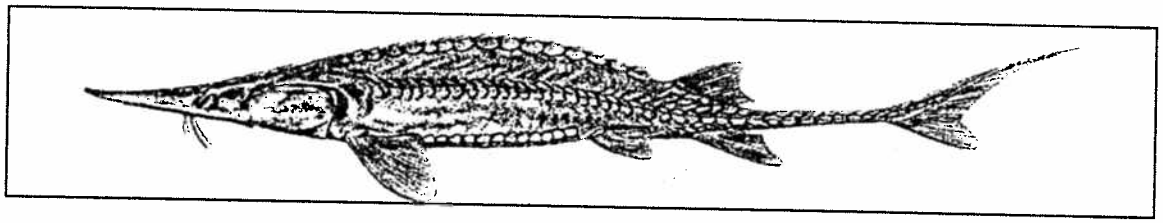
Pallid Sturgeon Recovery Program

Some background on where we have been, where we are now, how we got here, and our plans for the future.



Mark Dryer, U.S. Fish and Wildlife Service

Missouri River Fish and Wildlife Management Assistance Office

for

Missouri River Natural Resources Committee Summer Meeting

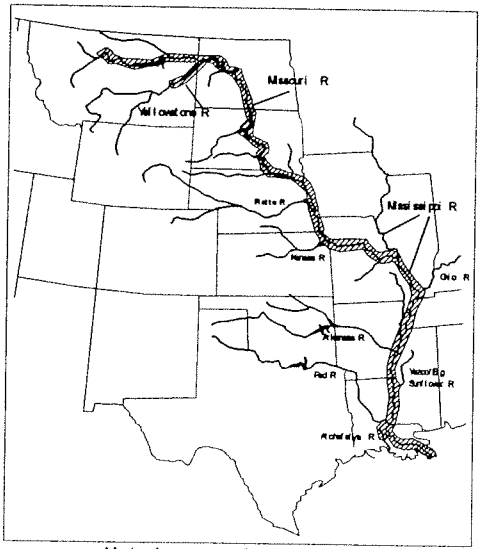
August 4-6, 1997

Significant Milestones

• May 31, 1988	Service petitioned by Dakota Chapter of the Sierra Club to list the pallid sturgeon as endangered.
• September 6, 1990	Final Rule published in Federal Register.
• September 21, 1990	Fish and Wildlife Enhancement Office/Bismarck named lead office on recovery, and Mark Dryer named lead biologist.
• October 1990	Pallid Sturgeon Recovery Team formed.
• April 1991	Corps advised of need to initiate formal section 7 consultation on pallid sturgeon for Missouri River operations.
• April 20, 1992	Blind Pony SFH (Missouri) spawn Mississippi River pallid sturgeon.
• November 7, 1993	Recovery Plan for pallid sturgeon approved by Regional Director.
• December 1993	Corps initiated section 7 consultation.
• August 1994	Service issued draft section 7 consultation biological opinion to the Corps that recommends, among other things, restoration of hydrograph and physical habitat features.
• March 8, 1994	Missouri Dept. of Conservation stock 7,000 pallid sturgeon to lower Missouri and Middle Mississippi Rivers.
• April 1995	Lead for recovery shifted from Ecological Services to Fisheries.
• June 17, 1997	Gavins Point NFH spawns Missouri River pallid sturgeon.
• July 1998 ??	Fish and Wildlife Service sock pallid sturgeon to upper Missouri River.

Range/Status

- Montana to Louisiana, but confined to Missouri, Yellowstone, Mississippi and Atchafalaya Rivers. Occasionally in lower reaches of larger tributaries such as Platte, Kansas, and Big Sunflower Rivers.



Historic range of pallid sturgeon

- Extremely rare in the upper Missouri and lower Yellowstone Rivers in Montana and North Dakota. Population estimates reveal fewer than 350 fish in this region.
- Nearly absent from the reservoir reaches between Garrison Dam and Gavins Point Dam.
- No evidence of reproduction documented above Gavins Point Dam. Only large individuals are being reported.
- More pallid sturgeon sightings occur in the more turbid lower Missouri and Mississippi Rivers, in general terms. Some reproduction is occurring in these reaches; however, the incidence of hybridization with shovelnose sturgeon increases as one moves downstream.

