READ OUR LIPS

Contrary to what your ill-informed uncle told you years ago, suckers are remarkable fish and among Montana's most ecologically important species.

BY TOM DICKSON

ROCK CLEANERS A school of largescale suckers vacuums up algae from river boulders. When Milltown Dam east of Missoula was still intact, hundreds of thousands of these fish stacked up below the structure each spring as they tried to move upstream to spawn.

PHOTO BY TODD PEARSONS/ENGBRETSON UNDERWATER PHOTOGRAPHY

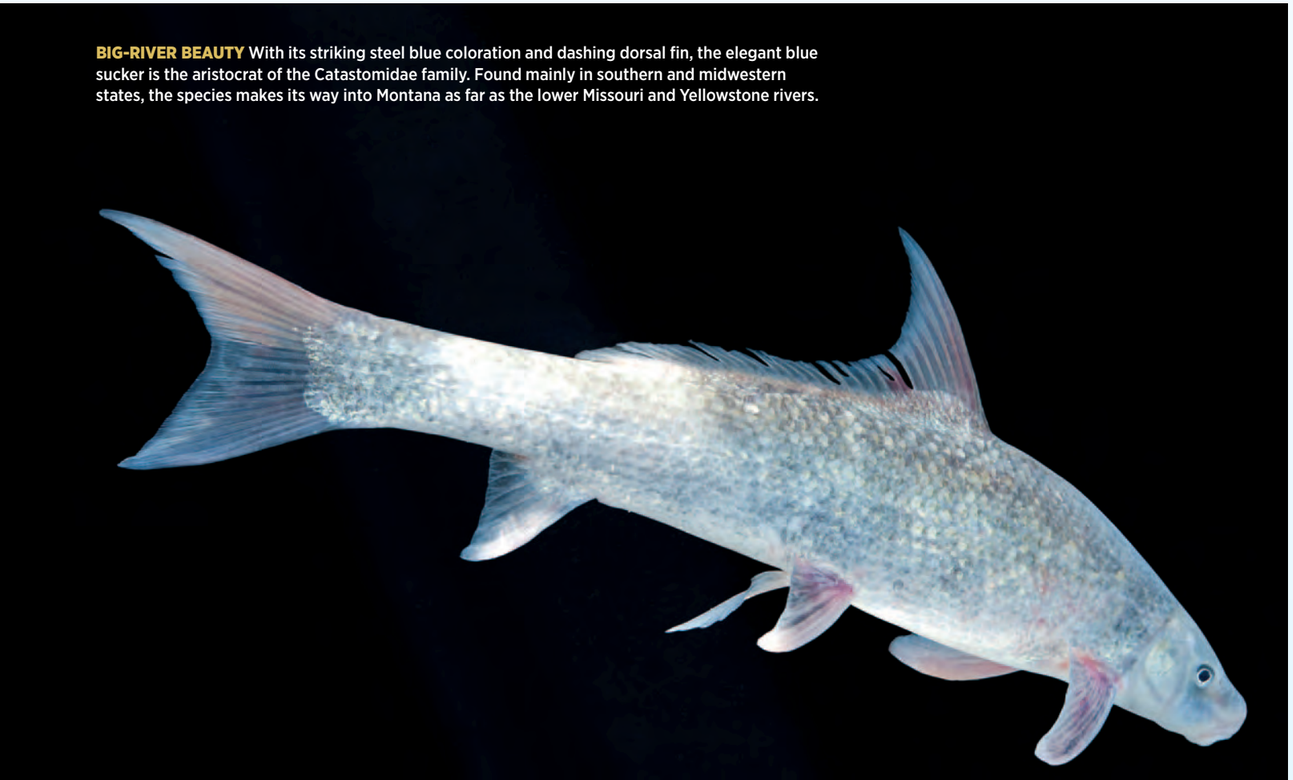
David Schmetterling recalls the awe he felt while staring down at the mass of largescale suckers milling below Milltown Dam, about 8 miles east of Missoula. "They were absolutely incredible," the Montana Fish, Wildlife & Parks fisheries biologist says. It was 1995, and Schmetterling had been hired to study how the dam, built in 1908 to impound the Blackfoot and Clark Fork rivers at their confluence, affected fish movement.

