water Control District. The district installed turbines in the dam and received an exemption from the

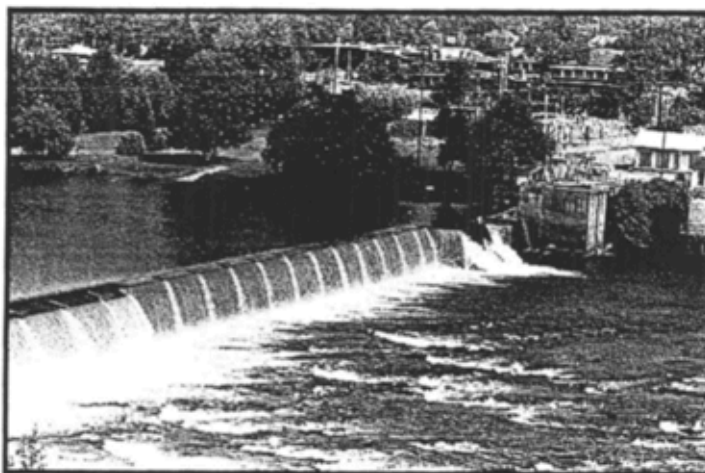


Photo by Mark Hoy

requirement to have a permit to operate for hydropower. The new design sucked fish into the turbines, causing extensive mortality. Conservationists sued to have the turbines removed, winning in 1985. However, there is nothing stopping the owners of the dam from attempting to generate power in the future.

The dam is earth and rock fill. It's leaky and dilapidated. Consequently, the reservoir behind it must be drained for a week or two nearly every year for repairs. When the reservoir is drained, the fish ladder is inaccessible. Worse, the reservoir sometimes is drained during summer steelhead migration. As a result, the fish cannot use the ladder and are stuck below the dam during repairs.

The dam also causes several minor problems for salmon that, taken together, create major effects. Fish stack up waiting to use the ladder. During downstream passage, smolts spill over the top of the dam. Squaw fish prey on young salmon in

the reservoir. And finally, the reservoir warms the North Umpqua River. Together, these environmental problems could be catastrophic to sea-run cutthroat trout and fall chinook. Fewer than 150 fall chinook passed the dam in 1990 and fewer than 10 sea-run cutthroat have returned per year since 1990.

Removing the dam would open more free flowing river for boating and other recreational pursuits. It also would improve water quality by allowing nutrients to flow lower in the basin and by reducing stream temperatures.

Fixes

There are no simple fixes for Winchester Dam. The dam is old. It is dangerous. Its turbines were lethal to fish. It leaks. The cost of upgrading the dam for safety alone is likely to be prohibitive. To redesign its turbines, its fish ladder and its ability to allow fish to migrate downstream would take resources that simply are not available. The best fix is to remove the dam.

Purpose

Winchester Dam was built in 1890. It was fitted for hydropower to run a mill in 1906. In 1935, a new dam was built 10 feet downstream from the original. The extension dam was built higher than the original dam and secured with timbers to the original structure. The reservoir the dam created provides waterskiing, jet boating and swimming to the approximately 200 homeowners who live adjacent to it. The Umpqua National Forest and the Roseburg office of the Oregon Department of Fish and Wildlife also use the dam as a fish counting station.

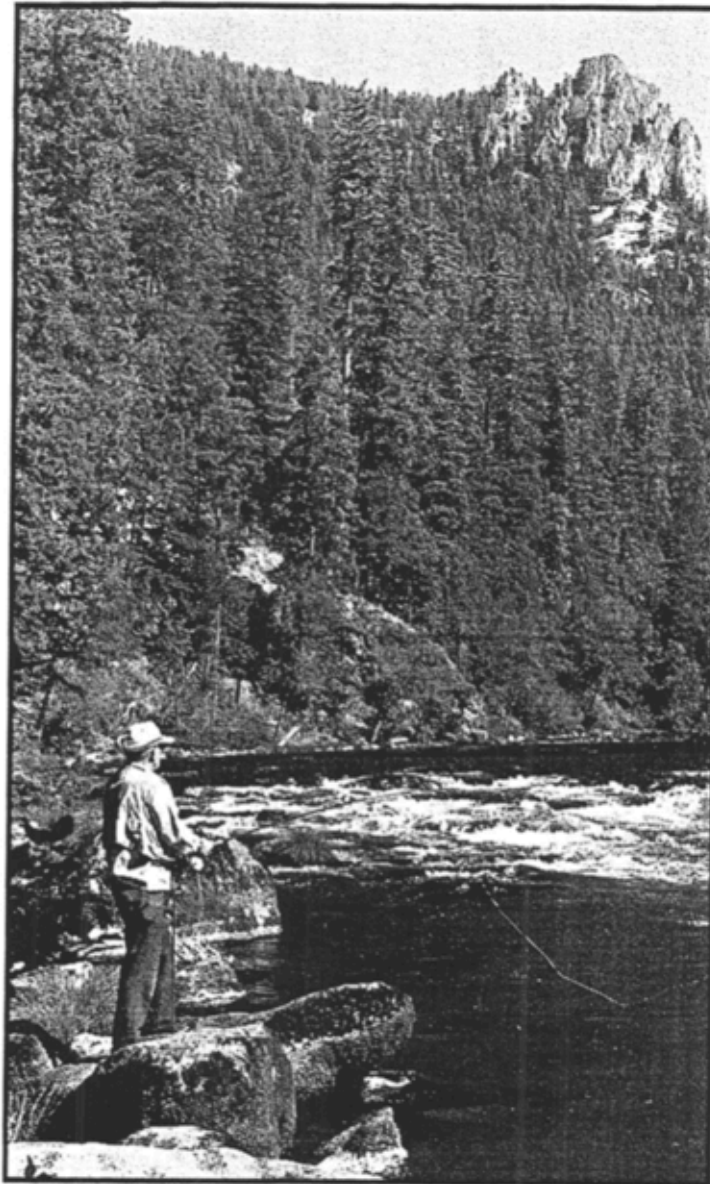
Alternatives

Since the dam is not generating any electricity, there is no need to find alternative power. The only benefit of the dam is its reservoir. Although homeowners with reservoir-side property believe the value of their homes would decrease if the dam were removed, this is not necessarily the case. The homeowners would still have valuable riverfront property, and they would have more of it.

The National Marine Fisheries Service estimates the combined sport and commercial value of the North Umpqua's fish runs to be \$14.5 million per year, making the North Umpqua runs the second most economically valuable on the Oregon Coast. Enhancing the river's fishery would provide benefits to the entire area.

