



ANDREW MCKEAN

RIPE AND READY Mike Ruggles, FWP fisheries biologist at Fort Peck Lake, prepares to strip a netted female walleye of her eggs. The eggs are then mixed with milt stripped from male walleyes and taken to a warm-water hatchery. Each year, more than 100 volunteers help FWP harvest roughly 90 million eggs from Fort Peck walleyes. Once hatched, the tiny fry go back into the lake and other walleye waters across the state.

Hatchery Pride



Listening to Jim Drissell talk as he stands over the concrete raceway, feeding the fish at Big Springs Hatchery near Lewistown, I'm reminded of a proud teacher watching his students graduate from school and head off into the world.

"When our hatchery crew loads these fish onto the trucks in the spring, that's the end of the line for us, the conclusion of an entire year's work," says Drissell, who has spent the past 20 years working in various Montana state hatcheries. "I like to think that every one of the fish we raise here is eventually caught by someone and that it puts a grin on their face."

I ask Drissell if he thinks people catching these fish realize they came from a hatchery.

"Some of them might know that, although most people probably don't," he answers. "And even if they know it's a hatchery fish, they might not want to tell anyone, especially if they show off their fish pictures to friends. I guess it's not cool to admit you caught a hatchery fish."

That's an indication of the reputation fish hatcheries have earned in Montana over the past few decades. Like an odd family relative no one wants to acknowledge, hatcheries are a part of Montana's fisheries management program that some anglers prefer to ignore. Yet just like the rarely seen cousin who turns

out to be a benevolent millionaire, Montana's hatcheries contribute enormously to the state's fisheries.

"We're real proud of our hatchery system," says Chris Hunter, chief of the Montana Fish, Wildlife & Parks Fisheries Division. "The science of hatcheries has evolved over the decades along with other fisheries sciences to meet new demands from biologists and anglers. Hatcheries are responsible for providing tremendous fishing opportunities. They also help us maintain the gene pool of recovering fish populations such as native cutthroat trout and restore threatened and endangered fish species such as pallid sturgeon."

Hatchery evolution

From the time Montana's first hatchery opened in 1889 until the first fisheries biologist was hired in 1947, most of the state's fish management centered on rearing and stocking non-native fish such as rainbow, brown, and brook trout. Driven by the belief that fishing improved as stocking increased, Montana endeavored to produce and plant as many trout as possible.

The growing number of science-trained biologists hired by the state in the mid-20th century soon began to question whether stocking was all it was cracked up to be. By the

Essential for warmwater fisheries, mountain lake fishing, and protecting some endangered species, FWP's fish-rearing facilities have plenty to boast about. By Dave Hagengruber



DAVE HAGENGRUBER

1970s, FWP biologists had discovered that stocking trout into high-quality habitat depressed populations. As a result, the department discontinued stocking trout into most rivers, relying instead on natural reproduction to sustain wild populations. But that did not mean the state abandoned its hatcheries.