As he stood on the bank, Schmetterling recalls, he watched "hundreds of thousands of fish in this dark mass the size of a football field swimming in the pool below the dam." The fish were driven by ancient instinct to return to their natal waters up the Blackfoot or Clark Fork to spawn. Day after day, they tried to leap onto and shimmy up the dam's concrete apron. "It was like watching salmon in Alaska," Schmetterling says.

Montana *suckers* resembling *salmon*?

It turns out that's not the only thing about these large, lipped, bottom-hugging fish that most people don't realize. Contrary to long-standing misconceptions perpetuated by anglers who often have no idea what they're talking about—that's you, Uncle Mitch—suckers rarely displace trout or walleye, don't feed on underwater garbage, and don't prefer (much less cause) dirty water. They can also be delicious to eat.

In fact, for years most people have been, well, suckered into gullibly swallowing misinformation about these beautiful, fascinating, and essential creatures of Montana's stream, reservoir, and river ecosystems.



BIG-RIVER BEAUTY With its striking steel blue coloration and dashing dorsal fin, the elegant blue sucker is the aristocrat of the Catastomidae family. Found mainly in southern and midwestern states, the species makes its way into Montana as far as the lower Missouri and Yellowstone rivers.

THE MOST NORTH AMERICAN OF FISH

Suckers are a fish family, Catostomidae, composed of 80 species, all but two living only on this continent: the longnose sucker, which is also found in Siberia, and the Chinese sucker, which swims exclusively in the Yangtze River drainage. "You could say that suckers are the most North American of all fish families," says Schmetterling, today head of FWP's fisheries research program.

Catostomidae members can be grouped into four categories: buffaloes, carpsuckers, redhorses, and regular suckers. Montana is home to nine species: bigmouth buffalo, smallmouth buffalo, river carpsucker, shorthead redhorse, largescale sucker, longnose sucker, blue sucker, plains (previously mountain) sucker, and white sucker. Biologically, these and all other suckers are distinguished by their soft-rayed fins, toothless jaw, and scaleless head. Most species also have the characteristic subterminal (below the head), lipped mouth.

The sucker family gets its name from the way most members use their mouth to vacuum up aquatic insects and algae. Dense with nerves, the highly sensitive mouth helps a sucker find and dislodge food from a river or lake bottom that lipless fish often can't reach.

As these indiscriminate feeders hoover up anything that looks even remotely edible, they regularly swallow anglers' worms and other baits without hesitation—behavior that inspired the term "sucker" for a person who is easily duped.

ENRICHING THE SYSTEM

Due in large part to their feeding abilities, suckers have been so historically abundant and widespread in Montana that river ecosystems can't fully function without them, Schmetterling says. As suckers feed, they convert aquatic insects and algae into fish protein that moves throughout the watershed as the fish swim upstream. Depending on the species, a single female sucker produces between 50,000 and 300,000 eggs each spring. "When suckers spawn, most of their eggs stick to rocks, but many drift downstream where they are eaten by aquatic insects and other fish," Schmetterling says.

After the eggs hatch, many larval suckers become food for other species, as do young suckers. Sucker body waste and milt (seminal fluid) also add vital nutrients to streams and rivers. Spawning adults congregating in shallow riffles are easy prey for ospreys, mink, and other piscivores. When the fish die, sucker bodies that aren't consumed by scavengers like bald eagles, bears, and crayfish decompose, adding even more nutrients to the system, similar to how salmon enrich entire Alaskan and Canadian watersheds.

FINE-LOOKING FISH Though most sucker species are olive or gray to avoid detection by otters, ospreys, and other predators, some species can be as vibrant as trout or other salmonids. Here male longnose suckers show off their handsome red body stripe as they congregate during spawning season.

> "Many species are incredibly powerful swimmers, migrating 100 miles or more upstream each year to spawning beds."

READY TO REPRODUCE White suckers churn the water surface as they mill in spawning shallows. Like salmon on the West Coast, these abundant fish add nutrients to river and stream systems from their eggs, milt, and dead bodies when they die.

