

Keeping the ribbon **BLUE**

ANGLER WITH MISSOURI RIVER RAINBOW BY PAUL E. UPDIKE



Faced with whirling disease and increased angling pressure, FWP biologists try to maintain the Missouri River's nationally renowned trout fishery

BY BRUCE AUCHLY

THE LATEST REPORTS from the Missouri River in west-central Montana are mixed. On the one hand, the 35-mile stretch of world-class trout fishing between Helena and Great Falls still provides some of the biggest and most abundant rainbow trout in North America, and it will probably continue to do so for some time. On the other hand, the trout fishing here could well be past its peak. Though it still offers anglers unparalleled public access and more than 4,000 trout per mile, the blue-ribbon reach faces two big threats: growing angling pressure and, even more serious, whirling disease.

"The bottom line is that it appears there will be more anglers in the future and fewer fish," says Steve Leathe, FWP regional fisheries supervisor at Great Falls. "We're doing all we can to maintain a quality fishery, but it's pretty obvious that it's undergoing some real significant changes."

COLD AND FERTILE

The Missouri River runs nearly 2,500 miles from its headwaters at Three Forks to St. Louis, Missouri, where it meets the Mississippi. Fish populations thrive along the river's entire length, but the stretch most suited for trout is a relatively short one starting at the town of Wolf Creek and ending near Cascade, where the river leaves the mountains and cuts across flat prairie toward Great Falls.

Though cutthroat trout and arctic grayling no doubt existed in this stretch for thousands of years, the modern history of the trout fishery there begins with the 1912 construction of Holter Dam, a few miles east of Wolf Creek. For 35 miles below Holter Dam, the river winds through a canyon along I-15, mimicking a giant spring creek. The continuous flow of cold water coming from the deep reservoir bottom is steeped in phosphorous and other minerals from the Missouri's headwater

tributaries, which rise from Yellowstone National Park, 250 miles to the south. The nutrient-rich water sustains thick beds of aquatic vegetation, nourishing a supermarket of insect life. Beginning in the 1930s, state fish managers began to add brown trout and rainbow trout, and...presto.

Stocked trout thrived in the cold, fertile



MONTANA WATER CENTER

END OF THE RAINBOW? Whirling disease, deadly to rainbow trout, first showed up on the Missouri River in 1996. Within four years, it had infected nearly all the young rainbows in a major spawning tributary.



THE MO'S 'BOWS: The stretch from Craig to Cascade is famous for beefy, plentiful rainbow trout (right). At left: The river temporarily stands empty of anglers upstream of Craig, a stretch holding roughly 4,000 trout per mile.

water. But drastic fluctuations in water levels often dried up side channels, vital habitat for young fish and aquatic insects. Until 1974, when dam operators agreed to stabilize river flows, water came downstream from Holter Reservoir at rates ranging, in a single day, from 1,000 cubic feet per second (cfs) to 7,000 cfs. Anglers didn't fare much better than trout in the rapidly fluctuating water levels.

"I remember getting stranded on some sandbars in the river," says Kevin Devine, a Great Falls native. "When I would try to get back to shore, the water had risen above my waders."

After several years of intense negotiations with FWP, Montana Power Company (which recently sold Holter Dam to PPL-Montana) agreed to a recommended minimum flow of 4,100 cfs and an emergency minimum flow of 3,000 cfs for drought years.

As the Missouri River trout population was improving from stabilized river flows, FWP further helped the fishery by no longer stocking trout in it or any other Montana rivers. Studies had shown the practice was detrimental to wild trout, which, once stocking ended, thrived without the competition for food and habitat from hatchery fish.

With river flows stabilized and compet-

ing hatchery trout gone, the Missouri's wild trout population grew. Throughout the 1980s, FWP surveys in the Craig section, a few miles downstream from Holter Dam, showed high numbers of trout, ranging from roughly 3,000 to 4,000 per mile.

