

Mr. Frank Dunkle, Director
U.S. Fish and Wildlife Service
U.S. Dept. of the Interior
18th and C Streets NW
Washington, D.C. 20240

May 25, 1988

Dear Mr. Dunkle,

Re: Petition for designating an endangered species under
Section 4 of the Endangered Species Act and Section 553 (e)
of the Administrative Procedure Act.

On March 1, 1988 I attended a joint meeting in Aberdeen, South Dakota of the Dakota Chapter of the American Fisheries Society and the South Dakota Chapter of the Wildlife Society. Part of the program was a workshop on the status of the pallid sturgeon (*Scaphirhynchus albus*). The most significant impression left by the biologists attending that session is that there has been no documentation of pallid sturgeon reproduction by state, federal or university biologists in the upper Missouri River for over 15 years. Most disturbing is that the river reach covered by scientists at the session has long been considered as the area traditionally having the highest numbers of pallid sturgeon and has been considered prime habitat for the species. The general consensus of the biologists was that this species is in very serious trouble.

The attached petition requests a rulemaking to list the pallid sturgeon as endangered over its entire range. Compelling and overwhelming evidence is provided to support the need to designate the pallid sturgeon as an endangered species as quickly as possible. Given the precarious status of the pallid sturgeon, the relevant data on the species presented, and the Fish and Wildlife Service's obligation under the Endangered Species Act to protect endangered plants and animals, we urge you to act promptly on our request and to review and publish a notice of finding for an endangered species designation. I know of no present efforts to attempt artificial propagation of the species and suggest the plight of the pallid sturgeon would warrant researching the potential of artificial propagation of the species as a stopgap measure to prevent possible imminent extinction.

Respectfully,



Peter Carrels,
Executive Committee
Dacotah Chapter of the Sierra Club
P.O. Box 1029
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TO: The Honorable Frank Dunkle
Director
U.S. Fish and Wildlife Service
U.S. Department of the Interior
18th and C Streets N.W.
Washington, D.C. 20240

PETITION FOR RULEMAKING
UNDER THE ENDANGERED SPECIES ACT
OF 1973, AS AMENDED,
AND THE ADMINISTRATIVE PROCEDURE ACT

DATE: May 31, 1988

Introduction

The Dacotah Chapter of the Sierra Club hereby petitions the U.S. Fish and Wildlife Service (Service), pursuant to Section 4 of the Administrative Procedure Act (APA), 5 U.S.C. S 553(e), to institute an APA rulemaking to designate under Section 4 of the Endangered Species Act (ESA) of 1973, as amended in 1982, the pallid sturgeon (Scaphirhynchus albus) as an endangered species. Construction of the Missouri River dams and reservoirs and channel alteration of the Missouri and Mississippi Rivers has drastically altered pallid sturgeon habitat. Reports of their presence have become increasingly rare to the point where 11 states have included this species in their list of species of special concern.

As detailed below, the primary cause of concern for the continued survival of the pallid sturgeon is the ever increasing scarcity of the fish, the diminishing amount of suitable habitat, apparent reproductive failure, blockage of fish movement in the Upper Missouri River, alteration of water temperatures and water quality, and hybridization with shovelnose sturgeon. Without immediate designation as being endangered, and the protection and consideration afforded to the sturgeon by this designation, extinction is likely imminent. We therefore submit that the Service (1) expedite review of this petition, (2) issue its findings on the petition in a timely manner, and (3) immediately draft and publish a proposed rulemaking to designate the pallid sturgeon as an endangered species over its entire range.

A Review of the Pallid Sturgeon (*Scaphirhynchus albus*) and
Proposed Endangered Species Designation

1. Description

The pallid sturgeon is a large, ancient, freshwater fish with weight exceeding 30 pounds and length exceeding 5 feet. The largest specimen recorded weighed 68 pounds (Brown 1971).

