Further Adventures of a Travelin' Fish

by JOHN FRALEY

Editor's note: Our March/April 1989 issue carried an article called "Travelin' Fish," in which John Fraley detailed the life history of the bull trout and described its status and uncertain future. Since that time, some threats to this vulnerable species have been averted while others have intensified. In this update, Fraley explores past and present attitudes about this native species and describes activities underway at the local, state, and federal levels to protect existing bull trout populations and restore them to areas where they have disappeared.

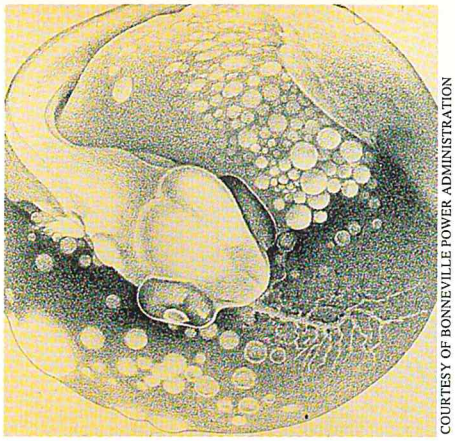
FOR MILLENNIA, bull trout have traveled one of the longest migration routes of any trout in North America, and they've attracted attention since the first Native Americans pulled the spawning fish from small headwater streams. Voracious predators, they've been called everything from poor man's salmon, to coyote-fish, to cannibal, to trophy, to species of special concern.

Now, because of declines throughout its range and a recent petition to list it under the Endangered Species Act, the bull trout is being called the Northwest's next spotted owl.

Bull trout are actually "chars" that can grow to three feet in length. Once common throughout the Pacific Northwest, they originally ranged from northern California to the Bering Sea. Over the eons, they've evolved three different life strategies: Some spend their entire lives in small tributary streams; others live as adults in rivers and enter tributaries to spawn; still others live as adults in lakes and spawn in tributaries (this largest form is similar to the Dolly Varden, a coastal relative).

Young bull trout in tributaries eat aquatic insects, but adult bulls are decidedly predaceous. They eat mostly other fish, but have been known to devour frogs, garter snakes, mice, and ducks.

Bull trout spawn in the fall about the time the larch needles turn golden. Their eggs remain six inches deep in spawning gravels until spring, when the eggs hatch and the fry



COURTESY OF BONNEVILLE POWER ADMINISTRATION

JOHN FRALEY

Bull trout eggs, buried among spawning gravels in autumn, hatch about 200 days later (above). Young bull trout, like the 2-year-old at right, stay close to the shelter of stream bottom rocks for up to four years before migrating downstream.

emerge. Young bull trout then huddle among the stream bottom rocks for one to four years before migrating downstream to bigger streams or lakes. The long, overwinter egg incubation and bottom-dwelling habits of the young fish render the species hypersensitive to increases in stream bottom sediments, and make bull trout a prime indicator of stream health.

PAST ATTITUDES about bull trout reflect the almost complete change in the way people have viewed natural systems over the years. Native Americans have always revered the bull trout as part of their culture, but Euro-Americans at one time viewed them differently. The June 1926 issue of *Montana Wildlife* referred to the bull trout as "the cannibal of Montana's streams." The author of the article backs up the claim by describing a 12-inch bull trout which had in its stomach "...the undigested bodies of 103 minnows...which may have been small native fish, or the young of game fish." He goes on to state, "Montana Sportsmen have declared war on the Dolly Varden or bull trout, the cannibal of the trout family...."

In fact, bull trout were targeted for eradication in the early 1900s, and harvested in a commercial fishery on Flathead Lake beginning about 1913. In 1926, M.J. Elrod, an otherwise enlightened professor at the University of Montana Biological Station on Flathead Lake, called the fish an "enemy" and wrote that the bull trout was "undoubtedly the worst fish in the lake with regard to the destruction of other fish."