Problems

There is a very real possibility that the entire structure could separate from its bedrock base and crash down the North Umpqua River. The newer part of the dam is structurally dependent on the old dam, which is secured to the bedrock with iron drift spikes which rust and are a century old. Inspectors can't see the spikes or reach them for inspection.



Oregon Department of Transportation

If the dam fails when a large number of fish are downstream of the dam, catastrophic mortality could occur — not to mention the potential human consequences.

Politics

Despite the fact that they might privately admit that the Winchester Dam has serious problems, the Umpqua National Forest and the Oregon Department of Fish and Wildlife are both interested in maintaining their fish counting station at the dam. However, you don't need

a dam to count fish.

If conservationists are successful in winning an Endangered Species Act listing for Umpqua River sea-run cutthroat trout, coho and steelhead from the National Marine Fisheries Service, it will be easier to pressure political leaders to push for dam removal.

For more information please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.

At left: Oregon's North Umpqua River is recognized by Pacific Northwest anglers as one of the region's great fishing streams. The National Marine Fisheries Service estimates the combined sport and commercial value of the North Umpqua's fish runs to be \$14.5 million per year, making the North Umpqua runs the second most valuable on the Oregon Coast. Removing Winchester Dam would enhance the fishery, providing economic benefits to the entire area.

THREE MILE FALLS DAM

Umatilla River Left Dry By Unneeded Dam

THE BASICS

Owner: U.S. Bureau of Reclamation
Height: 24 feet
Length: 915 feet
Purpose: Irrigation
License: No power production, so no license

Environment

The Three Mile Falls Dam is located, as its name implies, three miles upstream from the Umatilla River's confluence with the Columbia River. Because of the arid nature of the area and the irrigation diversions at Three Mile Falls Dam and Westland Dam, which is located upstream, stretches of the Umatilla River are left virtually dry during summer months.

Because of the arid nature of the area and the irrigation diversions at Three Mile Falls Dam and Westland Dam, which is located upstream, stretches of the Umatilla River are left virtually dry during summer months. Water from the river is used to grow taxpayer-subsidized alfalfa, and potatoes, carrots and onions.

There have been many years when the Umatilla River's spring and fall chinook, coho and steelhead populations could not migrate up or down the river without help from "trap and truck" programs.

These programs capture fish and move them in trucks beyond the dams and low water areas on the river (see photo on page 4). Finally, the reservoir behind Three Mile Falls Dam warms what water is left to temperatures that threaten fish.

Fixes

Congress, fishery managers and the Umatilla Tribe are trying to address the problems irrigation and the dams cause with the Umatilla Basin Project. To reduce the amount of irrigation water diverted from the Umatilla River, the Umatilla Basin Project pumps water from the Columbia River instead. The project was designed to reduce conflicts between irrigation and salmon migration and to restore the treaty-guaranteed fishing rights of the Umatilla Tribe. Improved fish passage equipment at Three Mile Falls Dam is part of the project.

With the Umatilla Basin Project's improvements, fisheries managers expect that during wet years there will be enough water in the Umatilla River to allow spring and fall chinook and steelhead to migrate past the dams without trucking. When conditions are drier, there will still be extensive trapping and trucking. Even with the improvements, salmon will have difficulty passing the Three Mile Falls Dam. And, stealing water from one river to repair another addresses only the symptoms of the problem, not the cause. The cost of the electricity needed to pump water from the Columbia River is also a factor, particularly since the source of the power is the very dams that are causing problems for fish.

Purpose

The Three Mile Falls Dam provides irrigation water to about 9,000 acres of farmland under the management of the West Extension Irrigation District. The district has 650 customers. The water from the Umatilla River is used to grow taxpayer-subsidized alfalfa, and potatoes, carrots and onions.

Alternatives

The Umatilla Basin Project, when fully completed, will provide irrigation water to compensate for water currently supplied by Three Mile Falls Dam. The project, along with conservation improvements, are a compelling demonstration of the potential alternatives to dams.

Problems

The dam is fairly large, and made of concrete. Although there are no firm estimates, it is reasonable to assume that it would be expensive in the short run to haul the dam away. In the long run however, removing the dam will produce net economic and environmental gains.

Politics

The Umatilla Tribe has treaty rights to Umatilla fish. Before dam removal can become a reality, concerns about treaty rights and irrigators' concerns about water supply need to be fully addressed.

To find out more about how you can help free the Umatilla River please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.

CHILOQUIN DAM

Alternatives Eliminate Need For Dam On Sprague River

Environment

The Chiloquin Dam blocks passage of native trout and endangered Lost River and shortnose sucker fish. ONRC and the Klamath Tribe were successful in winning Endangered Species Act protection for both types of sucker fish. Despite the listing, the Chiloquin Dam prevents the fish from using nearly 70 miles, or 95 percent, of their traditional spawning range.

In an attempt to help the fish, the dam's fish ladder was retrofitted in 1966 to improve upstream passage. Nonetheless, as is often the case with fish ladders, many fish are unable to get past the dam. The ladder's entrance is not visible or evident to fish moving upstream. The entrance to the contraption actually faces the wall of the dam. Consequently, there is no way to supply an adequate attraction flow to get the fish to move up the ladder. (Fish use stream flow in order to find their way upstream. If there is not a strong flow, the fish are unable to navigate effectively.)

In addition to the poorly-designed fish ladder, the Chiloquin Dam's irrigation diversion also kills fish. The point at which water behind the dam is diverted for irrigation is not screened. The unscreened diversion is a serious threat to endangered sucker fish. Those that actually make it above the dam to spawn can get sucked out of the river along with irrigation water. As a result, they end up as fertilizer in farmers' fields instead of becoming full grown fish. And unlike salmon, who move upstream to spawn only once and then die, sucker fish migrate upstream every year through

their entire life, thus making the trip an annual threat.

Finally, the dam prevents gravel from flowing downstream. Without infusions of gravel, spawning habitat eventually disappears. In addition to the dam, perhaps the greatest threat facing sucker fish is a lack of suitable spawning habitat. Removing the dam would alleviate both problems. In addition, dam removal would open up habitat not only in the Sprague River, but in the federally-designated Wild and Scenic Sycan River, too. The habitat in both rivers is sorely needed by trout and suckers alike.

Fixes

In 1990, The Nature Conservancy issued a report that estimated the cost of modifying the Chiloquin Dam fish ladder at about \$260,000. The report said screening the dam's irrigation diversion would cost about \$300,000. But these fixes, like most others, would likely only lessen the fish's dam problem. They certainly wouldn't solve it.

Purpose

The Chiloquin Dam provides irrigation water to 58 farms totaling 5300 acres of land in the Modoc Point Irrigation District. The farmers grow barley and potatoes.