All river sturgeons (*Scaphirhynchus*) are characterized by a flattened, shovel-shaped snout; long, slender, depressed, and completely armored caudal peduncle; prolonged upper lobe of the caudal fin; and the absence of a spiracle (Smith 1979). The principal morphological features which distinguish the pallid sturgeon from the shovelnose sturgeon are the absence of bony plates on the belly, 37 or more dorsal fin rays, 24 or more anal fin rays, bases of the outer barbels usually behind those of the inner barbels, and the length of the inner barbels going more than six times into the head length (Pflieger 1975) (From: Kallemeyn 1983).

2. Taxonomic Position

Forbes and Richardson (1905) were the first to differentiate the pallid sturgeon from the shovelnose sturgeon, *Scaphirhynchus platyrhynchus*. They named the pallid sturgeon *Parascaphirhynchus albus* and proposed that *Parascaphirhynchus* be recognized as a new genus. Berg (1911), however, refused to accept this and placed *albus* in *Scaphirhynchus*, an interpretation accepted by Bailey and Cross (1954) and Bailey and Allum (1962). *Scaphirhynchus albus* (Forbes and Richardson 1905) is the scientific name recognized by the American Fisheries Society for the pallid sturgeon. Common names for the pallid sturgeon include white sturgeon, white shovelnose, and white hackleback, all of which undoubtedly originated because of its light color (From: Kallemeyn 1983).

Further genetic work by Phelps and Allendorf (1983) and Carlson et al. (1985) indicates that pallid and shovelnose sturgeon are genetically similar but that morphological differentiation and reproductive isolation is the apparent difference between the two species.

3. Range and Status

Prior to 1954, pallid sturgeon were reported from the entire main stem Missouri River downstream from Fort Benton, Montana; the Mississippi River downstream from the Missouri/Iowa border; and the lower part of the Kansas River (Bailey and Cross 1954, Coker 1930). Since 1954, most specimens have come from the Missouri River (Kallemeyn 1983).

Bailey and Cross (1954) stated they expected the known range to be extended, particularly into the major turbid tributaries of the Mississippi and Missouri Rivers. This has not proven to be the case, as pallids have been collected only from four tributaries, the Yellowstone, Platte, Kansas, and St. Francis Rivers. The Yellowstone River in Montana and North Dakota is the only one where Scaphrhnchus albus has been observed regularly (Peterman and Haddix 1975; Elser, pers. comm.). This regular occurrence may be associated with the Yellowstone's having mean flows which are approximately 100 cubic meters/second greater than those of the Missouri River upstream from its confluence with the Yellowstone. Pallid sturgeon have been collected in the Yellowstone as far upstream as the mouth of the Tongue River, which is approximately 300 km upstream from the Missouri River (Brown 1971). Other Missouri River tributaries in which the species has been found include the Platte River, where one sturgeon was caught in 1979 approximately 30 km upstream from the Missouri and the Kansas River near Lawrence, Kansas, where six pallid sturgeon were captured in 1952 (Thomas, pers. comm., Bailey and Cross 1954). Cross (1967) indicated the occurrence of the sturgeon in the Kansas River was associated with the 1951 floods. Since 1952 there have been no verified reports of the pallid sturgeon in the river and Cross (pers. comm.) now doubts that the species is a regular resident of the Kansas River basin. The only record of a pallid sturgeon from a Mississippi River tributary is of a fish that was caught in 1963 in the St. Francis River near Madison, Arkansas (Buchanan 1973) (From: Kallemeyn 1983).

The additional collecting effort that has taken place since 1954 has done nothing to disprove Bailey and Cross's (1954) statement that the species is "nowhere common." Of the 250 pallid sturgeon reported, approximately 76 percent were collected from the Missouri River in Montana and the Dakotas. During the past 25 years, hundreds of gill, trammel, and trap net sets and hauls with seines and trawls have been made in these reservoirs by state, federal, and university biologists. Even with this intensive effort, relatively few pallid sturgeon have been captured. The largest number of pallid sturgeon other than from the upper Missouri River were reported from the Missouri and Mississippi Rivers in or adjoining Missouri. Observations other than from these areas have occurred infrequently and from a variety of locations. The species is apparently rare throughout the range, particularly in comparison to the shovelnose sturgeon (From: Kallemeyn 1983).