But attitudes changed and in 1957 George Weisel, a professor at the University of Montana, warned that the bull trout was declining throughout its range and could eventually become extinct. About the same time, the Montana Department of Fish and Game (now Fish, Wildlife & Parks) began taking steps to protect the fish, such as halting fishing on tributaries used by spawning bull trout in the North Fork of the Flathead River drainage. Dallas Eklund and other forward-thinking members of the Flathead Wildlife Club called for protection of bull trout habitat. Anglers, FW&P biologists, and others teamed up to help halt plans for dams on the main Flathead River and Middle Fork, citing the devastating effect the dams would have on migratory bull trout from Flathead Lake.

The Montana Fish and Game Commission continued efforts to protect the species in the 1960s and 1970s by closing more tributaries to angling and reducing the harvest limits—by the early 1980s, anglers could take only one bull trout daily. Concurrently, state and federal agencies began a major effort to protect stream habitat from the effects of poor logging practices and other development. Today, anglers can keep one bull trout daily in only two western Montana waters: Swan Lake and Hungry Horse Reservoir.

In the late 1980s, an International Joint Commission averted potential disaster for Flathead Lake bull trout by denying Sage Creek Coal Ltd. of Canada a permit for an open-pit coal mine in the upper North Fork drainage. According to the U.S./Canadian Joint Commission, the mine would have destroyed vital bull trout spawning habitat in Howell and Cabin creeks, tributaries to the Canadian portion of the North Fork. This decision reflects the special concern people of the two countries hold for bull trout.

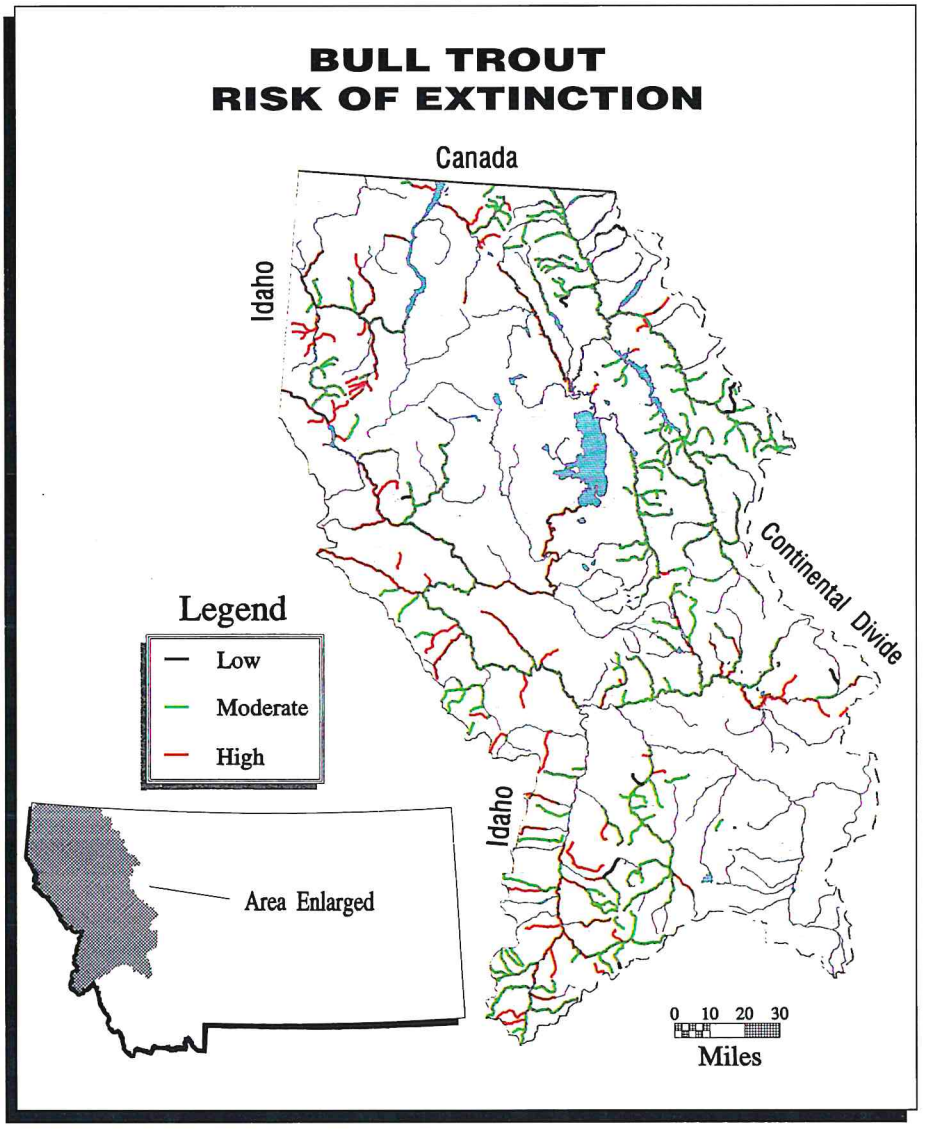
In recent years, studies and protection of bull trout have continued to expand. But in spite of these efforts, the species is in trouble in most areas of Montana and around the West. The reasons are complex and hotly debated, but they all relate to changes brought about by man.

