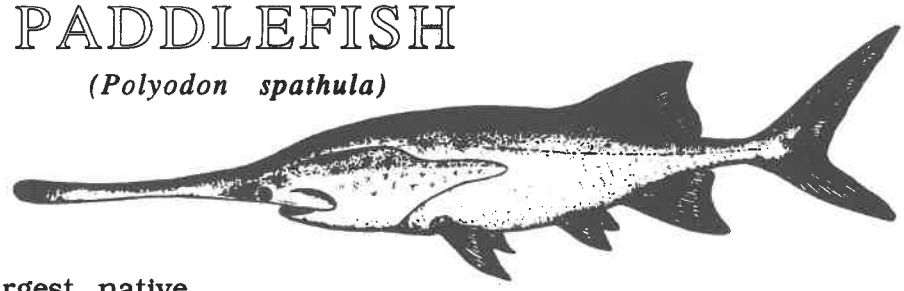
ENDANGERED SPECIES

Status: Rare

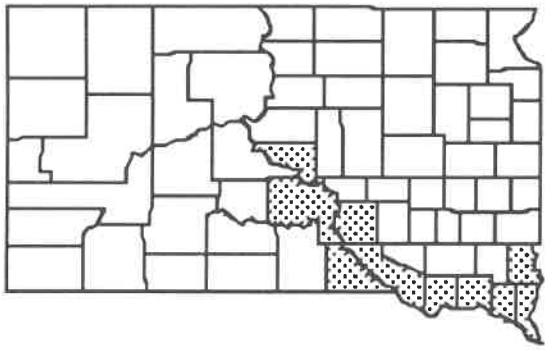
PADDLEFISH

(Polyodon spathula)



Description

Paddlefish are one of the largest, native freshwater fishes in North America, attaining lengths of more than six feet (1.8 m) and weights of more than 100 pounds (45.5 kg). In South Dakota, a paddlefish weighing more than 140 pounds (63.6 kg) was caught and released by South Dakota Game, Fish and Parks fisheries research biologists. Paddlefish (also called spoonbill) are an ancient creature getting their name from the paddle-shaped *rostrum* or bill, that is often up to one-third their entire body length. Paddlefish have a large, toothless mouth on the underside of their head and skin without scales, except for a patch near the tail fin.



Paddlefish Distribution

The tail is deeply forked with the upper lobe longer than the lower. Their skeleton is mostly cartilage, with the most bone-like material found in the head. Adult paddlefish have extremely small eyes in proportion to their body size. Paddlefish color varies from bluish-gray to almost black on their *dorsal* surface to white on their *ventral* side.

Distribution

Paddlefish are native to the Mississippi River basin. In South Dakota, they are found primarily in the Missouri River (and reservoirs), sometimes being observed short distances up into Missouri River *tributaries* such as the James or White rivers. Historically, paddlefish were free to move great distances and were recorded traveling 1200 miles. Now in South Dakota and elsewhere, many paddlefish populations have been confined and isolated between dams. Paddlefish usually are found in quiet, slow-flowing waters. They typically swim continuously near the surface.

Natural History

Paddlefish are a unique species, representing a link from modern times to our historic past. In North America, fish

in the sturgeon family represent the only close relative to the paddlefish. Their closest relative is another species of paddlefish found only in a large freshwater river in China.

Paddlefish are long-lived, with some fish known to exceed 30 years of age. Male paddlefish generally mature at about 5 to 8 years and females at 8 to 12 years old. Large females can produce over a half-million eggs. Paddlefish spawn in early spring when water temperatures approach the mid-50° F range. Females deposit their eggs over gravel bars in large free-flowing rivers. Immediately after being fertilized, the eggs sink to the bottom, sticking to the first object contacted, and hatch approximately seven to nine days later. Newly hatched young, which look very different from the adults, are carried by currents into areas where food is available. At about one month old, the young paddlefish look very similar to the adults.