Ontario scientists who studied a Lake Superior tributary found that, in stretches containing suckers, algae was nine times more abundant, invertebrates were twice as dense, and fish biomass was eight times greater than stretches without suckers. "Here in Montana, it would be impossible to fully restore a river like the Clark Fork without suckers and their essential transfer of nutrients throughout the system," Schmetterling says.

SUPER SWIMMERS

Catostomidae members are also marvels in other ways. "Many sucker species are incredibly powerful swimmers, migrating 100 miles or more upstream each year to spawning beds," says Zach Shattuck, an FWP native fish species coordinator. As with bull trout and westslope cutthroat trout, suckers develop acute homing abilities, keying on the smells of natal streams to return to where they were hatched so they can provide their own offspring the same optimal conditions.

Like elephants, parrots, and tortoises, suckers can be remarkably long lived. Shattuck notes that it's not uncommon for some

CLOCKWISE FROM LEFT: JOEL SARTORE/PHOTO ARK; PAUL VECSEI/ENGBRETSON UNDERWATER PHOTOGRAPHY; TITUS SEILHEIMER/WISCONSIN SEAGRANT

WHAT A BIGMOUTH The bigmouth buffalo is the only member of the sucker family in Montana with a terminal (at the front) mouth. Unlike its cousin suckers, which feed mainly on the bottom, bigmouth buffaloes cruise the main water column filtering zooplankton with gill rakers.

individuals in Montana to reach 40, 50, or even 60 years old—ages determined when biologists count the annual rings formed in calcium deposits, called otoliths, in the fishes' inner ear. In 2019, fisheries scientists in Minnesota verified that a bigmouth buffalo there was 112 years old, having hatched when Theodore Roosevelt was president.

The sucker family is remarkably diverse. While most trout species look pretty much the same except for coloration, suckers range widely in shape, size, and habitats—from sleek 7-inch-long plains suckers in high-altitude streams to beefy bigmouth buffaloes, which can reach nearly 60 pounds in Montana as they swim through large reservoirs and slow-moving rivers feeding on zooplankton.

Though not recognized as such, many sucker species cut a handsome figure, with large pectoral and tail fins that propel their torpedo-shaped bodies through the water. Suckers are often drably colored to avoid predators,

Tom Dickson is the Montana Outdoors *editor.*

> "Bigmouth buffaloes can reach nearly 60 pounds in Montana as they swim through large reservoirs and slow-moving rivers feeding on zooplankton."

but some spawning males are striking. The male longnose sucker, for instance, sports a bright red band along its dark sides. Topping the blue sucker's steel-hued body is a sickle-shaped dorsal fin, a dashing feature also found on shimmering silver river carpsuckers.

GREAT LIPS

Perhaps most remarkable, says Tom McMahon, recently retired professor of ichthyology at Montana State University, is how every sucker species has a differently shaped and angled mouth and lip structure. For instance, a longnose sucker's lips sit at the end of an elongated snout, allowing the fish to wedge its mouth deep into crevices to find food. A blue sucker's lips are covered in wartlike bumps that create additional sensitive surface area for locating a meal. Plains suckers use their hard, flat, spatula-like lower lip to scrape nutritious algae off rocks. "The lip diversity appears to be various adaptations for feeding in different aquatic environments," McMahon says. "That could account for how abundant and

AVOIDING HARVEST SINCE 1907 By counting the age rings in its otoliths, fisheries scientists estimated that this Minnesota bigmouth buffalo was 112 years old, making it one of the oldest freshwater fish ever documented.

FROM TOP: JOEL SARTORE/PHOTO ARK; NORTH DAKOTA STATE UNIVERSITY

ID GUIDE

Montana's Nine Suckers

Illustrations by Joseph Tomelleri

Shorthead redhorse

ID tips: Average size 12 inches. Golden sides, red or orange tail and pectoral fins.

Largescale sucker

ID tips: Average size 14 inches. Dark brassy sides and upper head with cream lower head, lower body, and underside, with dark fins.

White sucker

ID tips: Average size 13 inches. Olive sides with white underside, narrow tail base.

Plains sucker (previously mountain sucker)

ID tips: Average size 7 inches. Extremely narrow body. Dark back and upper sides with dark specks or mottling. Lower body is whitish.