WHAT IS THE STATUS of bull trout in the western U.S.? The picture is not very rosy. Bull trout are extinct in California, and they live in only one river system in Nevada. In Montana, where more is known about bull trout than in the other four states making up their range, they live in about 1,230 stream segments. In the majority of these areas, biologists consider the chance of extinction moderate to high (see map). In the 818 segments for which adequate information exists, bull trout are considered

secure in only about 56 out of 2,915 total stream miles (2%). Scientists consider bull trout at moderate risk of extinction in 1,907 stream miles (65%), and at high risk of extinction in 953 stream miles (33%). They face these high extinction risks mostly because of damaged stream habitat and the presence of exotic fish species.

In the Flathead system, long considered the nation's bull trout stronghold, the fish is in trouble in the North and Middle Fork drainages where spawning runs of the big, migratory fish have declined by two-thirds since the mid-1980s. In the Swan drainage, spawning runs are increasing, but threats of hybridization with brook trout exist. The population appears good in the South Fork of the Flathead drainage, although it's threatened by drawdowns of Hungry Horse Reservoir. Bull trout populations in the Bitterroot drainage are isolated in small stream segments above the valley floor, and bull trout are thought to be declining in the Clark Fork and Kootenai drainages.

Oregon and Washington each count the number of bull trout populations at less than 100, and most bull trout populations are thought to be at moderate or high risk of extinction. Idaho has more bull trout than either Washington or Oregon, but little is known of the fish's status. Says Steve Huffaker of the Idaho Department of Fish and Game: "There's a lot of real estate and a lot of bull trout populations, but we don't know much about them. We do know that some populations, like the Priest Lake fish, are in terrible shape."



Staff of the Montana Rivers Information System (MRIS) produced this map identifying risk of extinction for bull trout in Montana stream segments. The "GIS" technology needed for this work has been under development for nearly 10 years. The MRIS staff includes: Lydia Bailey, Gael Bissell, Denise Davies, Janet Decker-Hess, and Jeff Hutten. Their office is located in the Montana Department of Fish, Wildlife & Parks building, 490 N. Meridian; Kalispell, MT 59901; 406/752-5501.

CAUSES OF BULL TROUT decline are area-specific, but managers in each state cite loss and damage of stream habitat as the major factors. Sedimentation, dewatering, loss of habitat diversity, and elevated water temperatures (bull trout require very cold water) lower the potential of streams to support bull trout; dams or culverts block access to spawning areas.

Scientists also point to exotic species as a serious threat to healthy bull trout populations. Non-native brook trout can hybridize with bull trout, producing offspring that are mostly sterile. Lake trout, once present in only a few Montana lakes but now more widely distributed, prey on young bull trout, as do large fish of other species. Opossum shrimp, introduced to northwestern Montana in the 1960s, may improve the survival of lake trout and indirectly contribute to higher bull trout mortality. Many people believe this problem exists in Flathead Lake.

Is poaching a problem? Mack Long, warden sergeant for FW&P, believes it is a major factor in the decline of bull trout in the Kootenai system, and he bases this belief on interviews with convicted poachers. "When bull trout reach river pools near the mouths of spawning tributaries, poachers are hammering them," he said. "Some of these guys are full-blown poachers and even *they* say that the only way to protect bulls in the Kootenai is to close the tributaries to angling. They say some people who fish the streams will be opportunistic and take a seven or eight pound bull trout if they have the chance. And it's extremely hard to catch those guys.