Alternatives

The Nature Conservancy's report estimated that demolishing the Chiloquin Dam would cost \$500,000. In addition, the report suggested that providing alternative irrigation water through resurrection of the now moribund Williamson River Pump Station would cost approximately

\$149,000. The Conservancy estimated it would cost a total of \$2.62 million to remove the dam and buy the water rights that now belong to the 58 farmers.

Problems

As with many dams in the West, a lot of silt and sediment has built up behind the Chiloquin Dam. If the dam is removed, the sediment must be controlled and removed to prevent the swamping of the Lower Sprague and Williamson Rivers. Because of the dam, sucker fish have had to rely on the area below the dam for habitat.

Politics

The Klamath Tribe is the most important player. The tribe traditionally harvested many sucker fish and used them in religious ceremonies. Before the sucker population declined, the fish were also one of their primary food sources. The tribe has a strong interest in seeing the habitat and the sucker fish restored to health. Because of tribal concerns, ONRC is working to ensure that its effort to remove the Chiloquin Dam coincides with a campaign to improve upstream habitat in the Sprague River and downstream habitat in Upper Klamath Lake.

For more information on how you can help remove Chiloquin Dam, contact either the Klamath Tribe at P.O. Box 436, Chiloquin, Oregon, 97624, or ONRC's South Central Field Office, P.O. Box 667, Chiloquin, Oregon, 97624.

THE BASICS

Owner: Modoc Point Irrigation District
Height: 15 feet
Length: 220 feet
Purpose: Irrigation
License: No power production, so no license

(PROPOSED) SALT CAVES DAM

Project Puts Klamath River On Most Threatened List

THE (PROPOSED) BASICS

Owner: City of Klamath Falls
Height: 75 feet
Length: 550 feet
Purpose: Power production
License: Not yet granted, so no expiration

At right: The proposed dam would ruin the last free-flowing stretch of the Upper Klamath River, a stretch that provides fantastic whitewater rafting and kayaking opportunities, including class IV and class V rapids. The combined revenues from rafting and fishing are more than \$2 million annually.

Environment

In 1990, the conservation group American Rivers named the Klamath River the most threatened in the nation because of the proposed Salt Caves Project. More than a dozen threatened, endangered or rare fish and wildlife species use the upper Klamath. Bald Eagles nest in the river canyon. Diverse forests provide habitat for blacktail deer and wild turkey. Rainbow trout grow big and provide some of the best and most lucrative fishing in Oregon.

PP&L wisely quit the project when it realized there was no need for new power. Going where savvy capitalists feared to tread, the city of Klamath Falls stepped in.

Completion of the Salt Caves Project would divert about 80 percent of the river's water for almost 11 miles. Dewatering the river below the dam would increase the temperature of what little water would remain and harm fish. If the fish are hurt, the eagles and other species that depend on them will be hurt. The Klamath Gorge is also a sacred site for the Shasta Indians. Dewatering it would be a slap in the face to a sovereign nation.

The proposed dam also would ruin the last free-flowing stretch of



the Upper Klamath River, a stretch that provides fantastic whitewater rafting and kayaking opportunities, including class IV and class V rapids. The combined revenues from rafting and fishing are more than \$2 million annually.

Fixes

In order to address the significant political outcry the Salt Caves Project has inspired, the project's backers have proposed virtually every potential fix ever conceived. The original project was a traditional dam. After protests, the size of the proposed dam was reduced. When that didn't placate critics, the project's proponents produced the water diversion scheme currently under consideration. The city has proposed mitigating the loss of the free-flowing upper Klamath with construction of a new ski area. Ski areas may be fun, but they can't replace a free-flowing river. Be-

sides, the Forest Service has rejected the ski-area idea.

Purpose

The Salt Caves Project was originally conceived by Pacific Power & Light, the company that operates six other dams on the Klamath River. PP&L wisely backed out of the project in the early 1980s when it realized there was no need for new power development. Going where savvy capitalists feared to tread, the city of Klamath Falls stepped in. The city hoped to finance economic development with as much as \$3 million in annual earnings from power sales. The city also hoped to provide tax relief, stimulate construction in the city and provide a venture capital program.

The Salt Caves Project would produce 80 megawatts of electricity. However, purchasers for the project's power might be difficult to find, and the project will cost \$130

to \$180 million to complete. That money should be used for more benign purposes. Besides, the combined revenues from rafting and fishing in the area are more than \$2 million annually, not including indirect revenues from boating, lodging, associated recreation gear sales, restaurants, gas and groceries.

The Project would divert about 80 percent of the river's water for almost 11 miles, increasing the temperature of the remaining water, harming fish. If the fish are hurt, eagles and other species will be hurt.

Problems

The Federal Energy Regulatory Commission has the power to approve hydropower projects. FERC approved a revised Salt Caves project in 1990. Oregon's only opportunity to block FERC-approved hydro-electric projects is provided through the Clean Water Act. The Act requires that hydro-electric projects receive a state clean-water permit prior to federal licensing. The Oregon Environmental Quality Commission refused to grant a permit in 1991. In May of 1993, the Oregon Court of Appeals upheld the denial. Klamath Falls appealed the denial to the state Supreme Court, which affirmed the lower court's decision.

Politics

In 1988, the people of Oregon voted to include the section of the Klamath River that would be hurt by Salt Caves into the state wild and

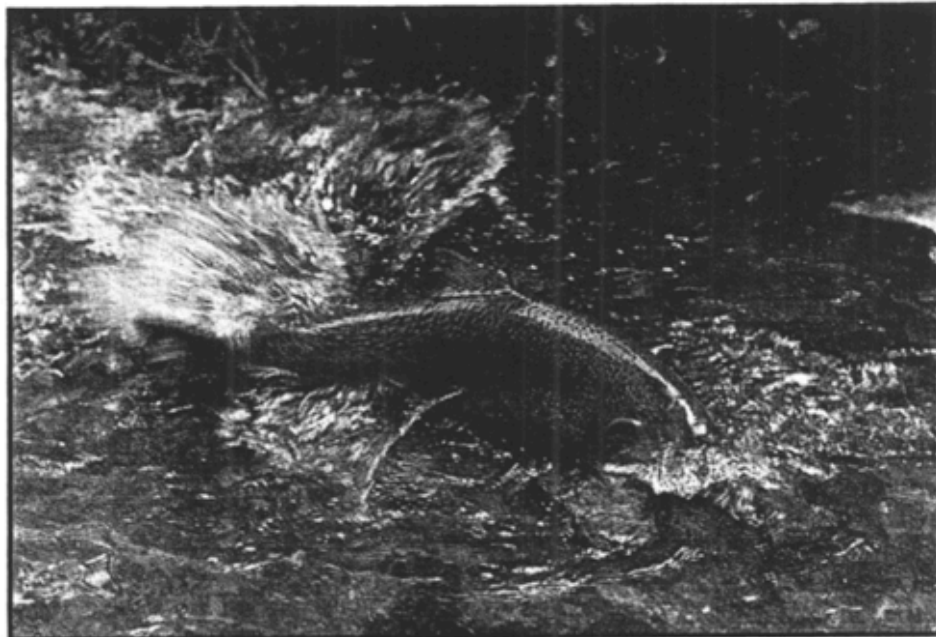


Photo By R. Shoy, ODFW

scenic waterways system. In May of 1993, invoking a rarely used provision of the federal Wild and Scenic Rivers Act, Oregon Governor Barbara Roberts asked Interior Secretary Bruce Babbitt to add the same section of the river to the federal Wild and Scenic River System. Babbitt is considering the request.