Not only are the Missouri River's trout abundant, but they also grow big, and quickly. Andrew Munro, a fisheries doctoral candidate at Montana State University, has found that it takes Missouri rainbows just three years to reach 17.25 inches long. By comparison, three-year-old rainbows on the storied Madison River are 14 inches long.

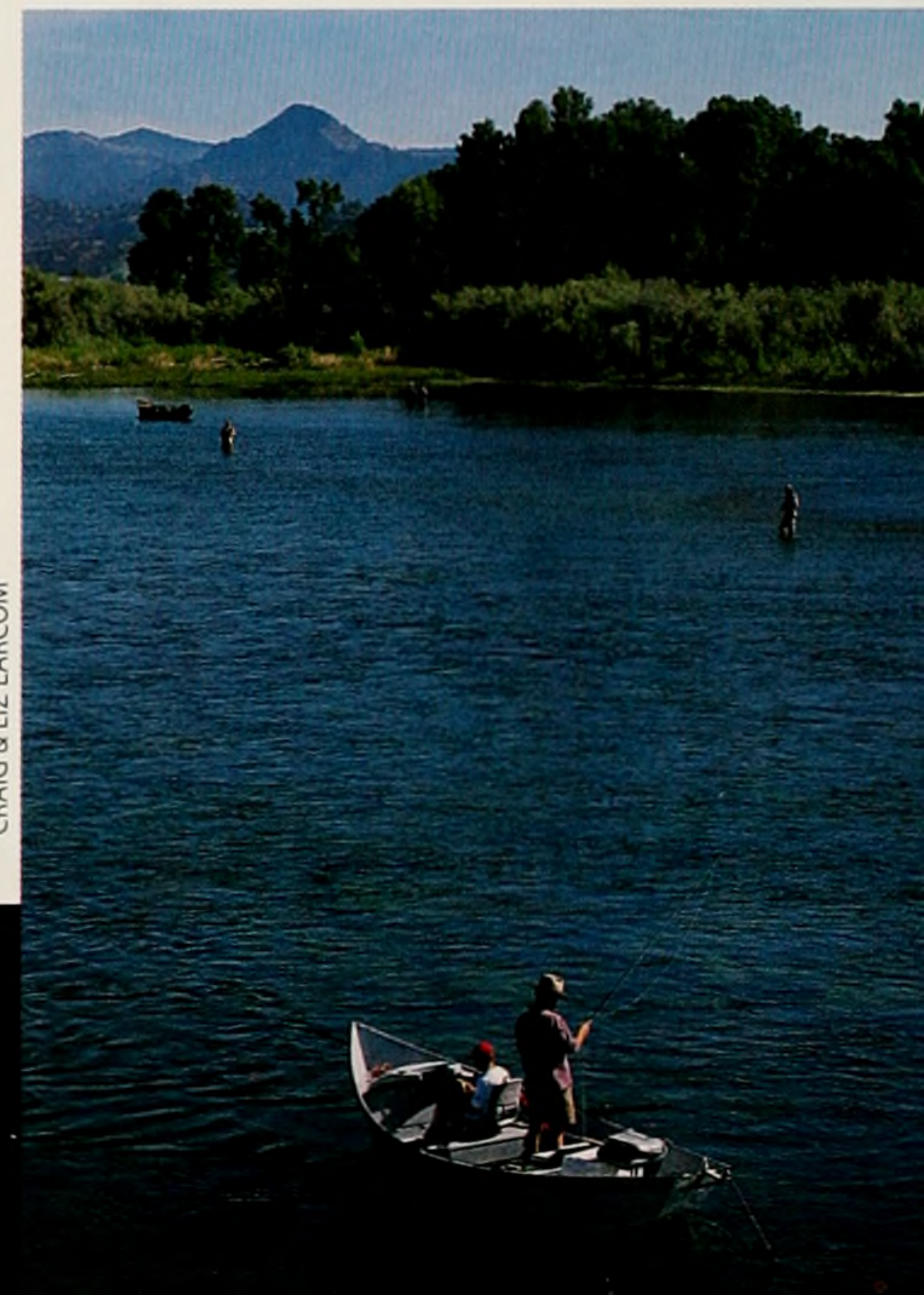
WORD SPREADS

Locals kept word of the large, abundant trout mainly to themselves. It wasn't until the drought in the late 1980s, which dried up other Montana trout fisheries and sent anglers scurrying to the Missouri, that word really started to spread. Since then, fishing pressure and media attention have only grown. Local anglers still rue the day in 1999 when *The New York Times* ran a story on the charms of Craig, Montana, and the phenomenal trout fishery there, triggering yet another immigration.

Fisheries surveys confirm that increased

angling pressure is more than just perception. In 1991, the Missouri's 35-mile blue ribbon stretch had 65,526 "angler days" (one angler fishing a body of water for any amount of time during one day); by 2001, the annual number of angler days had nearly doubled to 123,472. The survey also showed that resident anglers were sharing the river with more people from out of state, though nonresidents were still in the minority. From 1991 to 2001, the percentage of non-resident anglers on the Missouri went from 15 percent of total use to 31 percent.

Some area residents welcome the influx of tourists showing up on the Missouri.



CRAIG & LIZ LARCOM

MISSOURI MOB SCENE? Though uncrowded by Eastern or Midwestern standards, the Missouri has become too populous for some local anglers.

Bruce Auchly is an FWP regional information officer at Great Falls.



DAVID A. SCHMIDT

Business owners say nonresident anglers boost the local economy, from gas stations and cafes to fly shops and guide services.

But to many resident anglers, the sight of more out-of-state plates at riverside parking areas means fewer fishing opportunities. Devine has fished the Missouri River long enough to see its transformation from near obscurity to one of the nation's premier trout fishing destinations. And he has noticed in particular how the pressure now extends well beyond just the traditional midsummer hatches.

