

Sakakawea Stocking Strategies

The solution to a less-than-desirable fish population is not always to stock more, or any, fish.

It's a concept that has attracted a fair amount of attention recently as North Dakota's Lake Sakakawea has expanded by more than 20 feet in depth, and approximately 70,000 surface acres, since this time two years ago.

With all that new water, some anglers, based on the concept that more water means more room for more fish, wonder why a Game and Fish Department walleye fingerling distribution unit did not make a stop at Sakakawea sometime during the annual stocking run in late June and early July.

The answer to that question has its roots in 40 years of lake surveys that began about the same time Sakakawea reached full pool in the late 1960s. Every year since then, Game and Fish biologists have surveyed the lake's adult fish population in summer and assessed each year's production of young fish in fall.

Part of that summer survey involves measuring, weighing and aging fish to come up with a benchmark called relative weight. In simple terms, relative weight is an assessment of whether a fish weighs about what it should, given its length and age. For instance, a 3-year-old walleye should measure about 14 inches and weigh about a pound. The ideal relative weight for a North Dakota walleye is about 95.

If the relative weight is much below 90, fisheries managers start to wonder if walleyes in that water are getting enough to eat. Then the

investigation begins. Is it too many fish for the available forage, or not enough forage?

Sometimes, adding a forage fish to the water is the solution, or, if the water is periodically stocked to maintain the game fish population, reducing the stocking rate could bring the population down to a better balance with the forage.

In Sakakawea, walleye relative weights have been below 90 all but one year since 2000, and the last



Lake Sakakawea will not receive walleye fingerlings this year because the lake is having trouble providing food for the fish it already has.

three years close to 80, the lowest since smelt were stocked in the reservoir in 1971. That tells fisheries managers the predator population is out of balance – too many walleyes for the amount of prey available.

In summer 2008, surveys revealed Sakakawea was carrying its (tied for) third highest population of 10-15-inch walleye ever. Those fish account for about 70 percent of the walleyes in the lake. So, the fish to carry the population into

the future are there, they just aren't growing because there's not enough to eat.

"There are not missing year-classes out there," Missouri River System supervisor Dave Fryda noted at an information meeting in March. "There's some weaker year-classes, but there's kind of a misconception that we're not going to see any fish coming up because we haven't stocked the last few years. That's just not the case. We have this good abundance of small fish ... we have plenty of small fish that are sitting there, ready to grow into the angler's range when the system recovers."

Comparing Droughts

Since Lake Sakakawea reached full pool in the late 1960s, two dry periods have occurred – one from about 1988-92, and the other from 2002-08 – that served to lower the lake below 1,825 feet above mean sea level. This is a key factor, because at that level biologists feel the amount of coldwater habitat is reduced so much that the lake's main forage fish, rainbow smelt, begins to suffer.

In addition, much of the best walleye and smelt spawning structure is above the 1,825 mark. During both drought periods the lake level fell well below 1,825, but during the most recent drought it remained below 1,825 for a full five years, longer than the lifespan of a rainbow smelt.

The last good year for smelt reproduction on Sakakawea was 2002. Few smelt live longer than four years, so fisheries biologists

anticipated a noticeable decline in forage abundance when that year-class died off. In 2007, smelt abundance was down 90 percent from 2000. In 2008 the smelt population declined even more.

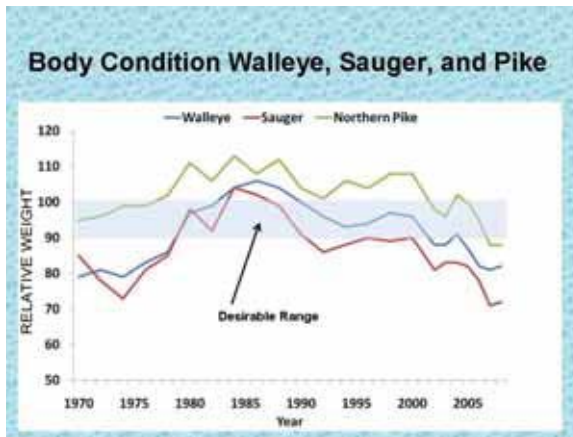
During the 1988-92 drought the smelt population also declined, but not nearly so much as over the past several years. At no time during that period did walleye relative weight in Sakakawea fall below 95.