"We've spent a lot of time trying to catch poachers working the river near Kootenai Falls. A few years back, war-

JOHN FRALEY

Spawning runs of large, migratory bull trout have declined by two-thirds in the North and Middle Fork drainages of the Flathead River since the mid-1980s.

den Mike Mehn saw poachers sliding down a rope to reach a pool below a set of cliffs. Once the poachers got down into that hole they were virtually invisible. So Mike got to a vantage point and watched them snag for bulls for about two hours. During that time they hooked four fish but didn't land any of them. Finally, they tied into a big one, got it nearly on shore, but the fish was so big that it scared the gaffer and the fish got away. Finally they gaffed one." Mehn pursued and caught the poachers, who were convicted, fined, and relieved of their fishing privileges.

Interviews that Long taped with some of the convicted poachers illustrate the magnitude of the poaching problem in the Kootenai system. One of the poachers who shinnied down a rope to reach fishing holes on the river admitted to losing many of the fish he snagged: "When I was doing it I'd only land one bull for every six fish I hooked into. I suppose most of the fish that got away died. I'd use a big old Ugly Stick rod, a deep-sea reel, 40-pound test line, and a 3-1/2 ounce snag hook flagged with white cloth." The poacher estimated that about 20 people were involved in systematic snagging of bull trout on the river. Another poacher described methods used to catch spawning bull trout in small tributaries, identifying dynamite and spears as the methods of choice.

FEDERAL PROTECTION for bull trout may be coming. In October of 1992, in reaction to shrinking bull trout numbers around the West, three northwestern Montana environmental groups (Alliance for the Wild Rockies, Swan View Coalition, and Friends of the Wild Swan) filed a petition with the U.S. Fish and Wildlife Service calling for listing of bull trout under the Endangered Species Act throughout the species' range in Montana, Oregon, Idaho, Washington, and Nevada. In May of 1993, the federal agency released a positive finding, indicating there was sufficient information in the petition to warrant a review. A status review now underway will determine whether: (1) listing is unwarranted; (2) listing is warranted but precluded because of higher priorities; or (3) listing is warranted and will go forward. The recommendation will be published in the federal register and be subject to scientific and public review for one year.

"Whether the decision is to list the bull trout or not, we must recognize that the species is in trouble," said Bill Martin of the U.S. Fish and Wildlife Service in Portland. "Are bull trout in such deep trouble that they require the authority of the Endangered Species Act? That's what the process will show, one way or the other. We'll base the judgment on biology, and nothing but biology."

The listing process has fallen behind schedule, prompting the petitioners to file a suit against the U.S. Department of the Interior. "We believe the information is there and it's time to apply the law," said Mike Bader of the Alliance for the Wild Rockies.

Work on a Montana restoration plan, endorsed by Governor Marc Racicot, is underway and will go forward regardless of the outcome of the listing process. Chris Hunter, Special Projects Chief for FW&P's Fisheries Division in Helena, outlined a stepwise process begun by the Governor's Roundtable that will lead to a plan by late 1995 (see sidebar).

"A policy-level working group, made up of people from the wildlife and land and water management agencies, Confederated Salish and Kootenai Tribes, conservation groups, Plum Creek Timber, and others, will oversee the entire bull trout restoration effort," he said. "A scientific group and specific watershed groups give advice on components of the recovery plan. And to make it all work, we plan to open all meetings to the public. I think it's important that everyone gets the chance to participate." Hunter added that hundreds of concerned people took

part in a series of meetings across western Montana as a prelude to the roundtable.

But Keith Hammer of the Swan View Coalition charges that the effort to write a recovery plan is nothing more than an attempt to avoid federal listing. "Since we filed the petition, we've seen a flurry of activity, all the agencies scrambling to put something together that might keep bull trout off the list," he said. "I believe that in Montana the state squandered its opportunity to save the bull trout. The state lacks the authority on federal land and lacks the political will power to halt the slide of bull trout—that's why we think federal listing is absolutely essential or the bull trout is doomed."

