

PADDLEFISH

Polyodon spathula



CASE STUDY: STATE MANAGEMENT OF PADDLEFISH

in the Context of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

General Distribution and Biology

Extirpated in much of the peripheral range, the current range of the paddlefish has been reduced to the Mississippi and Missouri rivers, and tributaries and the Mobile Bay drainage. Populations have declined primarily because of over exploitation, habitat loss, and pollution. Closely related to sturgeons, paddlefish are long-lived and late maturing fish whose populations can be highly sensitive to over harvest and slow to recover. Although variable across the range, females do not spawn until they are seven to ten years old, and in some cases much older. With similar variability across the range, males sexually mature around age seven.

Paddlefish are found in 22 states, primarily in large river systems such as the Mississippi, Missouri, and Ohio rivers. The paddlefish represent an important interjurisdictional fishery as it is subject to a variety of management and regulatory frameworks across the states. Some states permit commercial harvest, others allow only recreational harvest, others allow both commercial and recreational harvest, and others prohibit all harvest. Paddlefish are harvested for both flesh and roe, which is processed into caviar. The demand for caviar both domestically and internationally is the primary cause of increased harvest of paddlefish stocks over the last several decades.

Causes of Increased Pressure on Paddlefish Stocks

The complete collapse of the Caspian Sea sturgeon stocks that followed the end of the Soviet Union resulted in increasing pressure on paddlefish, and other sturgeon species, to meet the demands of the international caviar market. The legal and illegal harvest of sturgeon in Caspian range states (Iran, Russian Federation, Azerbaijan, Turkmenistan, and Kazakhstan) lacked management controls after the loss of centralized and rigorously enforced management by the Soviet Union. This collapse of a valuable sustainable resource represents a dramatic failure of CITES. This is another example of a highly valuable sturgeon fishery being destroyed as a result of over harvest; a similar pattern occurred in the U.S. with destruction of Atlantic sturgeon (*Acipenser oxyrinchus*) in the mid to late 19th century. Due to the effective elimination of the Caspian Sea fishery, there has been an increased scrutiny of other sturgeon and paddlefish fisheries, and trends in commercial paddlefish harvests have continued to increase reflecting the increased demand.

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CHRONOLOGY of Sturgeon and Paddlefish in CITES

1991

Dissolution of the Soviet Union ends centralized enforced management of sturgeon, resulting in uncontrolled exploitation of sturgeon stocks.

1998

Listing of 23 species of sturgeon and two species of paddlefish under CITES.

2008

Letter from the Scientific Review Group of the European Union to US Fish and Wildlife Service (USFWS) raising concerns regarding increased export of paddlefish from the United States.

1992

Paddlefish listed in Appendix II of CITES, primarily because of a proposed Endangered Species Act listing in the US.

2001 to 2006

Dramatic increase in demand for paddlefish caviar.

2009

Joint USFWS / CITES Technical Work Group presents a workshop on CITES to fisheries chiefs at annual Mississippi Interstate Cooperative Research Association (MICRA) meeting in Memphis.



2011

USFWS announces that they were unable to find that the export of paddlefish and its products from main stem impoundments in Tennessee harvested during the 2010-2011 fishing season is not a non-detriment (NDF) to the survival of the species. The export of paddlefish and its products would not be allowed under CITES from these impoundments.

2013

Development of proposal by the Association of Fish & Wildlife Agencies (AFWA) working with USFWS to develop biological reference points for the management of paddlefish in the Mississippi River basin.

2014

Sharov report with the following management recommendations:

1. Develop objectives for management
2. Adopt fishing mortality rate reference points
3. Adopt precautionary management in face of uncertainty
4. Estimate fishing mortality rates
5. Develop harvest control rules

2011

A. Sharov report to Secretariat on current status of stock assessment and Total Allowable Catch (TAC) estimation methodology for Caspian Sea sturgeon species.