“Our relative weights were telling us we could still have more fish out there,” Fryda said, “So we did stock during that last drought, but it just didn’t produce many fish, even though we stocked.”

In fact, during two of those years – 1988 and 1992 – survival of stocked walleye was about the same as natural reproduction the two years when Sakakawea was not stocked. That tells biologists that even in years of fair or poor natural reproduction, Sakakawea’s walleyes can produce enough young to match or exceed what can be accomplished with stocking millions of fingerlings.

The analogy fisheries biologists use to describe the current situation is that of a rancher holding back cattle from a drought-ravaged pasture. The grass needs to come back before the pasture can support more animals. In Sakakawea, the smelt need to come back so the lake can support the number and size of walleyes to which anglers are accustomed.

Stocking walleyes now would only lead to likely severe predation on fingerlings. When they’re hungry, walleyes and other game fish are not averse to eating young of their own kind, so stocked fingerlings would likely draw considerable attention, leading to a waste of walleyes that could have helped other waters. As it is, 2009 had the highest request



The shaded area in this graphic indicates the desirable relative weight or body condition for walleyes (blue line) in Lake Sakakawea. For the last few years, the line is well below where biologists would like to see it.

ever for walleye stocking throughout North Dakota, both in terms of number of fingerlings and number of lakes, and that is without any walleye going to Sakakawea or Devils Lake.

The current situation at Sakakawea is somewhat similar to what occurred at Lake Oahe in the late 1990s and early 2000s. Due to downstream migration and die-off, Oahe lost most of its smelt at the same time the lake had a bumper crop of young walleye coming up. The result was a high population of slow-growing walleye because of a lack of smelt.

While anglers often release walleyes less than 13 inches in length, North Dakota encouraged people to keep these fish, and South Dakota increased its daily walleye limit for Oahe in an effort to reduce the walleye population until the forage came back.

While smelt have returned to some extent in Oahe, the more-or-less accidental appearance of gizzard shad has helped fill the forage niche and now Oahe’s walleye fishery is in excellent shape.

Unfortunately, gizzard shad would not help Lake Sakakawea. Biologists have studied the possibilities extensively and concluded that over-winter survival in Sakakawea is unlikely. Without over-wintering,

there is no practical way that enough shad could be stocked annually to make any difference. Even if they could survive, neither North Dakota nor Montana want gizzard shad to migrate from Sakakawea up the Yellowstone River, where they could complicate management efforts for other fish.

The short-term good news is the rising lake level will likely help promote a bumper crop of young fish of other species this year, to sort of bridge the gap until smelt return. Fryda

says Sakakawea still has millions of smelt – just not hundreds of millions – that can multiply to former abundance in a few years as long as the lake level stays about where it is, or rises higher.

Sakakawea also has a good population of harvestable walleyes in the 14-15-inch range, though not a lot of larger ones. “It’s just where we’re at for the next couple of years,” Fryda said.

“Stocking is a tool,” he added. “During the right time it does wonders, during the wrong time it can cause you nightmares, and it’s not a guarantee.

“We need to recover that forage base, and when we do, we have this good abundance of fish that are going to quickly move into the real desirable range for anglers.”

What do you think?

To pass along your comments, send us an e-mail at ndgf@nd.gov; call us at (701) 328-6300; or write North Dakota Game and Fish Department, 100 N. Bismarck Expressway, Bismarck, ND 58501.

(Note: to view video presentations on the fishery status at Sakakawea, Devils Lake and the Missouri River/Lake Oahe, visit the Game and Fish Department website at <http://gf.nd.gov/multimedia/news/fish-mtg-2009.html>.)