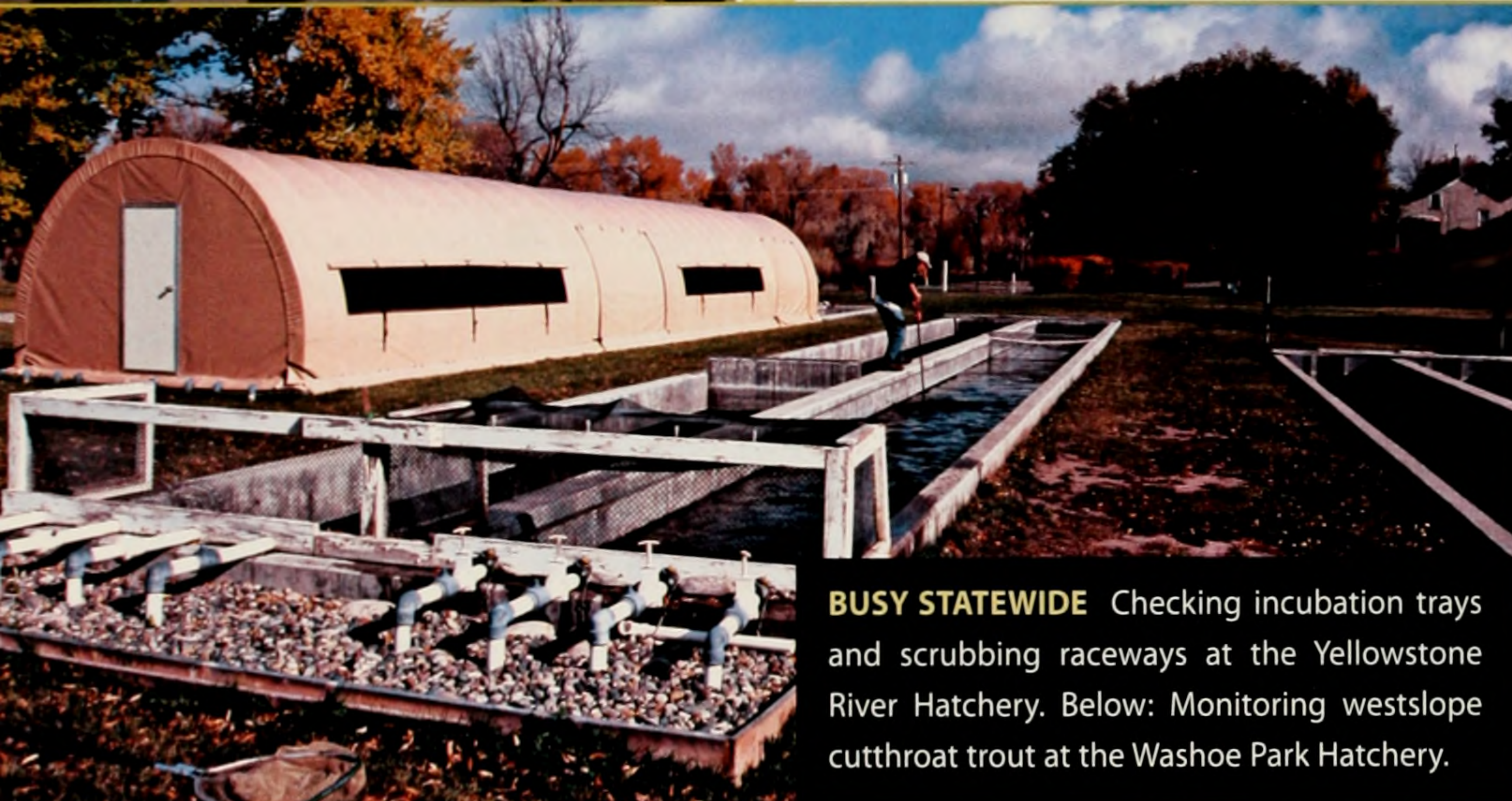
“We’ve been so successful with our wild trout program over the past three decades that many anglers don’t even realize Montana still maintains an essential and successful hatchery system,” says Hunter. “As important as wild fish are, we can’t afford for a second to overlook our hatcheries, what they provide, and how they have evolved into one of our most important fish management tools.”

Today FWP operates ten fish hatcheries,

page) began producing walleyes and other warmwater fish.

Brood and production

Montana has two types of fish hatcheries. *Brood hatcheries* maintain adult warmwater or coldwater fish that produce fertilized eggs. The eggs are then transported to *production hatcheries*, where they are hatched. The tiny newborn fish, called fry, are then raised to the size ordered by biologists for stocking. The most common size of trout they request is between 3 to 6 inches long, which takes about one year to grow. Most of the warmwater fish, especially walleyes, are stocked as mosquito-sized fry or as 2-inch-long fingerlings.



BUSY STATEWIDE Checking incubation trays and scrubbing raceways at the Yellowstone River Hatchery. Below: Monitoring westslope cutthroat trout at the Washoe Park Hatchery.

