

Above: “The Shovel Fish Rag,” sheet music, 1908.

Most often known as the paddlefish, *Polyodon spathula*, this cartoonish looking fish has also been called Spoonbill, Spoonbill cat, Spoony, Shovelnose cat, Shovelbuild cat, Duck-Bill cat, and Spadefish.

Because Truman Dam would block the large population of Lake of the Ozark’s paddlefish from their spawning grounds on the upper Osage River, they became one of the Environmental Defense Fund’s principal objections to the Harry S. Truman Dam and Reservoir.

“What are you boys calling this case?” Judge Oliver asked the attorneys for the intervenors as the second pretrial session in his “woodshed” was about to begin. “The paddlefish case, your honor,” chuckled Lyman Field. “That figures,” smiled the judge.

As the 1908 shovel fish sheet music cover illustrates, the odd-looking paddlefish has from time to time evoked mirth. Hernando de Soto was the first European to describe the prehistoric fish. He did not apparently find it all that amusing. When de Soto encountered one netted by Indians on the banks of the Mississippi River in 1541, he was near the end of his long quest for gold and silver in the New World. After observing a 150-pound catfish he notes that “there was another fish called the *pexe palla* [‘spade fish’ in Portugese]. Its snout was a cubit in length and the tip of its upper lip was shaped like a shovel.” In less than a year, the conquistador would be joining his newly discovered fish at the bottom of his newly discovered great muddy river.

For such an unusual creature, and one that has been of considerable economic value, there is little reliable historical documentation. Until the 1960s, there was little scientific study. Once found throughout the Mississippi system in enormous numbers, these large—up to 150 pounds or more—cartilaginous fish have vanished from four of the twenty-six states where they once swam. Throughout much of this territory their status is “of concern,” if not endangered. Dams block access to spawning grounds and pollution causes egg mortality.

As they feed on tiny zooplankton, which they locate with electroreceptors in their rostrum (paddle) and which they strain through a system in the gills (somewhat like baleen whales), they cannot be induced to bite a baited hook. Before the modification of the nation’s rivers by Army Engineers and overfishing greatly reduced their abundance, they were netted commercially. Beginning in the 1940s, it was discovered they could be caught by jerking or trolling big treble hooks with heavy tackle when they accumulate on spawning runs up into rivers. On the upper Missouri, this annual run ended below dams, concentrating them even more. The greatest snagging opportunity ever was on that part of the Osage between Warsaw and Osceola that would be buried under the Harry S. Truman Reservoir.

Before Bagnell Dam closed in 1931, it’s possible the Osage River was the greatest paddlefish spawning ground in the entire Mississippi watershed. It is a major stream with hundreds of miles of gravel beds to which fertilized eggs can stick. Like their relative the sturgeon, paddlefish will migrate incredibly long distances to reproduce. Adult paddlefish thrive in slower waters, even lakes where they can swim night and day their cavernous mouths straining zooplankton. The very