2013

Joint USFWS / CITES Technical Work Group meeting with sturgeon/paddlefish committee of MICRA on proposed Sharov study and request for access to agency paddlefish data.

2014

Sharov study presented at a workshop held for all states with populations of paddlefish with a goal to develop recommendations for flexible management framework.

Workshop recommendations include:

1. Draft plans for areas identified in the commercial states breakout group will be shared via the MICRA website. These plans will be updated to better document state agency management actions and results with a goal to improve the USFWS's ability to make positive NDFs
2. The commercial states agreed to $F = 30\%$ as a common goal. This will be adjusted if necessary based on review of management plans.
3. Recommendations to consider other sources of support for data gathering such as LCCs, USGS programs, and others will be explored.
4. MICRA will host a series of webinars during summer 2014 on modeling. Future discussion and prioritization of data recommendations and data gaps is a priority.
5. Priorities include more discussion of the level of monitoring needed and the costs.

GENERALLY, A COORDINATED APPROACH THAT RELIES ON AN EFFECTIVE WORKING RELATIONSHIP WITH THE USFWS AND RELYING ON THE BIOLOGICAL AND MANAGEMENT EXPERTISE OF THE STATES HAS BEEN SUCCESSFUL.

Photographer: Keith Sutton

The Approach taken by AFWA and CITES Technical Work Group

After tracking developments on sturgeon and paddlefish for several decades in CITES, the CITES Technical Work Group became more directly engaged following the inquiry from the European Union in 2008. The potential for a conflict between the USFWS and individual states increased as attention focused on state regulatory requirements and management strategies. Paddlefish harvest, trade, and conservation represents an excellent example of balancing federal requirements and maintaining state management authority: what is the most effective framework for managing paddlefish in a way that meets the requirements of CITES and recognizes specific state needs and regulations? Harmonizing the international treaty requirements of the U.S. government and the management authority of individual states represents a unique challenge. This has been the central question facing the CITES Technical Work Group over the last decade.

Generally, a coordinated approach that relies on an effective working relationship with the USFWS and the biological and management expertise of the states has been successful. Following the letter of inquiry from the European Union, and the USFWS decision to not issue a non-detriment finding for Tennessee, the CITES Technical Work Group began working with the USFWS's Scientific Authority, state directors, and agency personnel to explain their respective roles under CITES. The roles of outside parties (e.g. European Union) can be unclear and frustrating to state biologists when a management framework that is based on state knowledge and needs is questioned. In the context of CITES implementation, a key initial message emphasized that CITES only applied to the action of the state if product harvested in state was to go into international trade. Economic benefit has accrued in different ways in states depending on the harvest model of the fishery. For example, in some commercial states a relatively small group of private individuals benefit from the harvest as opposed to several recreational states where eggs collected are sold to dealers directly with value being retained by the state for recreational enhancements.

At the same time states were dealing with local harvest pressure, the USFWS was searching for a science-based management framework that could be easily applied and allow for NDFs. States are clearly trying to balance the effort needed to maintain a commercial fishery against other agency management needs. The CITES Technical Work Group continued working with state directors and biologists to develop a common understanding of CITES requirement and



the role of the USFWS. After the Sharov report to the CITES Secretariat on the Caspian Basin sturgeon fisheries, it seemed timely to develop a similar assessment of paddlefish with a goal of developing a flexible framework that could be used as a reference point for the USFWS in making NDFs. At that point the CITES Technical Group directed efforts toward seeking state agency assistance in developing a study and providing access to data for the study. After the study was complete as a draft, a workshop was organized around the findings. The consensus developed is outlined in this case study's chronology.

Current Status

Currently AFWA and the CITES Technical Work Group are working with state biologists to identify funding sources to address data gaps identified in the Sharov report and working with the USFWS to facilitate discussion with regard to future management action. In addition, the Technical Work Group has been actively working within the CITES committee structure to monitor discussions on sturgeon and paddlefish.