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nine owned by the state and one owned and operated in cooperation with the U.S. Army Corps of Engineers. Each year, the state’s eight coldwater hatcheries produce roughly 9 million trout and salmon for stocking into nearly 500 lakes and reservoirs. The two warmwater hatcheries annually produce about 40 million to 80 million walleyes, northern pike, crappies, tiger muskies, catfish, and largemouth and smallmouth bass. These warmwater fish are planted in more than 120 lakes and reservoirs across Montana. This spring, the newly completed Fort Peck Multi-Species Fish Hatchery (see sidebar, facing

Dave Hagengruber coordinates FWP’s Aquatic Education Program.

In pounds, trout are the hatchery system’s major product. But in numbers, the hatcheries produce more walleyes than any other species. Of the 46 million fish produced in 2004, more than 40 million were warmwater species, 39 million of which were walleyes.

Mike Ruggles, FWP Fort Peck Lake biologist, explains that those high stocking numbers can be misleading.

“In Fort Peck alone, we stock 20 to 30 million walleye fry and just under 2 million fingerling walleyes,” he says. “But those fry are tiny and are in the hatchery just a few days before release.”

To collect walleye eggs and milt for the warmwater hatcheries, Ruggles, his crew, and more than 100 volunteers work with

hatchery personnel to net ripe, ready-to-spawn Fort Peck Lake walleyes. In a typical year, they harvest 80 million to 100 million eggs from these fish.

Ruggles has found that about 80 percent of the walleyes taken by anglers in Fort Peck Lake came from hatcheries. "Clearly, without hatcheries the fishing opportunities here would be seriously reduced," he says.

Ruggles notes that Fort Peck lacks the rocky bottom substrate found in natural Canadian lakes that walleyes need to spawn. "So we collect the eggs, hatch them in a controlled environment, then return the fry or fingerlings to the reservoir," he says. "Then it's up to the fish and nature to do the rest. Good fishing in a reservoir also depends a lot on environmental conditions."

Still waters get stocked

Although Montana discontinued stocking trout in most rivers and streams in the 1970s, there remains a great demand for stocked trout in waters where fish can't reproduce naturally.

"Ponds, reservoirs, and mountain lakes depend almost entirely on hatchery-raised fish," says Bob Snyder, FWP's new Hatchery Bureau chief. "Many high mountain lakes have harsh environmental conditions that slow fish growth. Viable trout populations wouldn't exist there without supplemental stocking from hatcheries."

The mountain lakes that FWP stocks generally receive fish every five to eight years, enough to maintain population levels that provide good fishing. "When you see those pristine waters and the beautiful fish that come out of them," says Snyder, "you'd never know those fisheries depend almost entirely on hatchery trout."

In the early days of the hatchery system, stocking mountain lakes meant loading milk cans filled with water and fish onto the backs of mules for hours or even days of travel into the backcountry. Today, helicopters stock fish directly into lakes, sometimes after flying just a few minutes.

In some cases, FWP workers take adult trout or their eggs from mountain waters, such as Goose Lake in the Absaroka-Beartooth Wilderness Area, back down to



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FISH FACTORY Hatchery manager Andrew Ollenburg outside the new \$19 million Fort Peck hatchery. Ollenburg says walleye anglers and local community boosters lobbied hard to get the facility built.

The Crown Jewel By Andrew McKean

The Fort Peck Multi-Species Fish Hatchery, completed in January 2006, is a high-tech aquaculture factory equipped to incubate and rear fish at levels never seen before in Montana. With its hundreds of valves, miles of water pipe, and panels of computer circuitry, the interior of the 22,000-square-foot, \$19 million facility looks like a gigantic nuclear submarine. Its main pump, which draws water from a series of ponds formed when Fort Peck Dam was built, is large enough to serve a fair-sized city.

"The Fort Peck Hatchery is by far the largest and most technically sophisticated facility in our hatchery system," says Chris Hunter, FWP's Fisheries Division chief.

The hatchery sits just off the Missouri River below Fort Peck Dam on roughly 100 acres of land leased from the U.S. Army Corps of Engineers. Nearly 96 acres is devoted to rearing ponds, which can raise more than 3 million walleye fingerlings each year. Those fish, along with 50 million walleye fry produced annually, will allow the hatchery to sustain Fort Peck Lake's recreational walleye fishery.