Construction of the dams on the Missouri River has greatly reduced the amount of spawning habitat available and has blocked travel to other areas where habitat suitable for spawning is available. In recent years, successful natural paddlefish reproduction, in South Dakota, has been documented only from a small stretch of "semi-natural" Missouri River below Ft. Randall Dam and from the free-flowing river below Gavins Point Dam.

Paddlefish, both young and adults, feed almost exclusively on *zooplankton*, although there are isolated instances where fish and insects have been found in their diet. They feed differently than many other fish, using their long thin *gill rakers* to efficiently filter food from the water.

Significance

At one time, paddlefish were one of the most commercially important fish in the Mississippi Valley, utilized for both their meat and *caviar*. In recent times, their value as a source of *caviar* has, in certain areas of the country, added additional demands on this extremely limited natural resource. Paddlefish are also prized as a sport fish in many parts of their range. In South Dakota, paddlefish are considered a sport fish. At one time, sport fisheries existed below each of the dams on the Missouri River. However, most of those populations rapidly declined due to lack of suitable spawning habitat. Currently, the only sport fishery for paddlefish in South Dakota takes place in the fall of each year below Gavins Point Dam, near Yankton, and is managed by strict regulations (see section on Conservation Measures).

Conservation Measures

Paddlefish populations have generally declined across their *range* due to factors such as: construction of dams which eliminate or block access to spawning grounds; over-harvest by commercial or sport anglers; and water pollution, to name only a few.

Most states that have paddlefish populations have very restrictive regulations governing their use by humans. In many areas illegal harvest of paddlefish for *caviar* is the biggest threat to their continued existence.

On the positive side, recent advances in our ability to artificially spawn paddlefish in hatcheries should provide at least a short term solution in maintaining paddlefish populations, until long term solutions allow them to maintain themselves naturally. South Dakota is one of the leaders in this program. A cooperative effort between the S.D. Department of Game, Fish and Parks and the U.S. Fish and Wildlife Service annually results in 25,000-50,000 *fingerling* paddlefish being produced for stocking into the Missouri River. Additionally, South Dakota paddlefish eggs have also been sent to places like Texas to raise fish for re-introduction into rivers.

In South Dakota, our one remaining sport fishery is governed by very restrictive regulations. Paddlefish can only be harvested during a specific season, anglers are only allowed to take and possess one fish, and the total number of fish that can be harvested during the season is also limited. A 1992 regulation also requires anglers to release fish that are large enough to spawn.

Glossary

Caviar - processed salted eggs of fish.
Dorsal - in fish this refers to the top side
Fingerling - a small, young fish.
Gill raker - a bony "finger" on a gill that diverts solid substances away from the gills.
Range - geographical region in which an organism lives or naturally occurs.
Rostrum - snout or beak of an insect or animal.
Tributary - a stream or river flowing into a larger stream or river.
Ventral - lower surface of an animal, opposite of dorsal.
Zooplankton - extremely small animal life in a body of water.

Reference Materials

Eddy, Samuel. 1969. How to Know the Freshwater Fish. Wm. C. Brown Co., Publishers. Dubuque, Iowa.

Dillard, J.G., L.K. Graham, and T.R. Russell, editors. 1986. The Paddlefish: Status, Management and Propagation. American Fisheries Society, North Central Division, Special Publication No. 7.Bethesda, Maryland.

Unkenholz, D.G. 1981. Big Movers. South Dakota Conservation Digest 48(2):2-3.

Selected Paddlefish Resource for Teachers

Ancient Survivors of the Missouri (video). 1990. South Dakota State Library, Pierre, SD.

Outreach (Resource Agency Personnel)

American Creek Fisheries Station, S.D. Game, Fish and Parks Department, 1125 N. Josephine St., Chamberlain, South Dakota. Phone: 734-6633. Paddlefish spawning occurs in mid-May.

Gavins Point National Fish Hatchery, U.S. Fish and Wildlife Service, RR 1 Box 293, Yankton, South Dakota. Phone: 665-3352

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