"We used to fish cold, windy days and never see anyone," Devine says.

No more. Devine recalls an episode on such a day last year when drift boats stacked up upstream of a prime fishing spot, awaiting their turn like airplanes in a holding pattern over a crowded runway.

"People were waiting an hour and a half to fish that hole," he says. "Finally, we quit and went home."

Devine used to fish the Missouri year-round but now takes a five-week hiatus in late summer when the crowds become too thick. Steve Ortez, also of Great Falls, says his fishing on the Missouri is down from three dozen trips a year to just eight or ten. Ortez, who has been fishing the river since he moved to Montana in 1964, admits his frustration with crowding occasionally boils over, resulting in at least one shouting match with another angler.

But Devine, who has seen the river go from something like a lightly traveled road to a Los Angeles freeway, says he's not ready to exit.

"I could never quit fishing the Missouri," he says. "It's just too good."

DISEASE SPREADS

It may not stay that way for long, however. Whirling disease has infected nearly all the rainbow trout in one major spawning tributary and has recently shown up in another. As a result, say FWP biologists, the trout population in the Craig section could crash within a few years.

"We know we're going to lose some rainbow trout to whirling disease," says Leathe. "The question is: How many and for how long?"

Whirling disease evolved in Europe, came to America in 1956, and was discovered in Montana's Madison River in 1994. The disease starts when a parasite consumes the cartilage of young trout. In worst cases, the spine bends, causing the fish to swim in circles, or "whirl." Severe infections can lead to physical deformities that reduce a fish's ability to feed and avoid predators, resulting in death.

Rainbows are far more susceptible than brown trout, which is not good for the Missouri, where the former far outnumber the latter. Whirling disease first showed up there in 1996, when biologists discovered it

in fish taken in Little Prickly Pear Creek, one of two main spawning tributaries on the blue-ribbon stretch. Concern turned to alarm in 2000, when fish surveys in the same stream showed that nearly all the juvenile rainbow trout were infected.