A 1990 BLM study found that the Upper Klamath is both eligible and suitable for Wild and Scenic status. Under the federal act, listed rivers cannot be dammed. The Northwest Power Planning Council also included the Klamath on its list of rivers that should be protected from development.

Many of the state's newspapers have joined conservationists in calling for an end to the Salt Caves Project. In addition to Governor Roberts, U.S. Reps. Peter DeFazio, Elizabeth Furse and Ron Wyden oppose the Salt Caves Project.

For more information on how you can help save the last free-flowing stretch of the Klamath River, please contact American Rivers at 4518 University Way, NE, #312, Seattle, Washington, 98105.



Oregon State Highway Department

(PROPOSED) LAKE ABERT DAM

Proposal Would Use More Power Than It Would Create

THE PROPOSED BASICS

Owner: Lake Abert Hydroelectric Associates
Height: 30 feet
Length: Could span entire width of Lake Abert, nearly one mile across
Purpose: Power production
License: None issued yet

At right: Lake Abert and part of Abert Rim as seen from the air. Like California's Mono Lake and Utah's Great Salt Lake, Lake Abert is one of only a few large saline-water ecosystems that support abundant aquatic and bird life. The lake can sometimes be four times as salty as the ocean.

Environment

Lake Abert covers about 60 square miles and is about 16 feet deep at its deepest point. Like California's Mono Lake and Utah's Great Salt Lake, Lake Abert is one of only a few large saline-water ecosystems that support abundant aquatic and bird life. The lake can sometimes be four times as salty as the ocean.

Lake Abert serves as a stopover for birds using the Pacific Flyway.

Although designed to produce power, the project would consume more energy pumping water up to Abert Rim than it would create by dumping it down hydro tunnels.

It provides year-round habitat for gulls, avocets, phalaropes, stilts, plovers, ducks and other waterfowl. The lake also serves as nesting habitat for approximately 100 pairs of snowy plovers, which are listed as threatened by the state of Oregon. The Oregon Department of Fish and Wildlife estimated that during 1991 alone, shorebirds used Abert Lake for 1,664,000 use-days and that waterfowl used the area for 760,000 days. These birds depend on the productive aquatic life in the lake, including alkali flies and brine shrimp. The flies and shrimp feed on algae that grow in the lake.



Photo courtesy of the Bureau of Land Management

All of this life is dependent on the salinity of and the amount of water in the lake. The optimum range of salinity for the aquatic species that depend on Lake Abert is between 30 and 80 grams of salt per liter of water. That range of salinity is most likely to be maintained if the lake's water level is between 4,253 and 4,258 feet, which is where the hydroelectric project comes into the picture.

The project would use a 30-foot-tall dike to divide Lake Abert. The owners would then pump water from the south portion of the lake during the night up to a reservoir on the top of Abert Rim, above the lake. The collected water then would be channeled down a tunnel back to the lake, turning hydroelectric turbines during its descent. To keep salt water out of equipment, Abert Associates plans to pump all the salt water out of the south half of the lake and replace it with fresh water from nearby Chewaucan River.

Aside from the fact that the pro-

posal would reduce by half the salt-water habitat at Lake Abert, a significant amount of water could be lost to evaporation, spills and seepage. If all of the planned pumping affects the lake's water level or salinity even slightly, there could be vast consequences for wildlife. The plan represents an extremely risky engineering task, particularly since hydrologists believe much of the salt present in Lake Abert comes from the lake bottom.

Fixes

Some dams can arguably be modified to reduce environmental impacts. Other dams arguably provide benefits to society that outweigh their environmental costs. Lake Abert Dam does not fit into either of those categories. There is no fix for a project that shouldn't be built in the first place.

Purpose

Although it is designed to produce power, ironically, the project would consume more energy pump-

ing water to the top of Abert Rim than it would create by dumping it back down hydro tunnels. The reason the company wants to build the project is it can buy relatively cheap off-peak power at night, which is when the pumping would occur, and then produce power during the day, which it would sell at peak rates. So, despite the fact the project would produce approximately 1,000 megawatts of power — and profits for a few people — it would result in a net loss of power.

Alternatives

A discussion of alternatives to any proposal assumes there is a need for that proposal in the first place. In the case of Lake Abert Dam, there is no need. Simply put, the project is designed to produce profits for the few people who own the company that would build it. Although there is a market for peak power, there is no pressing need for it. Conservation and higher peak pricing (like the phone company uses) could reduce peak loads. The proposed dam also is likely to hurt local bird populations. Healthy bird populations support bird hunting and bird watching, which in turn support travel, lodging, food, gas and equipment suppliers.

Politics

The reservoir that would be created as part of the hydroelectric project would be located in the Abert Rim area, which is part of a BLM Wilderness Study Area. Such development is prohibited in Wilderness Study Areas and in designated Wilderness. Congress must first determine that the site should not be designated as wilderness if the project is to move forward. Abert Rim is quite spectacular and is the largest fault scarp in North America.

To find out what you can do to help Oregon's Great Salt Lake, please contact the Oregon Natural Desert Association at P.O. Box 6376, Bend, Oregon, 97708.