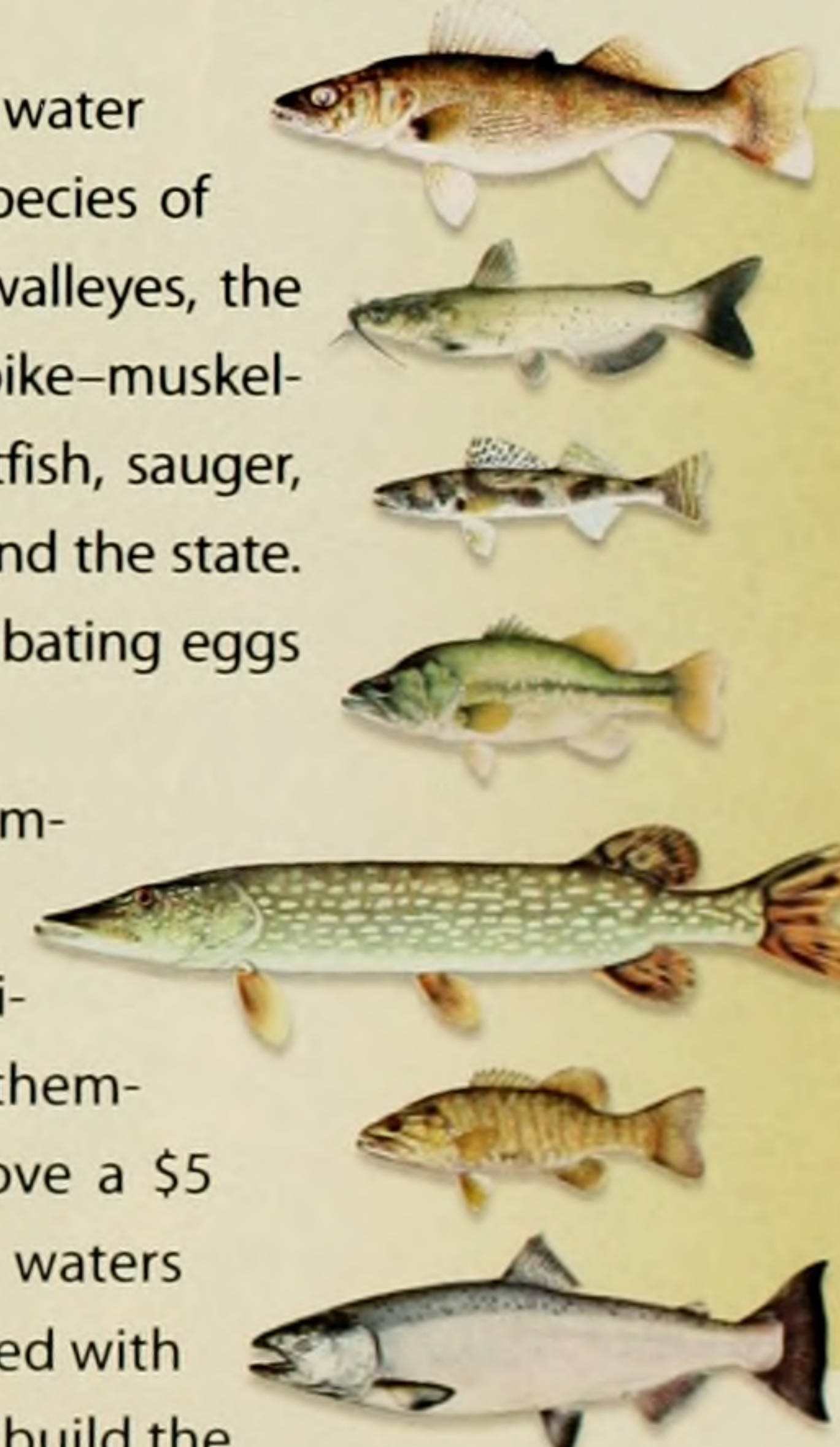
The massive facility requires only four staff members. A computer monitors the complex system that regulates water flow and temperature. Hatchery manager Andrew Ollenburg says the computer will instantly adjust the system the moment problems occur.

"Let's say a valve cracks," says Ollenburg. "The computer immediately figures out whether to speed up the pump and by how much, and then it adjusts pressure to all the other valves. That's great for efficiency."