Little Prickly Pear and the Dearborn River, which enters the Missouri a few miles downstream from Craig, produce almost all the rainbow trout in this reach of the Missouri. Each spring, the fish swim up the two streams and build thousands of redds, or spawning beds, on underwater gravel. The tiny fry that hatch out in June typically spend their first year in those tributaries. Then, at about 3 to 4 inches long, they head downstream to the Missouri, to grow big on the river's rich diet of underwater insects.

Whirling disease has changed that on Little Prickly Pear. Before the disease peaked, biologists estimated 30,000 one-year-old rainbows migrated from the stream into the Missouri each year. Surveys conducted by FWP and Montana State University researchers found that by the late 1990s, the number had dropped to 7,000, a 77 percent reduction. The agency now considers the stream to be one of the most severely affected in Montana.

Fish surveys conducted in the fall of 2002 show the results of poor rainbow "recruitment" (how many young fish exist in a population to replace older ones in the



DAVE HAGENGRUBER/MONTANA FWP

SPORE SPY: FWP's fish health biologist Jim Peterson examines fish tissue for signs of parasites, such as the spore *Myxobolus cerebralis*, the culprit behind whirling disease. Below: The spore, shown in its triactinomyxon stage, readies to attach to a trout scale.



MONTANA FWP

future) in the Craig section. That stretch is representative of the first 10 river miles below Holter Dam and contains fish hatched primarily from Little Prickly Pear Creek. There, according to FWP fisheries biologist Travis Horton, the surveys show an estimated 4,262 rainbows, ranging from 6 to 23 inches long. While that's a tremendous number of fish, what's especially interesting is that more than half, almost 2,300, were in the 17- to 23-inch category. Horton found only about 900 fish per mile measuring 14 to 17 inches and a mere 17 rainbows per mile in the 11- to 14-inch group.

The number of large fish per mile may excite anglers, but those trout were produced before whirling disease struck. What concerns Horton are the juvenile fish in the population, or, more precisely, the lack of juveniles.

"The younger fish are not there," he says.

Leathe adds that low water in Little Prickly Pear in recent years has certainly contributed to the low numbers of small fish.

"But we're certain the main cause is whirling disease," he says. "We've now had four consecutive years with relatively few rainbow yearlings in the Craig area, even though there's been a record number of spawners and some good water flow some of

those years. In 21 years of surveying that trout population, we've never seen more than two poor years in a row until recently, even during the severe drought of the late 1980s."

One bright note: The 2002 surveys show strong recruitment downstream. The Cascade section, which represents the trout population in the lower 25 miles of blue-ribbon water from Craig to Cascade, contains fish hatched primarily from the Dearborn. There, Horton's crew found fewer rainbows overall than in the upper stretch, which is normal because the upstream water has always been more productive. But the biologists also found a record 2,200 one-year-old rainbow trout per mile. That's five times as many young rainbows as in 2001 and twice the long-term average.

It's also a sizable portion of the Missouri's future. Because the Dearborn produces roughly twice the young rainbows Little Prickly Pear does, it could offset declines in reproduction elsewhere. But if the Dearborn were hit with a massive outbreak, the Missouri could lose entire generations of future catchable rainbows.

Such a scenario is a distinct possibility. The disease was found in some Dearborn rainbows examined in 2001, and in 2002 the severity had greatly increased, though a major infestation has not yet occurred.

"It's a big concern," says Leathe.

Though biologists haven't yet seen the decline in big fish in the upper part of the Missouri's blue-ribbon water that they predicted a few years ago, they say it's simply a matter of time.

"Either the population is about to crash," says Leathe, "or adult fish are coming from downstream and filling in the population."

The news on the Missouri is not all grim, however. Leathe says brown trout numbers throughout the blue-ribbon stretch are at all-time highs: "We're seeing 1,000 browns per mile over 10 inches. That's a lot of brown trout."

