A Tale of Two Reservoirs II

Fisheries Fortunes Changing Between Oahe, Sakakawea

By Craig Bihrle

Six years ago, anglers searching Internet websites for advice on productive Midwestern walleye fisheries would not have found anything resembling the following statement:

"There are a lot of great fisheries on this planet, but right now Oahe is really something special!!"

This declaration was posted on February 1, 2007 on a website called South Dakota Outoors, by someone whose alias is "ndcarp-shooter." It refers to Lake Oahe, one of two large reservoirs that are usually part of the Missouri River System in North Dakota.

At the moment, the water level in Oahe is down so far that the lake environment currently starts south of the border. However, the fishery to which "ndcarpshooter" refers is still supplying the Missouri River in North Dakota with abundant healthy walleyes. That's a positive change from six years ago when *North Dakota OUTDOORS* took a comparative look at the fisheries in Oahe and Lake Sakakawea, the state's other Missouri River reservoir, in a story titled "A Tale of Two Reservoirs."

At the time, Oahe was a lake out of sync, while Sakakawea was coming off a record walleye harvest with excellent prospects for the future. Now, Oahe is getting rave reviews, and while walleye fishing at Sakakawea has remained relatively consistent as water levels have declined, the fishery is undergoing a change.

"At least for this year, fishing on Sakakawea is going to be pretty good," says North Dakota Game and Fish Department fisheries biologist Jeff Hendrickson. "We've still got a lot of walleyes out there and they're hungry."

Compare that to a statement Hendrickson made six years ago about walleyes on Oahe: "They're hungry," he said. "They're starving, basically … a lot of them are dying naturally."

And so goes the cycle. Reservoir fish populations generally change as Mother Nature and human policy influence water levels. While some developments are predictable, the evolving fortunes of Oahe and Sakakawea have some unexpected twists as well.

A Look Back

Ten years ago, Oahe and Sakakawea were operating at approximately full pool, or something like 40 feet higher than their present elevations. Record snowfall on the plains and above average snowpack in the mountains that feed the Missouri River System set the stage for unprecedented emergency measures. As surging mountain runoff began accumulating in Lake Sakakawea in summer 1997, water started splashing over the emergency spillway at Garrison Dam.

To keep pace with incoming water, the U.S. Army Corps of Engineers, which manages the lake, opened the dam wide and began sending record amounts of water downstream toward Lake Oahe. In time, the corps had to let water out of Oahe as fast as it was coming in.

This unprecedented water release occurred at a time of year – late summer – when rainbow smelt typically were concentrated in the deep water near Oahe Dam, which is located just north of Pierre, South Dakota. Millions of smelt got caught in the outflow.

Combined with an adult smelt die-off in 1996, South Dakota biologists estimated the reservoir lost 96 percent of its smelt population within a couple of years. Since smelt are the primary forage for game fish in both reservoirs, such a phenomenon couldn't have come at a worse time, as Oahe just happened to have a record walleye year-class, spawned in 1995, to support.

The consequence was that by 2001, most of those 6-year-old Oahe walleyes were still 14-15 inches long and weighed around a pound, instead of the normal 17-22 inches and 2-4 pounds.

According to a Game and Fish Department creel survey in 1997 before the impacts of Oahe's smelt population crash, anglers kept 180,000 walleyes that averaged 1.6 pounds each. In 2000, another survey indicated a similar high catch rate – 177,000 fish – but with an average weight of only 0.8 pounds.

At the same time, Sakakawea's walleye population was a picture of health. The reservoir did not lose many smelt during its own 1997 flush, and high water levels provided ideal conditions for these forage fish to flourish. In 2000, Sakakawea anglers harvested nearly 500,000 walleyes that averaged

1.75 pounds each. "We have a lot of young fish," Hendrickson said at the time, "so we're in good balance, and there's lots of big fish available too."

Despite an exceptional walleye fishery, biologists were already voicing concerns about Sakakawea's falling water levels. In 1997 the summer high elevation was above 1,850 feet mean sea level. By 2001 the summer peak was just above 1,830 feet msl. Fisheries biologists have determined that 1,825 feet msl is the benchmark for maintaining enough cold water in the reservoir to support high rainbow smelt populations. Anything below that and smelt begin to decline, which means less food for the two species that eat them the most – walleye and chinook salmon.

The estimated peak elevation for Sakakawea this summer, based on March 2007 forecasts, is 1,807 feet msl. Since the lake level has declined more than 20 feet since 2001, true to predictions, Sakakawea's smelt population has declined by more than 90 percent since 2001, similar to what happened at Oahe nearly 10 years ago.