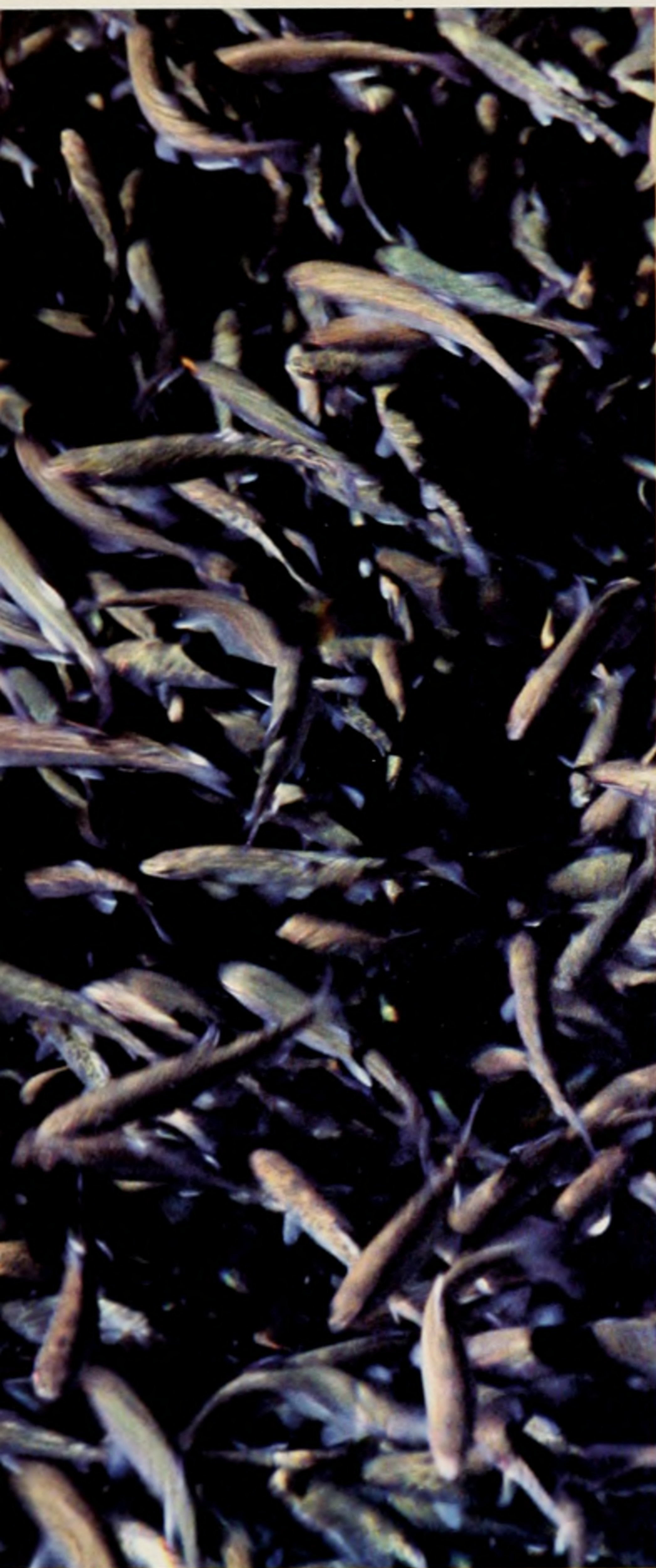
Each vat inside the new building has three different water sources. "That gives us the capability to grow almost any species of freshwater fish imaginable," says Ollenburg. In addition to walleyes, the facility will produce northern pike, tiger muskies (a northern pike-muskellunge cross), smallmouth and largemouth bass, channel catfish, sauger, and Chinook salmon for stocking in lakes and reservoirs around the state. The hatchery will also rear endangered pallid sturgeon, incubating eggs collected from adults netted downstream on the Missouri.