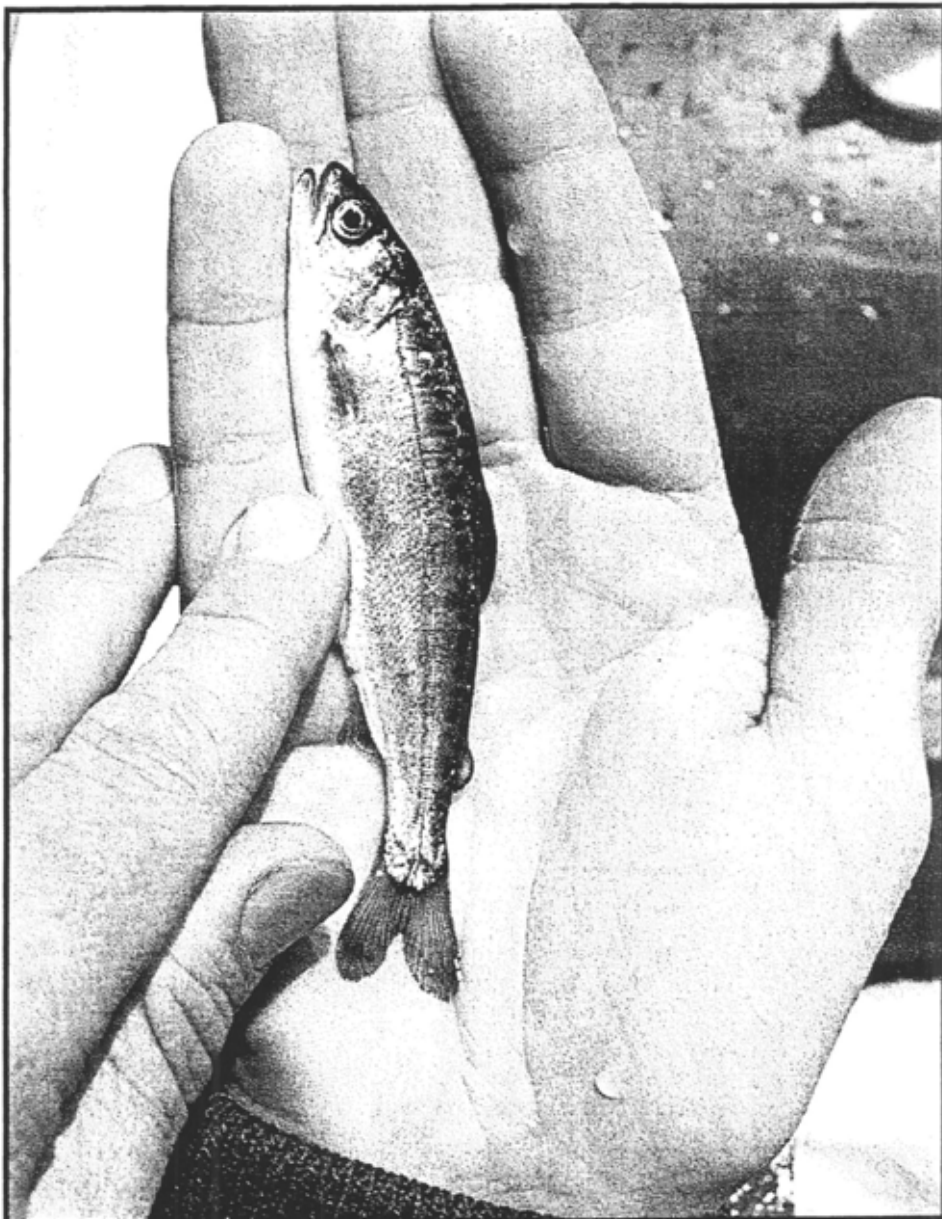


Photo courtesy of the NW Power Planning Council

(PROPOSED) MILLTOWN HILL DAM

Costly Dam Could Mire Creek With Toxic Mercury

THE PROPOSED BASICS

Owner: Douglas County
Height: 186 feet
Length: Will depend on design
Purpose: Irrigation, water supply, recreation
License: No power production, so no license

Environment

Building the dam would create a 4.5-mile long reservoir on a tributary to the Umpqua River called Elk Creek. The reservoir could end up being contaminated with mercury. Six of 14 water tests done in 1986 and 1987 in Elk Creek showed mercury readings above the maximum allowed for human consumption.

The main problem with Milltown Hill Dam is mercury.

Given the presence of the metal in the area, short of abandoning the dam there is likely little that can be done to prevent some contamination from occurring.

tion. In addition, the Milltown Dam would destroy at least 4.5 miles of fish habitat by drowning it initially with deep water and later with silt and sediment. Downstream, the dam would increase turbidity and increase the temperature of Elk Creek.

Fixes

The main problem with the Milltown Hill Dam is mercury. Given the presence of the metal in the surrounding area, short of abandoning the dam there is likely little that can be done to prevent some mercury contamination from

occurring. In terms of fish habitat and water quality issues, there is little that can be done to prevent damage.

Purpose

The overall economic impact of completing Milltown Dam is not clear. The dam arguably could provide some flood control and irrigation water for the Drain, Yoncalla and Rice Hill communities — if the reservoir water is not tainted with toxic levels of mercury. Douglas County already has spent \$2 million acquiring most of the 960 acres of land for the reservoir and \$3 million on roads and planning. While that might seem like a lot of money, it pales in comparison with the project's total cost, which is estimated to be at least \$41 million. And if the water the dam would provide had to be treated to remove mercury, the overall cost of the project would be even higher.

Alternatives

No matter what the potential benefits are, it seems clear alternatives should be pursued because of the potential mercury problem. For the cost of the dam, communities could increase the capacity of existing water supplies or seek additional supplies. Flooding could be controlled with dikes and levies, or better yet, with flood plain zoning.

Problems

Engineers plan to construct the dam with roller compacted concrete, which has a tendency to degrade over time. As mentioned before, the Willow Creek Dam, in Heppner, Oregon, was constructed with the

material, and is losing structural integrity due to chemical changes. This may occur at Milltown as well. A study conducted by the engineering firm CH2M Hill found the site for the dam was unstable and should be classified as a high hazard area.

Politics

If conservationists publicize Milltown's mercury problems, it is likely that federal and state officials will chastise the Douglas County commissioners for their support of the dam. Fortunately, construction cannot begin until the Oregon Department of Environmental Quality issues a permit. DEQ has refused to issue the permit until more is known about the potential for mercury contamination. DEQ has required the county to do more tests, but it's not inconceivable that they could one day issue a permit.

For more information on how you can prevent construction of Milltown Hill Dam, please contact ONRC at 522 SW Fifth Avenue, Suite 1050, Portland, Oregon, 97204.

Eight Of The Ways Dams Kill Fish

1

Warmed Waters

Dams slow rivers. Slow rivers are warmer rivers. Fish are sensitive to water temperature. Combined with irrigation diversions and logging along streams, dams are leading contributors to water temperature problems.

2

Dam Delays

Slow water slows fish. Salmon are born in freshwater, migrate to the ocean, and then return to their stream of origin to spawn. Once their transformation from freshwater to saltwater fish begins, salmon need to get to the ocean. If they are delayed, they die. Young fish also have trouble navigating through slack water behind dams.