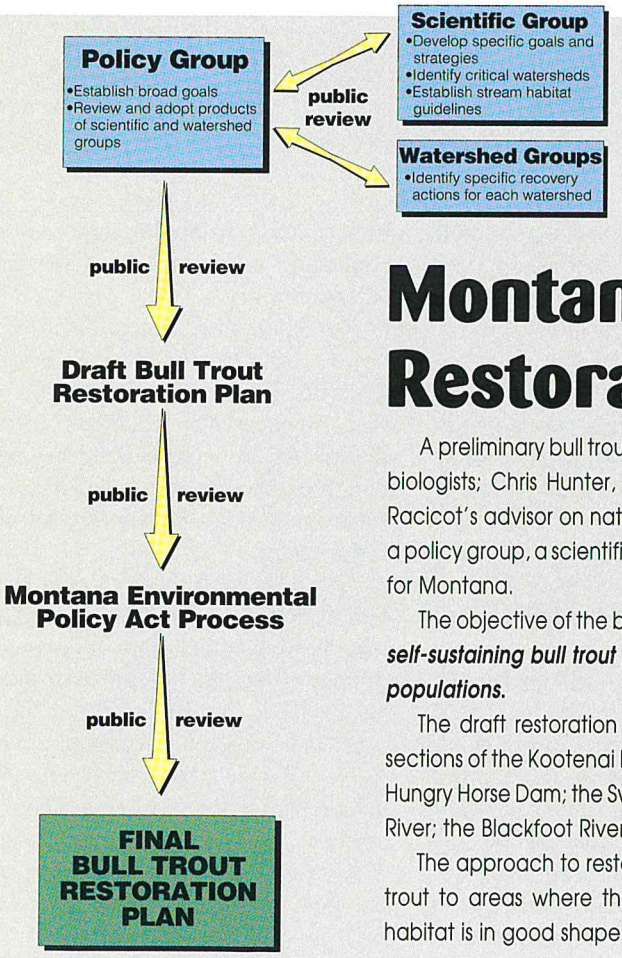
Hammer further charged that conservation agreements between state and federal authorities are a poor substitution for legal protection. "We see the Forest Service and the states holding this up as some kind of solution, knowing full well it would be far less restrictive than legal protection. What looks phony and sounds phony usually is phony."

Hunter acknowledged that the petition to list the bull trout was a catalyst for the Governor's Roundtable, but rejected the argument that the state was not contemplating a recovery plan. "We began our status review of bull trout in Montana well before the petition was filed," he said. "And although we don't have land management authority on federal lands, I believe bull trout are an important enough piece of our heritage that we will work together to find a solution. We're not doing this to preclude federal listing or to maintain the status quo. We're doing it because it's the right thing to do—it's our responsibility."

Steve Kelly of Friends of the Wild Swan asserts that logging roads are responsible for delivering sediment to streams, and that standards for stream habitat quality are needed if bull trout are to have any chance for recovery. "There are roads built out there you couldn't believe, and more are being punched in all the time," he said. "Years ago I said that every old growth tree that a truck could be backed up to would be cut, and I believe I've turned out to be right. What we need are stream habitat standards that will be enforced. Sediment and water temperature are measurable and standards for these would protect bull trout."

Both Kelly and Hammer maintain that the state, U.S. Forest Service, and other agencies haven't worked hard enough to develop standards for stream bottom sediment. Hammer went so far as to call recommendations from the three-year Flathead Basin Cooperative Water Quality and Fisheries Study a "blueprint for bull trout extinction."

Not so, say representatives of the cooperating agencies, pointing out that the study was state-of-the-art, and that many of the points outlined to protect stream habitat have been adopted by the Forest Service through amendment of the Flathead National Forest Plan. "We amended the forest plan and expanded standards for stream habitat quality to protect bull trout and westslope cutthroat trout," said Mike Enk, fisheries biologist for the Swan



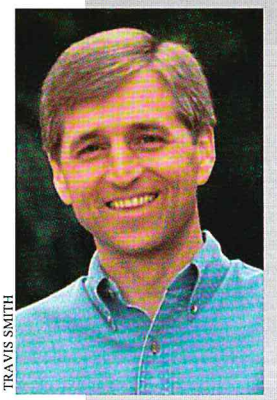
Montana's Bull Trout Restoration Goal

A preliminary bull trout restoration goal has been drafted by an interagency group of fisheries biologists; Chris Hunter, Special Projects Bureau Chief for FW&P; and Glenn Marx, Governor Racicot's advisor on natural resource policy issues. A Bull Trout Restoration Team, composed of a policy group, a scientific group, and watershed groups, will develop a bull trout restoration plan for Montana.