The hatchery would not exist if not for walleye anglers, community boosters, and other members of Citizens for a Fort Peck Hatchery, which conducted meetings, lobbied politicians, and raised money. The angling advocates first taxed themselves, convincing the 1999 Montana legislature to approve a \$5 Warmwater Stamp (now required by anglers who fish waters stocked with warmwater fish). Then the citizens' group worked with the state's congressional delegation to find federal funds to build the structure. Stamp revenue now helps cover the hatchery's operations and maintenance costs.

The Fort Peck Multi-Species Fish Hatchery will be dedicated on July 6, in conjunction with the annual Governor's Cup Walleye Tournament. Because roughly four out of five walleyes caught in Fort Peck are hatchery fish, future winning tournament teams will likely be able to credit walleyes from the Fort Peck Hatchery for their success.



FISH ILLUSTRATIONS BY JOSEPH TOMELLERI



GARY BEELER

FUTURE FISHERIES Rainbow trout fingerlings swarm for food pellets at the Bluewater Springs Hatchery at Bridger. A bag of hatchery-reared pallid sturgeon fry is readied for release in the Missouri River.



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“The negative picture of crowds of anglers jostling to catch a bunch of pale hatchery stockers—that just doesn’t apply at Canyon Ferry. These are big, hard-fighting rainbows you can’t tell apart from the wild fish.”

hatcheries. These fish become the genetic base that FWP uses to help recover native trout populations elsewhere in Montana. Goose Lake provides the pure-strain Yellowstone cutthroats that Jay Pravacek, manager of the Yellowstone River Trout Hatchery near Big Timber, is using in a four-year process to develop brood stock.

He and his crew head up to the lake in late July after ice-out. They capture fish spawning in the lake’s tributaries, then take the fertilized eggs back to the hatchery. Like other brood hatchery managers, Pravacek takes pains to ensure the genetic purity of his brood fish and the approximately 200,000 trout produced at his hatchery each year.

“These cutthroats are a part of Montana’s natural heritage,” he says. “They are important for that reason alone.”

Maintaining genetically pure stocks in hatcheries can also help keep a species from being listed as federally endangered. When the U.S. Fish & Wildlife Service considers a species for listing, it looks at the genetic integrity of various populations. Impure populations may not be tallied as part of the overall number. Because Montana wants to keep species off the threatened and endangered lists to maintain state management authority, “it’s vital for us to be sure we have the purest brood stock we can obtain,” Pravacek says.

Hatchery genetics also play a role in saving near-extinct species. Over the past ten years, FWP has stocked the Yellowstone and Missouri rivers with hatchery-reared pallid sturgeon, a federally endangered species. Due to dams, pallids no longer have adequate spawning and rearing habitat. Stocking sturgeon preserves the pallid’s unique genetic identity as well as the hope that eventually the hatchery-reared fish will

be able to spawn in natural conditions.

Saving species from extinction may be the noble role of Montana’s hatcheries, but providing good ol’ recreational fishing is still their primary function. No place is that more evident than on Canyon Ferry Lake near Helena. There, FWP biologist Steve Dalbey relies on the hatchery system to provide roughly 300,000 rainbow trout 6 to 8 inches long—nearly two dozen truckloads—each year. Hatched and reared at the Big Springs Hatchery in Lewistown, the trout are stocked each spring and fall.

“People shouldn’t confuse this with the put-and-take fisheries that exist in many other states,” says Dalbey. “Those hatchery fish are often caught by anglers later the same day they are stocked. Our upper Missouri River reservoirs are completely different. We have ideal growing environments for fish, and the trout we put in at 8 inches this year will be 16 to 18 inches long and 2 pounds next year, and 3 pounds the year after. These are the trout our anglers catch. The fish we stock beef up on the big juicy zooplankton in Canyon Ferry. The growth rates here are just phenomenal.”

Dalbey explains that because Canyon Ferry and the other Missouri River reservoirs near Helena are manmade impoundments, they have little of the natural habitat trout need to spawn. Only 10 percent of the rainbow trout in Canyon Ferry are wild fish.

“This lake averages more than 100,000 angler-days of use each year,” Dalbey says. “With that kind of pressure, the trout populations have to be augmented somehow. My goal is to maximize the opportunity for people to be out here fishing and catching trout, and these hatchery trout help me do exactly that. I’ve received letters from guys who have been

coming here for 20 years catching limits of big rainbows, and they tell me that they come because the access is good, the catch rates are great, and they love eating those fish.”