3

Deadly Diversions

Many irrigation diversions are not "screened." Instead of flowing downstream, fish follow currents created by irrigation diversions and end up as fertilizer in farmers' fields. On many streams, irrigation also uses too much water, leaving little or none for fish.

4

Sliced Smolts

Smolts face their greatest threat passing turbines that produce power. To "get around" turbines, fish are loaded on trucks or barges and sent downstream. But barging causes stress, crowding and disease and hurts fish homing instincts.

5

Predator Promotion

Dams create premier habitat for fish and wildlife that prey on salmon. Principal among them are squaw fish. Warm reservoir water increases squaw fish metabolism. Plus, if young salmon are not killed passing turbines, they often are injured or stunned, making them easy prey for mergansers, herons, seagulls and other predators.

6

Passage Predicament

Dams block rivers. Upstream migrating fish can use "ladders" to get past them. But even the best ladders cause delays, crowding and stress. Often, there are no ladders, or they are poorly designed and don't work.

7

Silted Spawning Grounds

Dams hold back silt, literally drowning spawning habitat in dirt. Habitat not buried with silt is covered with water too deep for spawning.

8

Grabbed Gravel

Gravel and debris are the foundations of our fish runs. Without adequate downstream flows of gravel, downed logs and the like (which dams prevent), downstream salmon habitat gradually washes away. If there is little habitat, there will be few fish, no matter how many we save from anglers, predators and dams.

CONCLUSION

What You Can Do To Help Remove Dams

It sure would be simple if you could write one official and say, "Take out each and every one of the Damnable Dams." Unfortunately, like most things in life, it's not that simple. Depending on the purpose and/or owner of the dam, different public entities have the power to order the dam removed.

Hydroelectric Dams

If the dam generates hydroelectric power, it does so under license from the Federal Energy Regulatory Commission (FERC) in Washington, DC. Most of the matters before FERC have to do with natural gas pricing and related matters. Historically, hydroelectric power production has been a minor part of FERC's (formerly the Federal Power Commission) regulations.

Under the Clinton administration, FERC is considering two new, and for FERC, quite bold initiatives on the dam front. The first would result in a fee being charged to the operators of existing dams. The fee would generate revenues to remove abandoned dams.

The Federal Power Act allows FERC to grant licenses to dam operators for up to 50 years. The FERC license renewal process is supposed to start with a clean slate: the company has amortized its investment over the term of the license. A new determination is to be made that it is in the public interest to keep the dam for another 50 years. But it hasn't worked that way. FERC has not required dam licensees to set aside funds for removal of the dam and restoration of the site upon expiration of the li-

cense. This effectively prejudices the relicensing process because the costs of removal and restoration due to choosing the alternative of no dam would not be borne by the existing licensee, but arguably by FERC (meaning us taxpayers).

USBR is undergoing a transformation.

New commissioner, Dan Beard, has ordered a new mission for the agency that includes environmental protection and conservation of water. But USBR is a very entrenched bureaucracy and Mr. Beard has his work cut out for him.

To remedy this, a second FERC initiative (FERC Docket Number RM93-23-000) would require decommissioning costs to be factored into a FERC license, so at least for those dams renewed (or even worse, built) after the initiative takes effect, the dam removal option will be more viable. Unfortunately, since licenses last for 50 years, it will be a long time before this initiative will provide any real benefits.

In addition to writing FERC to urge it not to renew licenses for the

existing Damnable Dams, you also should write a letter in support of the two new initiatives (cite the docket number listed above). Address your letters to:

FERC
1919 M St., NW
Washington, D.C. 20554
202 632-6600

FERC will be most responsive to suggestions to remove existing dams as they are up for relicense. The Damnable Dams that have FERC licenses are: Hells Canyon Complex (Hells Canyon, Oxbow and Brownlee), Deschutes Complex (Round Butte and Pelton), proposed Salt Caves Dam. The proposed Lake Abert Dam has a preliminary permit from FERC which gives the applicant preference to the site, but does not allow construction.

Irrigation Dams

If the purpose of the dam is irrigation, the U.S. Bureau of Reclamation has the most say over the dam's future. USBR or BurRec often gives or loans money at subsidized rates to private irrigation districts that own dams. The bureau also provides engineering services and has the responsibility under the Dam Safety Act of 1984 to ensure that non-federal dams are safe.

Under the Clinton administration, USBR is undergoing a serious transformation. The new Commissioner of the USBR, Dan Beard, has ordered a new mission for the agency that includes environmental protection and conservation of water. USBR is a very entrenched bureaucracy and Mr. Beard has his work

DAMNABLE DAMS

cut out for him.

You should write Commissioner Beard and urge dam removal. Address your letters to him at:

U.S. Bureau of Reclamation
Department of the Interior
1849 C Street, NW
Washington, DC 20240

The Oregon Water Resources Department also has some jurisdiction over water rights and dam safety. You should also write that state agency urging dam removal: Address your letters to:

Martha Pagel, Director
Water Resources Department
3850 Portland Road, NE
Salem, Oregon 97310

The damnable irrigation dams are: Chiloquin Dam, Savage Rapids Dam, and Three Mile Falls Dam.

Congressionally Authorized Dams

One of the Damnable Dams is congressionally authorized. The US Army Corps of Engineers was authorized by Congress to build the Elk Creek Dam. Fortunately, the era of big federal dams appears to be over, primarily because dam building is porkbarrel that even Congress is reluctant to spend. Elk Creek has the distinction of being the last 100 percent federally-funded dam. Even the imposition of a modest local cost share has made dams financially unfeasible.

Elk Creek Dam's greatest supporter is Oregon Senator Mark O. Hatfield. You should write and urge him to kill the project.

Senator Mark Hatfield
711 Hart Office Building
Washington, DC 20210

He's likely to ignore your letter, so be sure to send a copy to Oregon Governor Barbara Roberts who is opposed to completing the dam.

Governor Barbara Roberts
State Capitol
Salem, Oregon 97310

"Multi-purpose" Dams

New projects today are often conceived to be "multi-purpose" projects. The idea is that multiple political constituencies are necessary to get dams approved these days. The Milltown Hill Dam needs various government permits before it can be built. The most promising lines of attack are to urge the state to not permit it on water quality grounds and the federal government not to loan money for it on fiscal grounds.