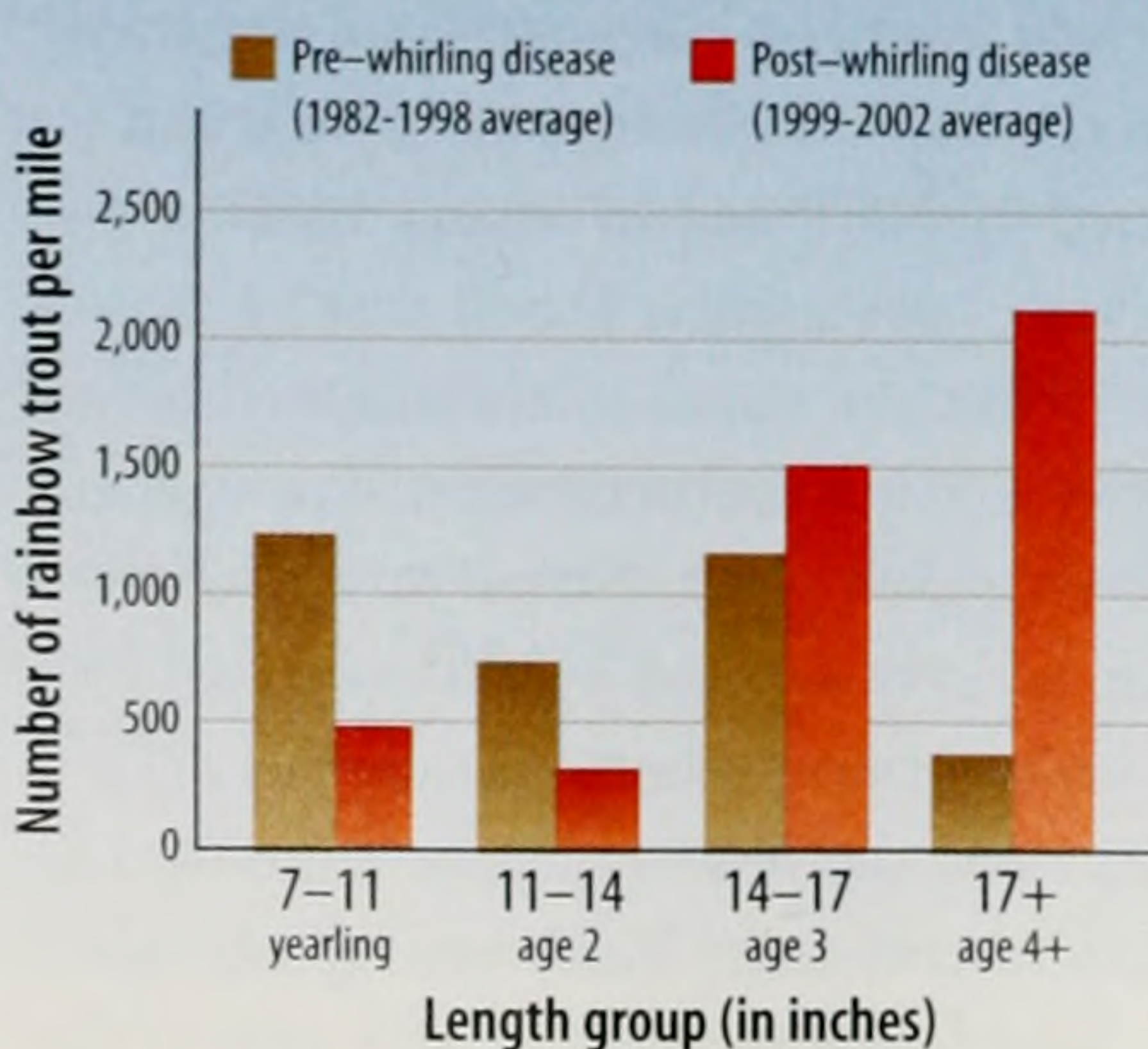
FWP RESPONDS

Both crowding and whirling disease are largely beyond FWP's control. But the agency has increased management activities in response to the Missouri's changing trout fishery. In the late 1990s, with whirling