Longnose sucker

ID tips: Average size 13 inches. Long snout with olive back, upper sides, and head. Spawning males sport red sides above a dark band.

Blue sucker

ID tips: Average size 26 inches. Narrow head rising in back to a tall body, then narrowing again to the tail to create an overall "shallow pyramid" profile. Body is bluish to dark olive with a white underside. Sickle-shaped dorsal fin.

Bigmouth buffalo

ID tips: Average size 29 inches. Distinctive terminal mouth (front of head) differs from the subterminal mouth (below head) of other suckers. Dark body, often with a coppery sheen, and dark fins. Light underside.

Smallmouth buffalo

ID tips: Average size 23 inches. Bronze to slate top and sides with a light underside. Dark fins. Mouth angles down at a 45-degree angle.

River carpsucker

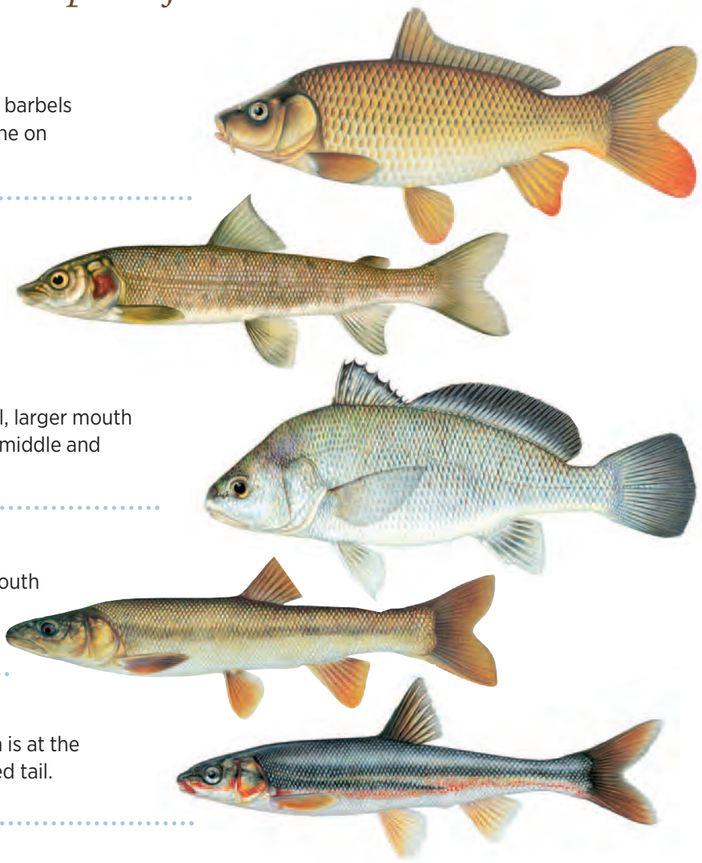
ID tips: Average size 17 inches. Bright, silvery sides, brown or olive back, white underside, and light lower fins. Tall back and sickle-shaped dorsal fin give it a "shallow pyramid" profile.

ID GUIDE

Common Confusables

Illustrations by Joseph Tomelleri

Anglers often mistake these fish species for suckers.



Common carp

Distinguishing nonsucker feature: Pair of small barbels (whiskers) on either side of upper jaw, hard spine on leading edge of the dorsal fin.

Rocky Mountain whitefish

Distinguishing nonsucker feature: Mouth is not rubbery.

Freshwater drum

Distinguishing nonsucker feature: Rounded tail, larger mouth with white lips, long dorsal fin has notch in the middle and spines in the front half.