Fred Hanson, Director
D.E.Q.
811 SW 6th Ave.
Portland, OR 97204

Dan Beard, Commissioner
Bureau of Reclamation
1849 C Street, NW
Washington, DC 20240

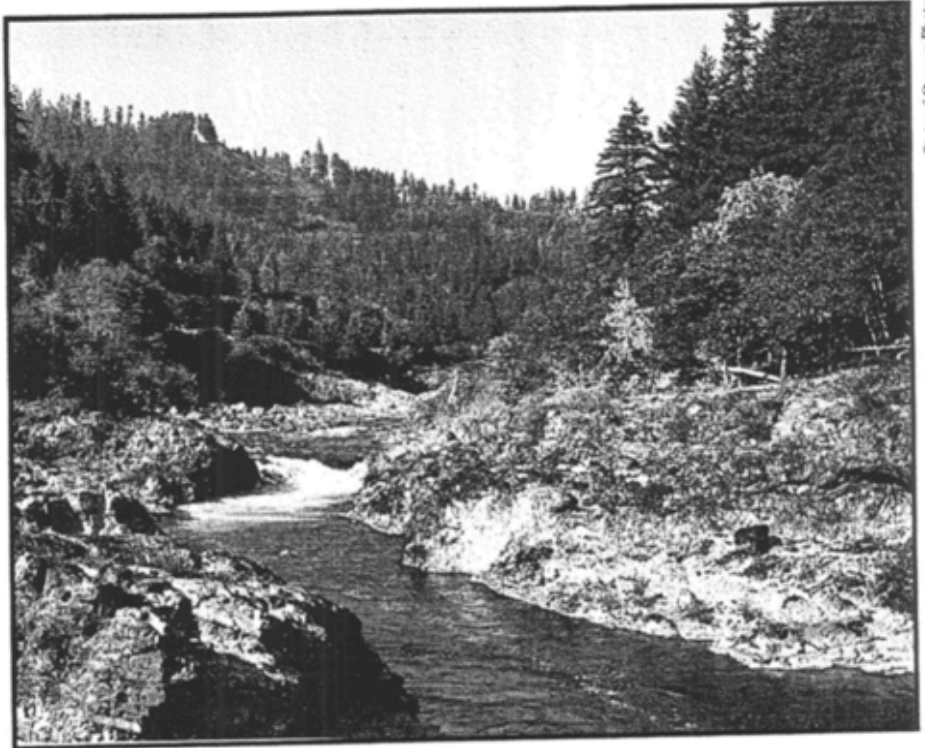
No-Purpose Dams

Then there are the leftover relics. Dams sitting there just being in the way. In general, dam safety is always an issue. Dams get old and need maintenance, but with no purpose, there is often a lack of maintenance. The safest dam is no dam. You should write both the state and federal governments and urge them to use their authority for dam safety to order the removal of dams that no longer have a purpose to. Address your letters to:

Dan Beard, Commissioner
U.S. Bureau of Reclamation
Department of the Interior
1849 C Street, NW
Washington, DC 20240

Martha Pagel
Water Resources Commission
3850 Portland Road, NE
Salem, OR 97310

The Damnable Dams which no longer have any purpose are: Gold Ray Dam, North Fork Dam, and Winchester Dam.



State of Oregon Photo

A Users Guide To Dam Acronyms And Terminology

Acre Foot

The water needed to cover one acre to a depth of one foot.

Anadromous Fish

Fish, like salmon or steelhead, that hatch in freshwater, migrate to and mature in the ocean, and then return to fresh water to spawn.

BPA

The Bonneville Power Administration. BPA is a federal agency that manages, distributes and markets the electricity generated by many dams in the Northwest.

Bureau of Reclamation

One of two federal agencies responsible for building federal dams. The other agency, the U.S. Army Corps of Engineers, concentrates on dams that provide power and flood control. The Bureau of Reclamation specializes in dams that provide irrigation water.

CFS

Cubic feet per second. A measure of the amount of water flowing in a stream or river. One CFS is equal to 449 gallons per minute.

Corps of Engineers

Same as Army Corps of Engineers. See Bureau of Reclamation.

DEQ

Department of Environmental Quality. The state agency charged with protecting the environment. DEQ issues permits relating to dams, clean water, and other environmental issues.

ESA

The Endangered Species Act. The ESA is the law that requires agencies to protect species that are threatened with, or on the brink of, extinction. The act requires agencies to develop plans to protect listed species, and to ensure that federal actions do not jeopardize them.

FERC

Federal Energy Regulatory Commission. FERC licenses non-federal dams that produce electricity. As part of the licensing process, FERC periodically reviews dam performance and impacts. Individuals can get involved in reauthorizations by writing to FERC (see address listed at the end of this report). The process begins five years before a license expires.

Fish Ladders

A series of ascending pools constructed to allegedly enable salmon or other fish to swim upstream around or over a dam.

Fish Passage Facilities

Features of a dam that allegedly enable fish to move around, through or over dams.

Megawatt

A common measure of electrical output. A megawatt is one million watts. One watt is equal to 1/746th horsepower.

NMFS

National Marine Fisheries Service. NMFS is the federal agency charged with protecting and enhancing all anadromous species. Under the Endangered Species Act, NMFS is the agency charged with protect-

ing salmon, steelhead and other fish species harmed by dams.

Off Peak

Period of low demand for electricity, like the middle of the night.

PGE

Portland General Electric. PGE is the owner of numerous power-generating dams. The private company sells electricity to residential and commercial customers.

PP&L

Portland Power and Light. PP&L is the owner of numerous power-generating dams. The company sells electricity to residential and commercial customers.

Predation

In the case of dams, predation refers to the common occurrence of young anadromous fish being preyed upon by other species. Predation is a large problem for anadromous fish because of unnatural conditions created by dams.

Salmonids

Any of a family of elongated, soft-finned fishes (as a salmon or trout) that have the last vertebrae upturned. Essentially, the term salmonid refers to most of the fish adversely affected by the dams discussed in this report.

Smolt

Young salmon or sea trout that is about two years old and that is at the stage of development when it assumes the silvery color of an adult and begins its migration to the ocean.

Turbine

Machinery that converts energy of moving water to electrical power.

DAMNABLE DAMS



1 - Hells Canyon Complex, Snake River
*Hells Canyon Dam, Oxbow Dam,
Brownlee Dam*

2 - Deschutes Complex, Deschutes River
Pelton Dam, Round Butte Dam

3 - Elk Creek Dam, Rogue River

4 - Gold Ray Dam, Rogue River

5 - Savage Rapids Dam, Rogue River

6 - Hines Mill Dam, North Fork of the
Middle Fork of the Willamette River

7 - Winchester Dam, North Umpqua River

8 - Three Mile Falls Dam, Umatilla River

9 - Chiloquin Dam, Sprague River

10 - Proposed Salt Caves Dam, Klamath River

11 - Proposed Abert Lake Dam, Abert Lake

12 - Proposed Milltown Hill Dam, Elk Creek
of the Umpqua River

ONRC's Major Accomplishments for 1993

Led the fight to persuade the Portland City Council to pass a resolution demanding that the US Forest Service stop logging in the Bull Run and Little Sandy River watersheds, the Portland metropolitan area's water source.