The Oahe Turnaround

The water level on Oahe has fallen along with that of Sakakwea. It peaked at 1,618 feet msl in 1997, evaporated to less than 1,600 feet msl in 2001, and currently is projected to peak at around 1,575 feet msl this summer, *43 feet lower* than 10 years ago.

At its normal operating level, Oahe's headwater, or zone where river starts changing into lake, is just south of Bismarck. Now, the river cuts through its old channel all the way through North Dakota. The water doesn't start to pool until somewhere near Pollack, South Dakota, some 60 miles from its normal headwater.

Curiously, mild winters and drought conditions that are partly responsible for reduced reservoir water levels may also have a role in the resurgence of Oahe's walleye fishery.

While rainbow smelt numbers are still reduced in Oahe compared to 1996-97, and probably won't improve until the water level comes up substantially, over time gizzard shad and other fish have begun to fill part of the niche previously occupied by smelt.

Shad were initially stocked as forage fish in smaller western South Dakota reservoirs connected to the Missouri River System. North Dakota Game and Fish also stocked them in Bowman-Haley Reservoir and Dickinson Reservoir in 2002.

The Missouri River south of Bismarck (pictured) has a mix of resident walleyes and fish that migrate upstream from Lake Oahe. While the headwaters of Oahe are no longer in North Dakota, walleye fishing has been good in the river environment from Bismarck-Mandan all the way to South Dakota.

CRAIG BIHRLE

The philosophy was that adult shad stocked in spring would reproduce, and young-of-the-year shad would then provide a food source for game fish later in the summer and into fall. Since shad are warm-water fish that are not very tolerant of cold water temperatures, all of them were expected to die over-winter under the ice.

Because of recent mild winters, however, gizzard shad that migrated downstream into Lake Oahe have survived over winter for several years, allowing the population to expand. Young shad are now a significant forage for Oahe's walleye. "We really started seeing all those gizzard shad young-of-the-year in 2005," says fisheries biologist Jason Lee.

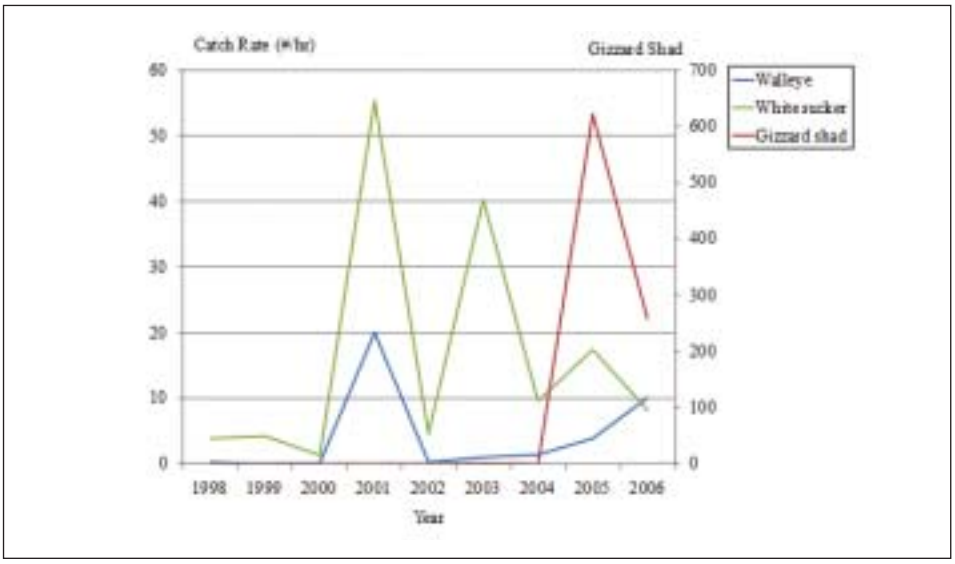
That upsurge in forage matched nicely with a good walleye year-class spawned in 2001. That's likely the year-class that has made Oahe "something special" in the minds of Internet conversationists. While none of that lake environment fishing is occurring in North Dakota, some of those fish move into the river all the way up to Bismarck and beyond. Walleyes were abundant in the Missouri River last spring, Lee said, and fishing was very good in the Bismarck-Mandan area. "Things are looking better on the river, that's for sure," he noted.