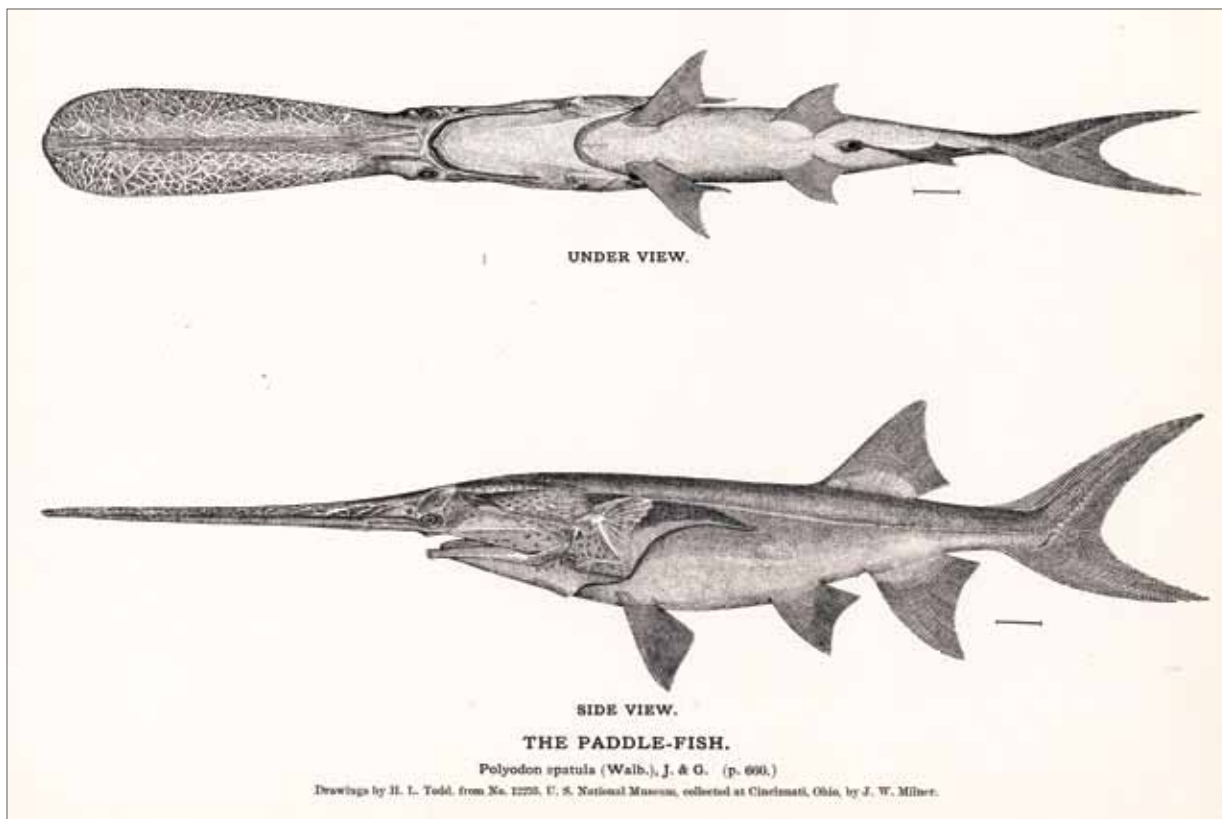


Left: Fisherman landing a large paddlefish in the Osage River, 1971. Paddlefish weighing 60 to 90 pounds were not uncommon. In recent years, the roe has been processed and sold as caviar in some states. Missouri does not allow the sale of wild game or their products.

In 1997, the paddlefish was made Missouri's state fish. In 1972, the state sided with the Corps of Engineers whose dam on the Osage at Warsaw threatened the largest and most stable population in the Mississippi system.

Below: Most paddlefish in the past were caught in nets. Occasionally they would be accidentally snagged on set lines as this circa-1900 photograph appears to show. Locale unknown. Blind snagging with rod and reel for paddlefish is a relatively recent sport





**Above: Drawing from *The Fishery Industries of the United States* (1884):**

**“The Paddle-fish, or Duck-bill cat is one of the most characteristic fish of the rivers of the Western and Southern States. It reaches a length of four to six feet, and a weight of 30 pounds or more. It feeds on minute organisms present in mud. The long snout or spatula is used to stir up the mud on which, and the animals within, the fish feeds. The fish is rarely or never used as food.”**

**Inaccurate as the written description is, the drawing seems to have been done from a fresh fish. Many early portraits of paddlefish are distorted, probably from using pickled specimens as models.**

last thing on Ralph Street’s and Walter Cravens’ minds were providing a sanctuary for adult paddlefish, but that’s how Lake of the Ozarks turned out. In the quiet arms of the impoundment, trapped paddlefish thrived. When the waters of the Osage River warmed to 55 degrees, they would swim a hundred or more miles upstream to spawn.

It wasn’t until 1961 that anyone actually observed paddlefish spawning when Charles Purkett, a fisheries biologist with the Missouri Department of Conservation, saw them release eggs and milk over flooded gravel bars on the upper Osage. Since then, some eggs and larva (which don’t have a paddle when hatched) have been sporadically collected elsewhere. The Osage gravel bars were by far the most important in the entire country. Purkett and fellow ichthyologist Tom R. Russell studied the Osage paddlefish paradise for decades. Based on the size of the catch, they could estimate the total population. In 1959, there were 6,800 paddlefish taken weighing 213,800 pounds. The Corps-commissioned Environmental Impact Statement by the Midwest Research Institute did not minimize the magnitude of the danger to paddlefish if Truman Dam were built:

Assuming the catch is an unbiased sample of the population, that the sex ratio is equal, that the catch represents 15% of the population and that an average adult female products about 370,000 eggs, for spawn-

ing paddlefish population produces billions of eggs (approximately 4.5 x 10<sup>9</sup>) each year in the Osage River area in order to maintain these unique fisheries . . . Paddlefish as laboratory specimens: Paddlefish are relics of the past and are, therefore, sought after for studies by various scientists, especially medical researchers. Between 1965 and 1972, the Missouri Department of Conservation received 43 individual requests for paddlefish or paddlefish eggs, larvae, tissues, or organs.

The Soviet Union requested paddlefish eggs from the Department for medical research. Later, it was determined that they were actually intending to raise them for their eggs. Worldwide, the twenty-seven sturgeon species, relatives of the paddlefish, are also in crisis from dams, pollution, and overfishing. Paddlefish roe is an acceptable, some say excellent, substitute for sturgeon caviar. Recently, the Chinese started aquaculturing American paddlefish. Dams and pollution apparently have exterminated their native paddlefish, the only other species, a creature that once grew to twenty-two feet in length.

Not only were the EDF and the scientific community concerned about the paddlefish issue, the press found the funny looking river monsters and their possible demise the stuff of feature stories. "Spoonbills Run The Osage" headlined a March 19, 1972, *Kansas City Star* article. Above a photo of a snagger and his wife holding three big paddlefish was printed "Osage Epic Pits Spoonbill, Fisherman".



**Left: The upper Osage before Truman Dam. This Ordovician chert floored river was not only ideal for paddlefish eggs to stick to, it was utilized by spawning walleye and introduced striped bass. No other feeders of Lake of the Ozarks had an appropriate flow to trigger an upstream migration and satisfy the spawning requirements of these large fish.**