Persuaded Universal Pictures to reduce the impacts of planned filming activities on a federally-designated wild section of the Rogue River.

Successfully delayed an extremely destructive development project (exclusive condominiums) in one of the last pristine high-salt marshes on the northern Oregon coast.

Selected as one of only nine environmental groups allowed to speak at President Clinton's Forest Conference in Portland.

Along with other environmentalists and Native Americans, sued the Army Corps of Engineers in an effort to stop barging and trucking of threatened and endangered salmon around dams in the Columbia and Snake Rivers, an ineffective practice which obscures the real threats facing fish—dams and habitat destruction.

Forced the Forest Service to abandon plans to use potentially toxic big game repellent on tree plantations in the Pacific Northwest.

Petitioned the U.S. Fish and Wildlife Service to list 83 species of mollusks under the Endangered Species Act because President Clinton's draft forest plan fails to protect them.

Successfully defeated efforts in the Oregon legislature to gut the state Endangered Species Act.

Applied to the Convention on International Trade in Endangered Species in an effort to save the majestic and threatened Port Orford cedar.

Assembled a coalition of more than 25 groups that asked US Attorney General Janet Reno to investigate allegations that the Forest Service knowingly falsified data on the amount of timber available for cutting on a sustainable basis.

Sued the National Marine Fisheries Service over its failure to designate critical habitat for the stellar sea lion, a federally-designated threatened species.

Won an important court ruling requiring federal agencies to complete environmental impact statements before using roadless areas.

Forced the National Marine Fisheries Service to determine whether or not the Umpqua River sea-run cutthroat trout should gain the protection of the Endangered Species Act.

Forced the Oregon Department of Fish and Wildlife to stop dumping fish into pristine alpine lakes that are unable to support fish.

Launched a petition-initiative effort called Stop Toxic Open Pit Mines (STOP'M) that would eliminate taxpayer subsidies for open-pit, cyanide gold mining companies and require those companies to fill in the massive pits they create.

Stopped a destructive housing development on a fragile dunes area in Tillamook County.

Filed an endangered species petition for Illinois River winter steelhead that caused the National Marine Fisheries Service to announce it was initiating a review of all steelhead habitat on the West Coast.

The Power of Committed Activism: What People Are Saying About The Oregon Natural Resources Council

"The Oregon Natural Resources Council, Oregon's largest and most influential conservation group... nationally noted as the uncompromising champion of the Northwest's old-growth forests."

— Portland Oregonian

"Those environmental wackos at the ONRC, the Oregon Natural Resources Council, are at it again..."

— Rush Limbaugh

"[ONRC] is without a doubt the most effective voice for conservation in Oregon."

— Steve Marsden, *Earth First!*

The ONRC has "been the most vocal and, unfortunately, most effective. They're a confrontational outfit and I'm sure they'd tell you that themselves."

— Lake County commissioner and rancher, Jeremiah O'Leary

"Their actions all along have shown them to be hard-line."

— Ross Mickey, North West Timber Association

A Short List Of ONRC's Past Successes

1992

Initiated legal action that forced the US Fish and Wildlife Service to list the Marbled Murrelet as a threatened species under the Endangered Species Act.

Instrumental in the development and congressional enactment of the Pacific Yew Act, which required conservation of the Pacific Yew for the production of Taxol, an important new cancer drug.

Along with the Sierra Club Legal Defense Fund and others won major court victories against the Forest Service and BLM requiring the agencies to protect spotted owl habitat.

1991

Received the National Wildlife Federation's National Conservation Achievement Award for an Organization.

Along with other groups successfully petitioned the National Marine Fisheries Service to list the Snake River fall run and spring/summer Chinook stocks as threatened under the Endangered Species Act.

Petitioned US Fish and Wildlife Service to propose listing the western snowy plover under the Endangered Species Act.

1990

Won a major lawsuit requiring federal agencies to issue environmental impact statements before roadless areas, the anchors of biodiversity in our forests, can be logged.

1989

Won a moratorium on offshore oil and gas development in state-controlled ocean waters.

Obtained court injunctions against ancient forest timber sales which threatened the survival of the northern spotted owl.

Successfully "nationalized" the Pacific Northwest ancient forest issue, and expanded the ancient forest issue to include the eastside ponderosa pine forests.

1988

Played a leading role in the Oregon Rivers Initiative campaign to add 11 rivers to the Oregon State Scenic Waterways System. The initiative was the political catalyst for congressional passage of the record-sized Oregon Omnibus Wild and Scenic Rivers Act, protecting nearly 1,500 miles of rivers.

Prevented construction of the Asotin Dam on the Snake River. The proposed dam would have decimated remaining salmon and steelhead runs in the Upper Columbia Basin.

1987

Won a lawsuit that halted construction of the Elk Creek Dam, a fish-killing and budget-busting porkbarrel extravaganza, located in the Rogue River Basin.

1986

Won a lawsuit that halted jet boat races through Snake River National Wildlife Refuge.

1984

Filed a statewide lawsuit that precipitated congressional action nationally to resolve ongoing wilderness debates in several states including Oregon.

Fought to enact the Oregon Forest Wilderness Act, which protects almost one million acres of roadless federal forests, including the Middle Santiam, Salmon-Huckleberry, Waldo, Rogue-Umpqua Divide, North Fork John Day, North Fork Umatilla, and 24 other areas.



1983

Stopped construction of the Bald Mountain Road into the North Kalmiopsis country of the proposed Siskiyou National Park, the finest remaining mixed conifer ancient forest remaining in Oregon, and the largest intact block of wilderness in western Oregon.

Permanently banned open-pit mining at Rock Mesa in the Three Sisters Wilderness.

1982

Protected critical wildlife habitat, rare plants and people by closing over 45 miles of beaches and estuaries to off-road vehicles.

1978

Helped create and enact the Endangered American Wilderness Act, which classified more than a million acres (300,000 in Oregon) of America's finest and most threatened wildlands.



**OREGON
NATURAL
RESOURCES
COUNCIL**

Main Office

Yeon Building, Suite 1050
522 SW 5th Avenue
Portland, Oregon 97204
(503) 223-9001

Western Regional Office

1161 Lincoln Street
Eugene, Oregon 97402
(503) 344-0675

Eastern Field Office

16 NW Kansas Avenue
Bend, Oregon 97701
(503) 382-2616

South Central Office

P.O. Box 667
Chiloquin, Oregon 97624

OREGON NATURAL RESOURCES COUNCIL

Yeon Building, Suite 1050
522 SW 5th Avenue
Portland, Oregon 97204

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