Threats

- Habitat loss from Missouri River dams. Dams block migration, reduce water temperature and turbidity. Dam operations alter flow regimes that once triggered spawning and increased nutrients from flooding.
- Habitat loss from channelization and bank stabilization. Channelization narrows the channel, increases velocity, and reduces stream bed diversity.
- Direct mortalities from sport and commercial fishing. Arkansas, Illinois, Iowa, Kentucky and Missouri still allow commercial harvest of shovelnose sturgeon. Pallid sturgeon are known to be taken incidentally.
- Environmental contaminants. PCB's, cadmium, mercury, selenium, chlordane, DDE, DDT, and dieldrin have been recorded in pallid sturgeon.
- Hybridization with shovelnose sturgeon. Hybrids may represent a high proportion of remaining stocks in over half of the pallid sturgeon's range.

The Recovery Team

- Membership is one State fish and wildlife agency biologist from Montana, South Dakota, Missouri and Louisiana, two Service representatives (one now retired), one Army Corps

of Engineers' representative, and a sturgeon reproductive specialist. Service representatives from Regions 3 and 4 serve as liaisons for those Regions.

The Recovery Approach

- Short-term recovery objective: Prevent species extinction by establishing three captive broodstock populations in hatcheries, by 1998.
- Long-term recovery objective: Downlist and delist when the species is reproducing naturally, by 2040.
- Achieve recovery objectives by executing tasks recommended in the Recovery Plan under work areas for species protection, research, public education, habitat restoration, propagation, and coordination/planning.
- Recovery Plan recommended three multi-disciplinary recovery implementation work groups be organized on a regional basis to identify regional recovery priorities and pool resources to accomplish recovery tasks.
- An Upper Basin Work Group (Montana, North Dakota and South Dakota), a Middle Basin Work Group (Nebraska, Iowa, Kansas, Missouri, Illinois, Kentucky, and Tennessee), and a Lower Basin Work Group (Arkansas, Mississippi and Louisiana).

Recovery Team Members

Mark Dryer. Team Leader. U.S. Fish and Wildlife Service. Bismarck, North Dakota.

Dr. Phil Stewart. Montana Dept. Of Fish Wildlife and Parks. Miles City, Montana.

Jim Riis. South Dakota Game, Fish and Parks Dept. Pierre, South Dakota.

Kim Graham. Missouri Department of Conservation. Columbia, Missouri.

Bobby Reed. Louisiana Dept. Of Wildlife and Fisheries. Lake Charles, Louisiana.

Doug Latka. Army Corps of Engineers. Omaha, Nebraska.

Dr. Frank Chapman. Univ. Of Florida. Gainesville, Florida.

Dr. Kent Keenlyne. U. S. Fish and Wildlife Service - retired. Pierre, South Dakota.

Liaisons

Mike LeValley. U.S. Fish and Wildlife Service, Region 3. ES/Columbia, Missouri.

Dr. Ron Larson. U.S. Fish and Wildlife Service, Region 4. ES/Jackson, Mississippi.

Recovery Accomplishments

Species protection.

- States of North Dakota, South Dakota, and Louisiana no longer permit sport or commercial harvest of any sturgeon to protect pallid sturgeon. Arkansas, Illinois, Iowa, and Missouri still allow commercial harvest of shovelnose sturgeon. Sport and commercial fishermen in states allowing harvest need to be better informed of means to identify pallid sturgeon.

Pallid Sturgeon Recovery Work Groups

Currently, two work groups are formed. An upper basin group (named the Upper Basin Pallid Sturgeon Work Group) and a combined middle/lower basin group that was already in existence as the Paddlefish Subcommittee of MICRA (Mississippi Interstate Cooperative Resource Association). After meeting with prospective middle and lower basin group members, it was decided that the existing Paddlefish Subcommittee of MICRA could meet the intentions of the Recovery Team and thus became the Paddlefish/Sturgeon Subcommittee. Group members are field biologists, engineers and managers from State and Federal agencies, universities and industry.

Research.

- Significant findings have come from numerous studies. Some of them on: adult habitat selection and movement telemetry/sonic studies in Montana and North Dakota, Missouri, South Dakota, and Louisiana; population estimates in Montana and North Dakota; environmental contaminant analysis on deceased pallid sturgeon specimens and exposure limits on shovelnose sturgeon; pallid and shovelnose sturgeon genetic analysis; cryopreservation of sperm; and population distribution. Information needs are still great in these and many other areas, especially related to early life stages.
- With successful propagation in 1997, research is being conducted on temperature tolerance of fry, environmental contaminant exposure limits, drift distances after hatching, and thyroxine levels. Early life stages are being sketched for development of a larval sturgeon key; and pallid, shovelnose and hybrid taxonomic features will be characterized from specimens of juvenile through adult life stages.

Public education.