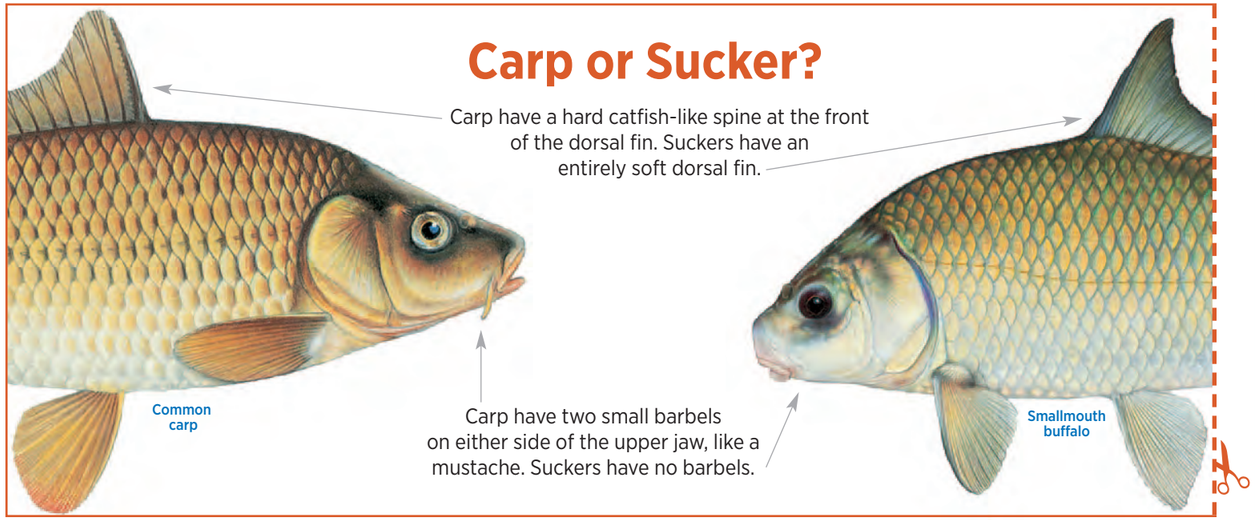
Northern pikeminnow

Distinguishing nonsucker feature: Large flat mouth is at the front of a flattened head and not rubbery. Deeply forked tail.

Peamouth

Distinguishing nonsucker feature: Small mouth is at the front of the head and not rubbery. Deeply forked tail.

Carp or Sucker?



HOLD YOUR SUCKERS The redhorses, like these shortheads, are another sucker category. These sleek, muscular fish often have red tail and anal fins.

widespread suckers are."

And because suckers eat many foods that trout and other species can't reach or process, like snails and mussels, it could also account for why they can produce large populations without reducing numbers of game fish in the same waters.

SCAPEGOATS FOR POLLUTION

Despite their many attributes, suckers have been smeared with a bad reputation. One reason is the very mouth that allows them to feed so successfully. The fleshy, rubbery orifice and protruding lips look a bit too human for some anglers, who cringe when wresting out a hook.

Another strike is the resemblance of some sucker species to the common carp, an invasive species originally from Europe and Asia. (It doesn't help that one group of suckers is called carpsuckers, probably named by Europeans who thought they resembled the *Cyprinus carpio* back home.) Because many anglers hate carp based on a mostly mistaken belief that the fish harm game fish populations, suckers are similarly disdained.

Much of the prejudice against what are grouped together as "rough fish" (also known as "trash fish") comes from the ability of carp, white suckers, freshwater drum, and several other species to survive in warm, polluted water. A common misbelief is that these fish actually prefer dirty rivers and lakes. Some anglers even maintain the fish cause the degradation. They don't.

> "The diversity of sucker lip shapes and structure appears to be various adaptations for feeding in different environments."

FOOD FINDER A blue sucker's lips are covered in tiny bumps that add nerve-rich surface area to help the fish find food in murky warmwater rivers.

But we do. Before Congress enacted the Clean Water Act, cities, towns, and factories piped human waste, industrial chemicals, and other pollutants into lakes, streams, and rivers across the United States. Degradation continues today, though to a lesser degree, with leaky septic systems, feedlot runoff, and other "nonpoint-source" water pollution not regulated by federal law.

Rough fish, whose only "crime" is surviving in water too filthy to support species like trout and walleye, became scapegoats. "No fish chooses to live in dirty water, and some sucker species, like the plains sucker, actually need cold, clear streams to survive," Schmetterling says.

Shattuck notes that anglers also deride suckers as "bottom feeders." It's an odd sentiment, like being disgusted by lambs because they eat off the ground. "Most fish species, game and nongame, feed from river and reservoir bottoms. That's where most of the food is," Shattuck says. "And even though predator fish such as walleye and bull trout usually don't feed directly off the bottom, they eat plenty of fish that do."