Walleye fishing would likely be good in places all the way to the state line, says Game and Fish Department fisheries chief Greg Power, but angler exploration in this stretch of river has not been very high the last few years.

While boating access is certainly not up to par with what it was 10 years ago, there are still places where anglers can get boats in the water. The northern end of traditional Oahe, Power said, has several more access points than a similar area on the western end of Lake Sakakawea where the former reservoir headwater is also a flowing river channel.

A few years from now, Power predicts, Oahe will be "back to 8-pound-plus walleyes," because of the shad, and also cisco or lake herring, another forage option that became established after the smelt population crashed.

This chart shows that Missouri River walleye numbers have increased steadily since 2002. At the same time, a new forage fish – gizzard shad – have at least temporarily populated the river to help feed the river's game fish.



Game and Fish biologists have been using electrofishing to survey Missouri River fish populations in recent years. In 2005 gizzard shad began showing up in high numbers all the way up to Bismarck. Jason Lee (left) and Wes Erdle also noted a good crop of young walleyes in fall 2006.

CRAIG BIHRLE

"I don't think you'll ever have full recovery until you get the water back," Power concluded, "but for now, fishing on the river can be pretty decent, and there's not many people out there exploring the river in Emmons County."

Sakakawea's Saga

In 2006, Power said anglers caught about 1 million walleyes on Lake Sakakawea and kept 500,000, a catch rate similar to the best years following the lake's record rise. Hence the recent jostling as to whether Oahe or Sak is better.

"Come and fish Van Hook (the Van Hook Arm on Sakakawea) in late May, mid-June and you might second guess yourself. Regardless, both fisheries are great," wrote another South Dakota Outdoors forum participant in response to a post promoting Oahe's virtues.

The difference is that while Oahe's walleye population is in better condition and balance than it was six years ago, Sakakawea's is not. "Fishing success isn't just related to how abundant fish are," says Hendrickson. "It also depends on how hungry they are … we may have fewer walleyes (in Sakakawea) right now, but since more of them are hungry they may be easier for anglers to catch."

That's most likely why the angler catch rate for walleye is higher than it was six years ago despite a reservoir adult walleye population that is about half of what it was in 2001, according to Game and Fish annual surveys. The other factor involved is that the lake has about half as much water volume, which serves to concentrate fish somewhat.

The primary reason Sakakawea walleye are hungry is a smelt population that has declined more than 90 percent since 2001. They didn't all go out at once like what happened at Oahe, but rather died off over several years as the water gradually ran out, taking with it the coldwater habitat smelt need.

Sakakawea does have cisco and they have multiplied considerably. Emerald shiners are also becoming more abundant, Hendrickson noted, but neither are as prolific as smelt. Also, ciscoes outgrow their value as walleye forage after their first year. "A smelt is food its whole life," Hendrickson emphasized.

Gizzard shad are not the answer in Sakakawea, either. While they have been able to overwinter in Oahe for a few years, Game and Fish biologists do not believe that would happen in Sakakawea, given the lake's history of ice cover. Gizzard shad are not known to survive in lakes that have ice cover for more than 100 days a year, and Sakakawea has always exceeded that.

Similarly, while gizzard shad are currently providing a windfall of forage for Oahe, they could all be gone following a winter that settles in early and stays late.

A Tale of Two Lakes III?

Between March 1993 and August 1997, water levels for both Sakakawea and Oahe rose by more than 30 feet, flooding vegetation that had grown up along shorelines and creating an environment for rapidly expanding fish and forage populations. Eventually, because of weather, a change in reservoir management policies, or both, North Dakota's two Missouri River reservoirs will experience another water level increase.

"We need a huge event," Power said. "A 5-foot rise doesn't do us a lot of good anymore, other than heading in the right direction. We need double digits."

When that happens, whether it's this summer or years down the road, Game and Fish can enhance recovery because of its walleye stocking program, Power said.

Currently, however, stocking is not beneficial. Game and Fish stocked 3.8 million walleyes in Sakakawea in 2005 and realized poor survival on those fish. No walleyes were stocked in 2006, and there are no plans to stock in 2007.

Because forage is reduced, Hendrickson said, stocked walleyes become prey themselves, and those that do survive wouldn't grow much.

"Without abundant smelt we're going to have to accept a smaller population of walleyes," he added. "But in the near future, the fishing's going to be good."

CRAIG BIHRLE is the Game and Fish Department's communications supervisor.

Despite low water levels on Lake Sakakawea, boating access this summer should be similar to last year. It should be another good year for fishing as well.

CRAIG BIHRLE