The objective of the bull trout restoration plan is to ensure the continued existence of ***healthy, self-sustaining bull trout populations and habitat in Montana, and to provide fishable bull trout populations.***

The draft restoration goal identifies 12 bull trout populations in Montana, including: three sections of the Kootenai River; Flathead Lake; the South Fork of the Flathead River upstream from Hungry Horse Dam; the Swan River; the middle Clark Fork and Lower Flathead rivers; the Bitterroot River; the Blackfoot River; the upper Clark Fork River; the Saint Mary River; and the Belly River.

The approach to restoration includes protecting existing bull trout habitat and restoring bull trout to areas where they have disappeared. Restoration will concentrate on areas where habitat is in good shape and chances of success are greatest.



TRAVIS SMITH

One Montanan's View

by Governor Marc Racicot

When I'm asked about the state's commitment toward bull trout recovery, my usual response is that we shouldn't restore bull trout because we have to, but because we want to.

I assure you, we want to.

Just as the threats to bull trout are diverse, so too are the reasons for our commitment to restoration.

Perhaps the basic reason is that the bull trout is a native Montana fish and we have an obligation, as temporary stewards of Montana's wildlife resources, to assure healthy and stable populations of our native wildlife. How we manage wildlife not only says a lot about us as a society and culture, but also ensures that future generations of Montanans have the same opportunities we've had to enjoy and appreciate fish and wildlife.

In addition, the State of Montana—through the Department of Fish, Wildlife & Parks—is legally required to manage, protect, and conserve wildlife. It is the Department's mission to manage and restore wildlife populations, and we should not surrender that mission to federal agencies or federal mandates.

Another reason is that the people of Montana deserve to be actively involved in resource management. The bull trout restoration plan will make sure people who live, work, and recreate in Montana have opportunities to contribute ideas, insight, and expertise at every step in the plan's formulation. People who care about bull trout, and people potentially impacted by bull trout recovery, deserve an active role in developing the plan.

Another plus is that the conservation strategies embodied within the bull trout restoration plan can assist other aquatic life and fish, such as the westslope cutthroat trout.

Finally, through the cooperative process undertaken by the Bull Trout Restoration Team, federal and state agencies, private landowners, conservation organizations, and others will communicate and work side by side in collaborative fashion toward a common goal: restoration of bull trout without upending western Montana's economy.

I appreciate, respect, and admire the determination expressed by the members of the Bull Trout Restoration Team. They have a difficult and important task. All of us should assist them and pledge a commitment toward contributing to the plan's success.

Ranger District. "Then in 1991 we added numerical guidelines for sediment levels based on the Flathead Basin Commission Study results. In addition to these steps, we've had streamside protection measures in place. We've never ignored the need to protect important bull trout streams."

Lorin Hicks, a biologist for Plum Creek Timber, argues that listing of bull trout is unwarranted, and that the role of timber harvest in the decline of bull trout has been overstated. He notes that his company has imposed voluntary "best management practices" to protect stream habitat throughout its 1.7 million acres of timberland. He also points out that sediment levels in some streams where no timber has been harvested in the watershed are higher than in some managed drainages.

THE POLITICS of bull trout recovery go beyond timber issues. In some areas, water withdrawals for irrigation threaten tributaries that support bull trout. According to Bitterroot Valley rancher Bob Schrader, ranchers in that area want to help in bull trout recovery but there is only so much water to go around. "If you want to get in a fight with agriculture, start fiddling around with water rights," he said. "Some people say it's too little too late and the bull trout are all gone, only the federal government can save our behinds. But I don't see anything that can't be corrected with cooperation and education. We want to help, but there's a lot of mixed emotions."

