In the Clear

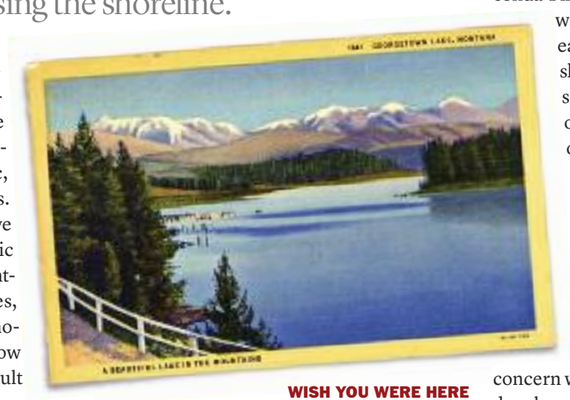
Despite growing lakeside development, Georgetown Lake remains healthy and full of fish—for now. **BY NICK GEVOCK**

NO WONDER Georgetown Lake's appeal is apparent at first glimpse. Located 47 miles west of Butte, the reservoir is a scenic recreation destination framed by the Pintler (shown here), Sapphire, and Flint Creek Mountains. Photo by Chuck Haney.

Steve Luebeck of Anaconda grew up fishing nearby Georgetown Lake. He's seen it change through the years, with more anglers and, especially, more shoreline houses. But one thing has remained the same: Georgetown continues to produce top-notch trout and kokanee salmon fishing for anglers of all abilities. "My kids have caught 20-inch rainbows right off the beach," says Luebeck. "You can walk right down to the lake and see big fish just cruising the shoreline."

It's been that way for decades. But in recent years, area residents have feared that Georgetown's great fishing might be threatened. Growing development has encircled the scenic, high-altitude lake with homes. With the additional housing have come dozens of new septic systems, which can leach nutrient-laden wastewater. In many lakes, the excess nitrogen and phosphorus can make water murky, grow thick mats of vegetation, and result in fewer fish.

Is that in store for Georgetown Lake, a scenic mountain paradise and one of Montana's most productive and popular sport fisheries?



WISH YOU WERE HERE Georgetown Lake has been attracting anglers, boaters, and scenery lovers since it was first impounded in the early 1900s.

Flooding the flats

Georgetown Lake is technically a reservoir, originally created in the late 19th century by impounding North Fork Flint Creek in a meadow known as Georgetown Flats. In 1901, Flint Creek Dam was enlarged by the Montana Water, Electric Power, and Mining Company to produce electricity for nearby mining operations. Today Georgetown's primary purpose is to store water for hydropower and downstream irrigation, as well as sustain a popular recreation lake for boating, swimming, and fishing.

State fish stocking records date to the 1920s, according to Brad Liermann, the local biologist for Montana Fish, Wildlife & Parks. He says that for years anglers were allowed a daily limit of ten fish or 10 pounds of fish, which resulted in high harvests that reduced the average size of rainbow trout to just 10 inches long. In the mid-1980s, FWP tightened the limit to five fish per day. Since then, says Liermann, the lake's rainbows have grown to average about 14 inches.

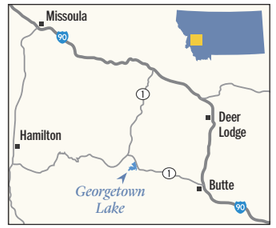
The shallow 2,088-acre lake is extraordinarily prolific, producing some of the best trout and kokanee salmon fishing in the state and attracting more angling pressure per acre than any reservoir in Montana. Georgetown consistently ranks in the top 10 most-fished waters in Montana.

The lake also attracts boaters, windsurfers, waterskiers, snowmobilers, and campers from throughout western Montana and beyond. With 25 miles of shoreline that winds along bays, inlets, and points, Georgetown is framed by the Pintler, Sapphire, and Flint Creek Mountains contained within the Beaverhead-Deerlodge National Forest. Tourists can take in the lake from the Anaconda-Pintler Scenic Route (Montana Highway 1) running along Georgetown's east shore. Though much of the shoreline is private, visitors can find several U.S. Forest Service, FWP, and other campgrounds to set up a tent or park an RV.