Great today but grim tomorrow

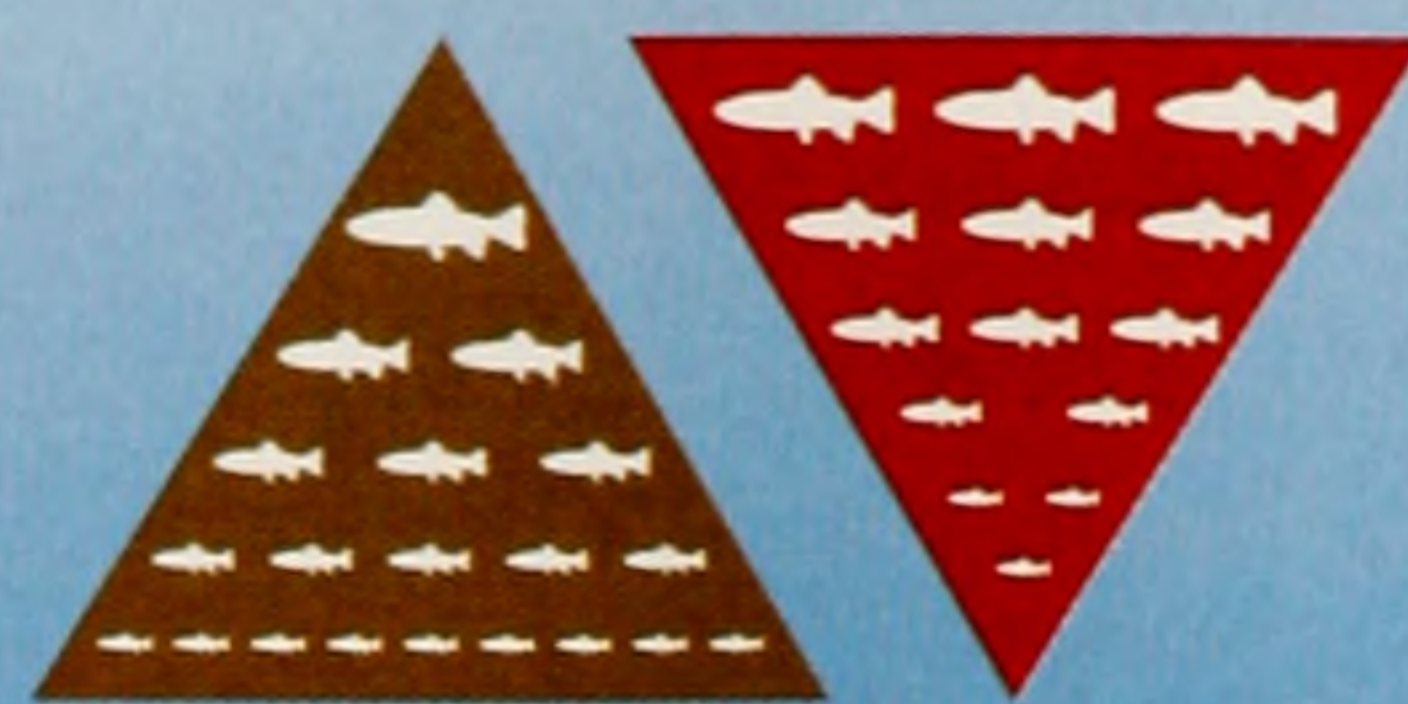
Recent FWP fish surveys indicate a troubling future for Missouri River rainbows. Biologists are finding far fewer small trout (below left) than will be necessary to replace the larger, older ones that will eventually die. "The younger fish are not there," says one biologist. Where have the small fish gone? While drought may have contributed somewhat to the decline, an FWP regional fisheries supervisor says, "We're certain the main cause is whirling disease."