Managers agree that it will not be easy to halt the slide of the West's bull trout populations and turn them toward recovery. But most agree that the solution lies in protecting sensitive stream habitats, strictly controlling bull trout harvest, and addressing the problem of competing exotic species. One proposed tool for recovery, the stocking of bull trout raised artificially in a hatchery, has prompted emotional outcries from detractors who say it could turn into a bull trout version of Jurassic Park.

But Wade Fredenberg, Fish Production Coordinator for the U.S. Fish and Wildlife Service at the Creston National Fish Hatchery near Kalispell, believes that genetically-correct, hatchery-raised bull trout could prove to be a vital source for reestablishing the species across its former range.

"We're having great success raising bull trout fry from 20,000 eggs collected last fall from adult bull trout in the Swan drainage," he said. "I think our work and work done in Canada shows that the species can be raised in a hatchery. Now we have to decide what role hatchery fish should play in the restoration plan."

If any hatchery effort is to succeed and if a Jurassic Park-like disaster is to be avoided, the genetics of bull trout stocks used in spawning must be known. Last year, Fredenberg completed a systematic

collection of young bull trout around the Flathead drainage and shipped them to scientists at the University of Montana for genetic tests.

"What we've seen so far is four separate clusters. Fish from the major drainages—Swan, Stillwater, North Fork Flathead and South Fork Flathead—are notably different from one another. Within a drainage, the fish are genetically similar. Only two of the 45 genes examined showed differences, but there's a lot of variation within those two genes.

"The whole purpose of this is if we decide, for example, to use hatchery bull trout to start a population in the North Fork, we probably shouldn't use Swan drainage fish, or we may change the genetics in the drainage."

Another surprising result of the research pointed to different levels of hybridization between bull trout and brook trout. In Lion Creek, a Swan River tributary, 11 of 25 "bull trout" collected turned out to be hybrids. But in Bear Creek, a tributary of the Middle Fork supporting both bull trout and brook trout, no hybrids were found in the 50 fish tested. These results leave managers uncertain about how to deal with the problem of hybridization in different stream reaches.

Success or failure of efforts to bring back the bull trout will be a measure of our society's environmental conscience. As Steve Huffaker put it, "The filing of the petition to list the bull trout was an act of frustration, and if the species is listed, it's an admission of failure."

Can Montanans rise to the occasion and develop a recovery plan that will work to save bull trout? Governor Racicot thinks so. He has called for voluntary partnerships to encourage bull trout recovery. "I don't want to just manage problems, I want to solve them," Racicot said. "I think a caring, progressive government can protect a precious resource like the bull trout." ■

What Do YOU Think?

JOHN LAMBING

Public input often makes the difference between success or failure of wildlife recovery efforts. Please take a few moments and respond to the following questions; your responses will aid in bull trout restoration. Mail your comments (this page, a photocopy of this page, or a plain piece of paper) to: Montana Dept. of Fish, Wildlife & Parks, Attn.: Chris Hunter, 1420 East Sixth Avenue, P.O. Box 200701, Helena, MT 59620-0701.

(1) Do you agree or disagree with the recovery goal as stated for bull trout in Montana? __ agree __ disagree __ don't know.

(2) Would you volunteer to serve on a watershed recovery group in your area to help build conservation strategies for bull trout? __ yes __ no. If yes, please include your name, address, and phone number at the end of the survey.

(3) Do you believe that management should favor the native bull trout even if this means the loss of some recreational fishing opportunity for native and/or non-native fish? __ yes __ no.

(4) Do you agree or disagree that Montana should take an active role in the bull trout recovery effort as described in this article? __ agree __ disagree __don't know.

(5) Are you aware of bull trout populations in your area that existed in the past but are no longer there? __ yes __ no. If yes, please include your name, address, and phone number below.

(6) Do you have any historical information or old photos of bull trout that might be helpful? __ yes __ no. If yes, please include your name, address, and phone number below.

(7) Would you like to be included on a mailing list to receive further information on the bull trout recovery effort? __ yes __ no. If yes, please include your name, address, and phone number below.

Name, address, and phone number:

Please include any additional comments or suggestions on a separate sheet of paper.

Reprinted from
Montana Outdoors May/June 1994

Montana Fish, Wildlife & Parks

1420 East Sixth Avenue
PO Box 200701
Helena, MT 59620-0701