Residents worry

Concerned that their increasingly popular lake was being loved to death, members of the Georgetown Lake Homeowner's Association began looking into ways to fund a water quality study. Their concern was that booming cabin and home development were overloading the water with nutrients. Too much nitrogen and phosphorus in a lake can boost the growth of aquatic plants. In winter, the abundant vegetation dies, which can cause fish die-offs due to oxygen depletion.

In 2009 Craig Stafford, a University of Montana researcher, began to study the lake's water quality with help from several of his former students. The project was funded through the Granite County Conservation District with a grant from the state Natural Resource Damage Program. The Montana Department of Environmental Quality contributed too. In addition to oxygen levels, Stafford and his crew measured nitrogen and phosphorous. They also investigated the composition and concentrations of the water's phytoplankton and zooplankton—tiny plants and animals suspended in the water column.



BUCKING THE ODDS Despite increasing numbers of homes popping up on the lake's shoreline (right), a new study shows that Georgetown Lake remains relatively clear (top). Big rainbow trout are often visible cruising the reservoir's shallows.

FWP and graduate student researchers had previously accumulated extensive water quality data before the lake was heavily developed. "State biologists have been measuring winter dissolved oxygen levels since the 1970s," Stafford says. "We took various measurements over two years and compared them with the past data."

The research scientist found that, contrary to expectations, nutrient concentrations in Georgetown Lake's water have actually declined, leading to less phytoplankton and clearer water than in years past. What's more, recent FWP population surveys found that Georgetown continues to support abundant and healthy fish populations, though the average size of its kokanee has declined. Stafford suspects that the smaller size may be due to lower densities of zooplankton, the salmon's preferred food.

Stafford's project also called for mapping, from an airplane, the lake's abundant beds of whitestem pondweed and comparing the coverage to maps from 1975 and 1981 that were created by a Montana State University graduate student. He found that the amount of vegetation has expanded substantially over the past 30-plus years. "That could indicate a shift in how the nutrients in the lake are being used, with more now in the form of aquatic vegetation and less in the form of phytoplankton," says the research scientist.

What about all those new septic systems? Though Stafford didn't evaluate the amount of nutrients added by the household wastewater facilities, he speculates that more phosphorus and nitrogen is entering the lake. But the additions have been more than offset by increased nutrient uptake by aquatic vegetation and the loss of nutrients when bottom water is released from the dam's base in winter.

Dodging winterkill

In the right amounts, aquatic vegetation is great for fish, says Liermann. "When a lake produces lots of plant growth, that produces lots of aquatic invertebrates, which in turn produce lots of fish," he explains. "It goes right up the food chain."

That's fine when plants are alive. But after vegetation dies, microbes consume it, using up the water's dissolved oxygen with their activity. This biological process rarely happens in summer and fall, when sunlight reaches underwater plants and wind stirs water, adding oxygen from the surface. But it often occurs in winter, when ice blocks

Nick Gevock, conservation director for the Montana Wildlife Federation in Helena, spent many days fishing Georgetown Lake while working as a journalist in Butte.

CLOCKWISE FROM TOP: ROBIN POOLE; STEVEN AXFORD; *MONTANA OUTDOORS*

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CLOUDIER PAST Several years ago (top), Georgetown's water was murkier than today. One reason for the change could be that nutrients are now being used by whitestem pondweed (left) rather than phytoplankton. Prudent winter water releases from the base of the dam (above) could help forestall fish die-offs once the vegetation dies.

sunshine and wind action ends. "Winterkill," common to ponds in eastern Montana, can result in large numbers of fish suffocating from too little dissolved oxygen.

As a shallow lake sitting high at 6,400 feet, Georgetown is sheathed in ice from mid-November to May. Fortunately no major fish kills have occurred over the last three decades. An important reason, says Liermann, has been the way in which water releases are managed. "One of the biggest causes of low dissolved oxygen levels in winter is too large of a drawdown," he explains. At the end of the ice season in April and May, only the top 3 feet or so of Georgetown's water column under the frozen surface contains enough dissolved oxygen for trout and salmon survival. "If the lake were drawn down just another 1.5 feet, that would take away 50 percent of the habitable water for these fish."

Liermann says FWP cooperates with the Granite County commissioners (the county owns the dam), Flint Creek Water Users, Georgetown Lake Homeowner's Association, and U.S. Forest Service on water management. "The goal has been to maximize pool storage before and during winter, while balancing other important water uses such as irrigation for downstream landowners," Liermann says.