Missouri River rainbow trout population Craig Section



Inverted pyramid

Imagine a healthy rainbow trout population as a pyramid, with relatively few big fish on top and many little fish below to take their place in the future. Whirling disease inverts the pyramid, diminishing year classes needed for the fishery's future.



MONTANA OUTDOORS

BANK MANAGERS: To help offset the damage to rainbow trout numbers by whirling disease, FWP has been working with members of Trout Unlimited and other groups to screen trout-enticing irrigation ditches and restore habitat on the Missouri River and two important spawning tributaries:



MONTANA FWP

1. On the Missouri River downstream of Craig, straight-cut banks were eroding away, sending silt into cobbles where aquatic insects live.

2. In 2001, crews sloped back the banks to reduce the erosive effects of river current and then planted willow bundles several inches under the soil.

3. Next, crews covered the exposed bank with biodegradable mesh netting, which protected the area until the vegetation was established.

4. As the vegetation grows, its roots hold the bank in place. Erosion has since stopped here, allowing the river ecosystem to function as it should.

disease threatening Montana's rainbow populations like a stock market crash, FWP urged the governor to establish a whirling disease task force. The group focused attention on the disease, suggested remedies, and sought research funds.

In 1998, after weighing input from the task force as well as from FWP biologists and local anglers, the FWP Commission lowered the rainbow trout limit on the Missouri's blue-ribbon stretch from five fish to three.

Then in 2002, the commission lowered the limit again to just one fish on the upper 14 miles (though it retained the three-fish limit from Dearborn to Craig). That move sparked criticism from Trout Unlimited, which wanted catch-and-release only, and from some local anglers, who complained the limit had dropped far too low.

"People still like to eat fish, but they won't go up there for just one trout," says Ortez.

In addition to adjusting regulations, the agency is also working on improving spawning habitat.

"Our goal is to produce as many trout as the river can handle," says Leathe. "We want to make sure access is good for fish to reach spawning areas where there is no whirling disease."

FWP biologists are knocking holes in beaver dams that block spawning trout movement upstream in smaller tributaries still free of whirling disease. Working with

members of Trout Unlimited and other groups, they've also screened an irrigation ditch in Little Prickly Pear to keep rainbows out and have modified an irrigation ditch that had been blocking rainbow migration on another tributary.

FWP has also increased surveys of anglers and funded new research. The agency recently completed fieldwork on a one-year creel survey to see if the new one-fish regulation is working as intended to protect adult fish. Munro, the MSU graduate student, is studying the microchemistry in trout bones to learn which tributaries the fish came from. The work will help Leathe and Horton figure out whether or not trout are moving up from Cascade and filling in the Craig section.

To address the crowding issue on the Missouri and other popular Montana rivers, FWP has convened a 22-member river recreation advisory council to suggest principles and policies to help reduce conflicts.

Regardless of the council's recommenda-

tions, due in May, crowding will always be a matter of perspective. Many locals accustomed to solitude find the Missouri's many newcomers intolerable. "A lot of people are saying they've given up," says Ortez.

Yet other anglers, such as Minnesotan Brad Moore, find the river's crowds bearable even during the summer high season.

"Sometimes in the evenings there are a lot of drift boats coming through," says Moore, a wade angler. But he adds that it's a small price to pay for an unbeatable combination of scenery and angling opportunities. "You have this beautiful arid area and there's this wonderful fishery," he says.

And that's not just a tourist's opinion. Many local anglers still marvel at the river's bounty and express faith that, as long as whirling disease stays contained, the Missouri will continue to provide for everyone who fishes there.

"Even for the meat fishermen," says Devine. "I think it's still a very accommodating river." 🐻

WAITING GAME: Anglers can do nothing but keep their fingers crossed that the Missouri's famous rainbow trout fishery can withstand whirling disease. In the meantime, the river continues to produce world-class fishing for locals and a growing number of visitors.



DENVERBRYAN.COM