- Outreach products include numerous news stories on recovery activities; a television documentary for PBS broadcast; numerous informational videos, brochures, presentations and popular articles; specimens provided to aquariums; specimens mounted; rulers and magnets featuring pallid sturgeon produced; and others. Outreach products need to be continually updated and replaced as new information is obtained and new accomplishments are achieved.

Habitat restoration.

- Without habitat, current stocking and protection efforts will not recover the species. Corps of Engineers "1135" projects are restoring Missouri River habitats, but those efforts need to be accelerated.
- The Bureau of Reclamation and Montana FWP are researching the effects of Intake Diversion Dam on the Yellowstone River. A fish bypass channel has been discussed.

Propagation.

- Hatchery broodstock are being established at Blind Pony SFH and Gavins Point NFH.
- Missouri Department of Conservation was successful in spawning pallid sturgeon from the Mississippi River in 2 out of 6 years (1992 & 1997). The Fish and Wildlife Service was successful in spawning pallid sturgeon from the Missouri River in 1 out of 6 years (1997). Propagation efforts will continue but success rates must increase.
- In 1997, Missouri Dept. of Conservation will stock 3,000 fry (6-month old) to lower Missouri and middle Mississippi Rivers, and in 1998, FWS will stock 1,500 juveniles (15-month old) to upper Missouri and Yellowstone Rivers.

Coordination and planning.

- Recovery updates are published periodically (eight to date) and sent to over 250 addresses.
- Work groups meet annually to present previous years' research and management activities; identify new or confirm previous recovery priorities on a regional basis; share knowledge; and pool staff and fiscal resources. See sidebar on next page for listing of partners contributing to workgroup activities.
- National Recovery Team remains intact to advise the Service and make adjustments to recovery planning as needed. The Team met once since the Plan was finalized to address hot issues related to genetics.
- Bismarck FAO maintains a national registry of pallid sturgeon catch records.

Priority Needs Identified by Work Groups

Upper Basin

1. Establish monitoring program to assess population status in response to changing habitat conditions and recovery practices.
2. Research life requirements of early life stages.
3. Culture and stock pallid sturgeon to supplement current wild population.

Middle and Lower Basin

1. Determine distribution and population status.
2. Research habitat selection and movements of adults.
3. Research significance of hybridization.
4. Establish monitoring program.

The Future

- Successful propagation of upper Missouri River pallid sturgeon in 1997 was a small although significant step toward recovery. Recovery objectives will be achieved this year in broodstock development, research, and population augmentation. Propagation and stocking will continue and plans will be written for new areas, possibly the reservoir reaches, to establish a broodstock and provide for a fishery once the species is delisted.
- Stocking plan recommends a 6-year effort of spawning, population augmentation and monitoring. We will repeat this year's spawning approach next year.

- Activities directed at habitat restoration and elimination or reduction of threats will be necessary to achieve recovery, and efforts in this area need to be accelerated.
- The Recovery Team will meet again in the fall of 1997 to review accomplishments and make adjustments in the recovery approach, as needed.

CONTRIBUTING PARTNERS IN WORK GROUPS*

Upper Basin

Western Area Power Administration
Bureau of Reclamation
North Dakota Game and Fish Dept.
Montana Dept. of Fish, Wildlife and Parks
South Dakota Game, Fish and Parks Dept.
Montana Power Company
Montana State University Coop Unit
Army Corps of Engineers
FWS/ES (Bismarck)
FWS/Fisheries (Bismarck)
FWS/Fisheries (Pierre/Yankton/Riverdale)

Middle and Lower Basin

Missouri Dept. of Conservation
Louisiana Dept. of Wildlife and Fisheries
Arkansas Game and Fish Commission
Nebraska Game and Parks Commission
Midwest Science Center (USGS)
Southern Illinois University
University of Missouri Coop Unit
FWS/ES (Bismarck/Columbia)
FWS/FAO (Bismarck/Columbia)

* In kind services are provided by all partners in addition to, or in replacement of, direct-funding.

Conclusion

The pallid sturgeon was the first and is still the only fish species of the Missouri, Yellowstone and Mississippi Rivers that is listed as endangered under the Endangered Species Act. Its status illustrates the likely fate of other big-river native fish species that have experienced population decline due to habitat loss and other threats affecting pallid sturgeon. These species include the sturgeon chub and sicklefin chub, now considered candidates for listing, and the flathead chub, blue sucker, paddlefish, western silvery minnow and plains minnow. Many of the actions being implemented or planned for the pallid sturgeon recovery will benefit these other species as well and may preclude the need to list them and/or aid in their recovery.