Also keeping Georgetown healthy are two tributaries that provide fresh water to the lake as well as extensive groundwater that boosts dissolved oxygen in some spots.

Nutrients tend to sink. Because water is released from the dam's base, some nitrogen and phosphorus is regularly flushed out of the lake system. "Georgetown's bottom withdrawal may also be a factor in the paradox of declining nutrients in the face of increasing housing development," Stafford says.

But that could change, says Pat Saffel, FWP regional fisheries manager in Missoula. One major finding in Stafford's study is that the Georgetown Lake's dissolved oxygen levels at the end of ice season have been falling over the years, perhaps as a result of more weed bed decay. "It's a very delicate system," Saffel says. "[Septic system] nutrients may not be in the water, but they are in the lake system as vegetation. When those plants die during a long winter with extended ice cover, we may see some severe dissolved oxygen depletion."

Different species

Georgetown Lake's rainbow trout, brook trout, and kokanee salmon fisheries remain productive. Liermann says rainbows of 15 to 20 inches are common, with an occasional fish reaching 22 inches, or about 5 pounds. He adds that FWP manages Georgetown Lake's rainbows as a harvest fishery. The department stocks roughly 200,000 rainbows per year, and the fish grow fat in the shallow, productive lake. "We want people to be able to take fish home, so we let them keep five rainbows," Liermann says. "The only drawback is that when you let people keep that many, there's going to be a limit on how large the average fish size can get."

Luebeck, the Anaconda angler, says he mainly pursues rainbows, fly-fishing from a boat. "These are heavy fish that tend to put on more mass than river fish, because they don't have to fight current all day," he says. "At the hookup, there's a big, explosive run. You need an 8-pound-test tippet to handle those fish and muscle them up and out of the weeds."

Georgetown Lake also holds a healthy, self-sustaining population of kokanee salmon, another popular food fish. Anglers from throughout western and central Montana come to Georgetown to put the nonnative fish in their coolers.

The trout and salmon draw anglers summer and winter. Ice anglers learn where underground seeps feed the lake with oxygen, causing fish to congregate. On winter weekends, portable ice fishing huts, makeshift shanties, and anglers braving the cold and wind dot the lake's eastern side just off Montana Highway 1.

Anglers looking for trophy trout focus their attention on the lake's non-native brookies. A smaller species than the rainbow, brook trout in most lakes rarely reach 14 inches. In Georgetown they can top 20 inches. "I don't know of any easily accessible lake in Montana where you can catch brook trout that big," Liermann says.

Luebeck recalls a day two summers ago when his son's friend pulled in a brookie that weighed over 6 pounds. "It was a world-class brook trout," he says. "I've never seen anything like it."

Liermann says that liberal limits during the late 20th century, and perhaps whirling disease in recent years, caused brook trout numbers to decline. In 2004, FWP instituted catch-and-release-only regulations on the colorful eastern United States native and began supplementing the population with hatchery fish. Within less than a decade, numbers had increased tenfold. The department then began to allow anglers to keep two brook trout as part of the five-fish daily limit.

> "With this approach, the lake ends up with the best of both worlds."

That may have been too liberal. Recent netting surveys suggest that Georgetown Lake contains fewer trophy brook trout since FWP began allowing anglers to keep two. Liermann says the department is considering dropping the limit to one brook trout per day or using some other more restrictive regulation in a further attempt to maintain or increase trophy-sized fish in the lake.

"People love this lake as a place where they can come up and catch rainbows and kokanee and take them home," Liermann says. "But with brook trout, we want Georgetown to be a place where you can catch a trophy. With this management approach, the lake ends up with the best of both worlds—two different fisheries for people who want fish for the freezer and another one for those wanting the brook trout of a lifetime."

For now, Georgetown is able to produce this remarkable combination. Whether it can continue doing so may depend largely on how many people build homes on the scenic lake's shoreline and whether those who use its water for a wide range of purposes can continue to work cooperatively.

FAMILY FRIENDLY Despite increased housing and boating, the Georgetown Lake area remains wild enough for wildlife and people to coexist. Offering spectacular scenery and beefy trout, the lake continues to attract residents and visitors looking for lakeside living and camping in the mountains.

CLOCKWISE FROM TOP: RICH CLARK; *THE MONTANA STANDARD*; DONALD CAMERON

FROM TOP: STEVEN MORE; ROBIN POOLE