Fish hatcheries in Montana have always been a work in progress, evolving to meet the changing needs of anglers and fisheries managers. In a state famous for its wild river trout fisheries, sustained by some of the best cold-water habitat in the world, it can be easy to overlook the role that hatcheries play. However, there is no denying that without hatcheries, Montana would lack many valuable coldwater and warmwater fisheries as well as an essential tool for helping conserve threatened and endangered fish species. 🐟

NEWS UPDATE: Big Springs Hatchery manager Jack Boyce recently announced that his hatchery is back in action. In 2003 traces of PCBs were found in decades-old paint lining raceways of the fish-rearing facility, located in Lewistown. FWP was forced to destroy a half-million trout the following year and temporarily close the hatchery. The department's rainbow trout production dropped by 35 percent over the next two years and had to be supplemented with fish from the federal hatchery in Ennis. Working with the Environmental Protection Agency, FWP hired an environmental restoration firm to remove all the paint and line the raceways with a nontoxic sealant. Boyce recently said he and his crew are in full production and aim to raise a record number of trout in 2006.



HIGH-ALTITUDE ANGLING FWP hatcheries are essential for keeping mountains lakes stocked with trout.



DAVE HAGENGRUBER

SEARCH AND DESTROY MISSION

FWP fish health coordinator Jim Peterson tests samples of fish scheduled for stocking: “We guard against disease and pathogens getting into Montana waters.”

Disease-free hatcheries help keep public waters disease-free

Like the famous pathophobe Howard Hughes, who wore Kleenex boxes over his socks when in hotels to keep from coming into contact with germ-riddled carpets, Montana FWP hatchery staff can be downright obsessive when it comes to keeping their fish healthy and their facilities sterile. They have to be. If stocked fish carry disease, they can infect public waters and threaten Montana’s blue-ribbon trout rivers and popular reservoir fisheries.

“Once a disease or pathogen gets into the state, it’s difficult or even impossible to eradicate,” says Jim Peterson, FWP’s fish health coordinator. “That’s why we focus on preventing diseases and pathogens from getting into Montana in the first place.”

Before fish from a state hatchery can be stocked, sample fish are tested and must be certified as disease-free. Wild fish used as brood stock to produce eggs must be tested before eggs can be collected. Testing is also done at least once each year on water, tanks, and raceways of all state, federal, and private hatcheries in Montana.

If any diseases or pathogens are detected, the facility is immediately quarantined and the infected fish are destroyed. The hatchery must then be completely disinfected, a process that can take up to a year, then inspected and certified as disease-free before fish can again be stocked from the facility.

“Most states have some disease regulations, but I think Montana is either as strict or stricter than any other state,” Peterson says.

That includes careful screening of all requests from private pond owners to stock fish from out-of-state sources. “We’re extremely careful about making sure trout imported into Montana come from a source free of diseases, fish pathogens, and aquatic nuisance species,” he says.

Peterson points to whirling disease, which was first discovered in Montana in 1994, as an example of what he’s trying to prevent. “Now that whirling disease is here, we’ll never get rid of it,” he says.

Because whirling and other diseases can be spread through infected water, FWP insists on using clean, disease-free water sources for its hatcheries. “In almost all of our hatcheries, the water comes from a fish-free underground source,” Peterson says. “And in most cases, the water never reaches the surface before we pipe it into the hatcheries.”

Inside the facilities, hatchery staff take pains to avoid contaminating water and equipment. “Every one of our hatchery managers and fish culturists is trained to detect and prevent fish diseases,” says Peterson. “Equipment such as nets, boots, and gloves is disinfected before being moved from one part of a hatchery to another. And when our crews visit a lake to stock fish, they won’t even touch the water or allow their equipment to touch the water.”

With the exception of whirling disease, Montana’s fisheries have remained relatively disease-free. “We’ve been extremely successful keeping our waters clean,” says Peterson. “But you never hear about that. The only time you ever hear about fish diseases is when something bad happens. So our job is to keep hatcheries from ever showing up on the front page.”