Suckers are also wrongly accused of

FROM TOP: ERIC ENGBRETSON; SPENCER NEUHARTH / USFWS

HANDSOME LITTLE FELLA Averaging just 7 inches long, the plains sucker is Montana's smallest member of the Catostomidae family. During spawning season, males show a bold red side stripe similar to that on longnose suckers. Plains suckers are found only in clear mountain streams east of the Divide.

threatening salmonid populations, Schmetterling adds. "Yes, some trout eggs are ingested as suckers consume their usual foods like algae and aquatic insects, but not nearly enough to harm trout populations." He notes that trout and suckers have coexisted for millions of years. "In fact, without abundant sucker populations and all the nutrients they add to river systems, Montana would likely have far *fewer* trout," Schmetterling says.

A FEW BONES TO PICK

Because suckers are so successful at feeding and reproducing, they account for vast amounts of biological matter, known as "biomass," in river systems. The largescale sucker, for instance, is the most abundant species in the Columbia River drainage, Schmetterling says, adding that their very profusion may add to suckers' poor reputation. "Some anglers think that all those spawning suckers they see in spring are crowding out more desirable fish like trout, or taking all their food," he says.

Speaking of food, another sucker myth holds that the fish are inedible. True, they do have bony meat (as do trout and salmon), but people have been dining on suckers for thousands of years. Native people trapped spawning suckers in weirs, consuming the eggs and preserving the meat with smoke. Pioneers and then rural Montanans well into the 20th century netted and gigged white and blue suckers for canning and smoking. Bones are easily picked out of smoked or canned meat and can be made edible in fried fish by scoring the fillet with a knife beforehand to allow cooking oil to penetrate and soften the ribs. East of the Mississippi River, bigmouth buffalo, smallmouth buffalo, and other commercially harvested suckers are still commonly sold as food fish, especially in Asian markets.

> "Given the diversity of the fish and their habitats, sucker fishing is a great way to learn about what goes on below the water's surface."

OFF TO THE TAXIDERMIST FWP maintains state records for all sport-caught sucker species. Here Jacob Bernhardt holds his record 3.42-pound longnose sucker caught in the Missouri River near Great Falls in 2021.

A small but growing number of anglers recognize the fine taste and sport of suckers. Foremost are "rough fishers," who post on the roughfish.com blog and celebrate the biological diversity of suckers and other fish species they catch. Some maintain rough fish "life lists," just as birders do.

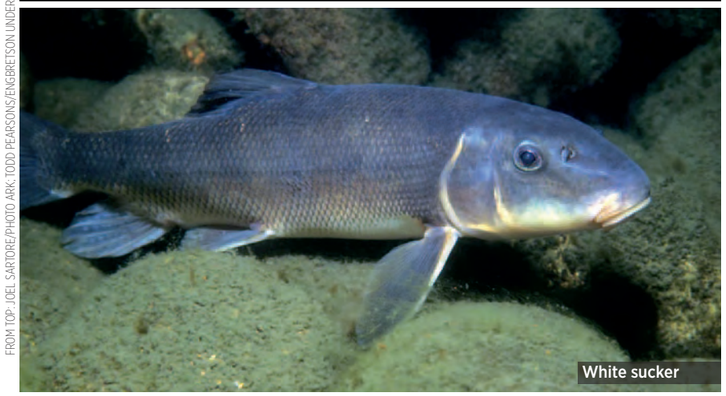
Few Montana anglers appear ready to join the sucker celebration. Schmetterling says he currently sees little interest among the mostly trout- or walleye-focused anglers he meets while working during the week or fishing on weekends. "It's such a missed opportunity," he says. "Given the diversity of the fish themselves and the habitats they inhabit, fishing for suckers and other so-called rough fish is a great way to learn about what goes on below the water's surface."

FROM TOP: NATHAN ABBOTT, MONTANA FWP

River carpsucker

Largescale sucker

Smallmouth buffalo



White sucker

FROM TOP: JOEL SARTORE/PHOTO ARK; TODD PEARSONS/ENGBRETSON UNDERWATER PHOTOGRAPHY; JOEL SARTORE/PHOTO ARK; ERIC ENGBRETSON

Sucker distribution across Montana