The fish is presently listed by the U.S. Fish and Wildlife Service as a Category 2 taxon. This category included taxa for which information now exists that indicates proposing to list may be appropriate (Gilbraith et al. 1988).

4. Cause of Concern

Habitat destruction or modification has been identified by the Endangered Species Committee of the American Fisheries Society as the principal threat to the pallid sturgeon (Deacon et al. 1979). The cause of the current concern is decline in the population, water quality problems (especially temperature and flow related), blockage of fish movements, lack of documented reproduction for over 15 years, and hybridization (Gilbraith et al. 1988). In addition to past destruction of suitable habitat due to reservoir construction and channelization, remnant habitats of the free-flowing reaches of the Missouri River are being altered from both past and ongoing processes (Hesse 1987). Recent studies have documented significant threat to the species due to hybridization with the more popular shovelnose sturgeon (Carlson et al. 1985).

5. Pertinent Studies

No comprehensive study of the life history of Scaphrhynchus albus is available. Kallemeyn's (1983) "Status of the Pallid Sturgeon" summarized data through 1983, Phelps and Allendorf helped describe genetic difference between the pallid and shovelnose sturgeon, and the present status of the species was recently reported in Gilbraith et al. (1988). The Gilbraith et al. (1988) report contains sufficient information in a format suitable for preparing a listing package for the species.

6. Habitat Description

The pallid sturgeon is presently known exclusively from the Missouri River and the lower half of the Mississippi. The preferred habitat for adult fish is apparently the main channel of large turbid rivers. Existing information on general environment and habitat is summarized in Gilbraith et al. (1988).

7. Food Habits

Fish and aquatic insects have been the principal items found in the few pallid sturgeon stomachs that have been examined. The stomach of the fish from the Mississippi River (Coker 1930) identified as a pallid sturgeon contained 90 percent fish remains while a pallid from the unchannelized Missouri River in southeastern South Dakota contained two sauger (Modde, pers. comm.). Carlson and Pflieger (1981) found that fish were also important in the diet of Scaphrhynchus albus from Missouri, but substantial numbers of immature aquatic insects were also eaten. Aquatic insects and small fish were also the principal items in the stomachs of pallid sturgeon from the Kansas River (Cross 1967) (From: Kallemeyn 1983).

8. Behavioral Habits

Very little is known about the behavior of pallid sturgeon. They can be a fairly long-lived fish having been known to live as long as 27 years (June 1981). They apparently reproduced from June to August, but this is inferred because no known reproduction now occurs (Gilbraith et al. 1988). Before the dams, late summer was the time when stable flows were reached on the river and the water reached its maximum temperature. Adults can survive in reservoirs (Kallemeyn 1983), but the needs of fry and juvenile are unknown.

9. Proposed Endangered Species Designation

The number of Scaphrhynchus albus is declining throughout its range. Eleven of thirteen states within the range of Scaphrhynchus albus have placed it on their state's list of special concern (Gilbraith et al. 1988).

Little or no consideration now occurs in the operation and management of the release, timing, and fluctuation of flows on the Missouri or Mississippi Rivers where the species exists. Considerable potential exists for modifying river operations to benefit indigenous riverine species such as the pallid sturgeon. Listing of the pallid sturgeon as endangered would afford the species some protection under the 1973 Endangered Species Act and open avenues for increased study and management options to allow the continued existence of this unique species endemic to the river system. We therefore recommend that the Fish and Wildlife Service designate the pallid sturgeon (Scaphrhynchus albus) as an endangered species throughout its range on the Missouri River and the lower Mississippi below the mouth of the Missouri. Studies should be conducted and techniques developed to identify methods to restore viable populations of this ancient and unique fish.

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