

Illegal Take of Endangered Pallid Sturgeon In the Commercial Shovelnose Fishery



Pallid Sturgeon

Scaphirhynchus albus

- Endangered species list-1990
- Recovery plan written recommending a moratorium on commercial sturgeon fishing-1993
- MICRA paddlefish and sturgeon sub-committee recommend closure of paddlefish and shovelnose fishery-1997
- 5 year review completed in 2007– commercial harvest still identified as a threat.



Problem

Evidence for take of pallid sturgeon associated with commercial fishing

2006 - 3 Commercial fishermen sentenced in Federal Court for illegal fishing operation

- alleged 25 nets over 17 miles MO & TN waters, unlabeled, un-attended

2007 - Enforcement Task Force Confirms Threats to Endangered Sturgeon

Law Enforcement cases involving take of pallid sturgeon have been made in AR, TN, MO and KY.

Currently 88 pallid sturgeon have been confirmed to be taken by commercial fishing operations in the cases listed above



Sturgeon and other species found wasted in a dumpster near Chain of Rocks.

Photo: Tom Keevin, USACE.

Summary of evidence for, and impact of, take on pallid sturgeon associated with commercial fishing

Take of pallid sturgeon by commercial harvest has been documented on multiple occasions. 2% of shovelnose harvest in Tennessee and at least 88 pallid sturgeon from law enforcement cases

Take of pallid sturgeon in “ghost nets” lost by roe harvesters has been documented in the Mississippi River.

Higher maximum age without commercial harvest

15 years with commercial harvest

21 years without commercial harvest

At current mortality rate, pallid populations decline <1,200 fish in 20 years.

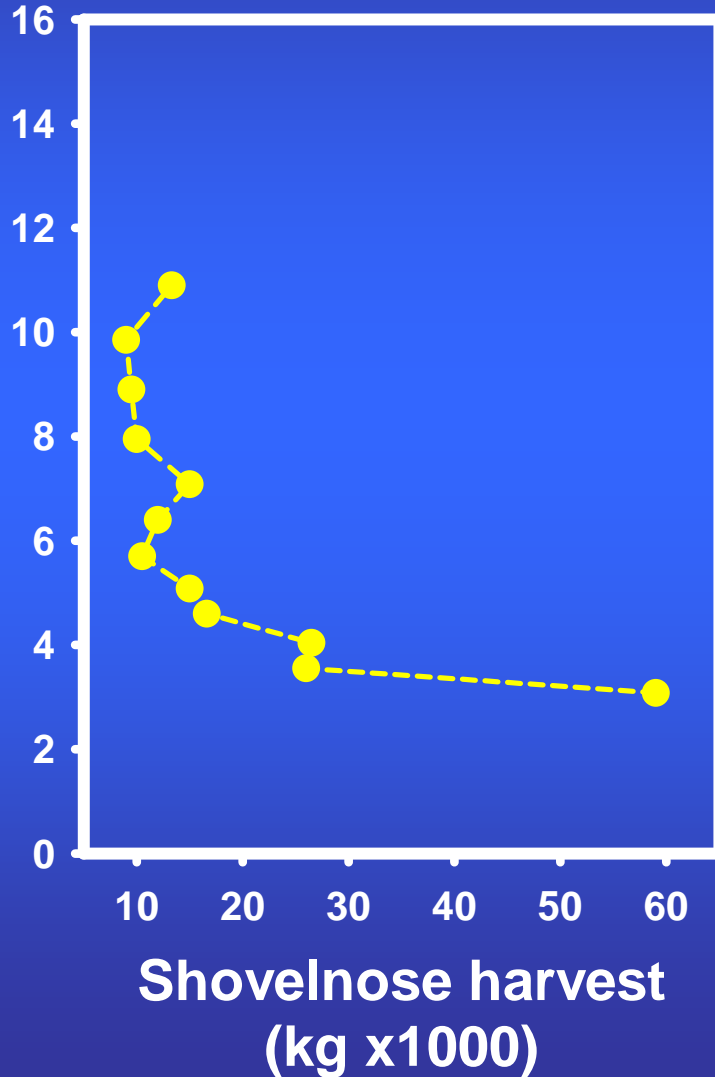
Pallid sturgeon with egg check wounds and scars have been observed by researchers.



Pallid Sturgeon with egg check mark

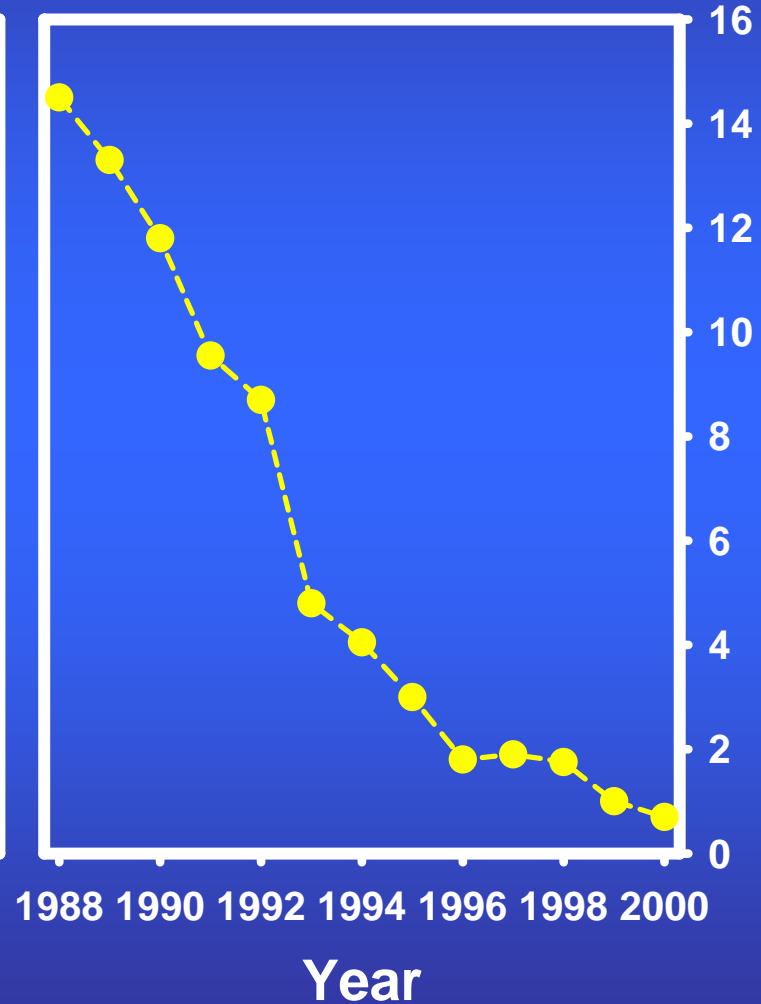
As Russian sturgeon harvest
has fallen, there has been an
increased demand for
shovelnose caviar

Russian sturgeon harvest
(tonnes x1000)



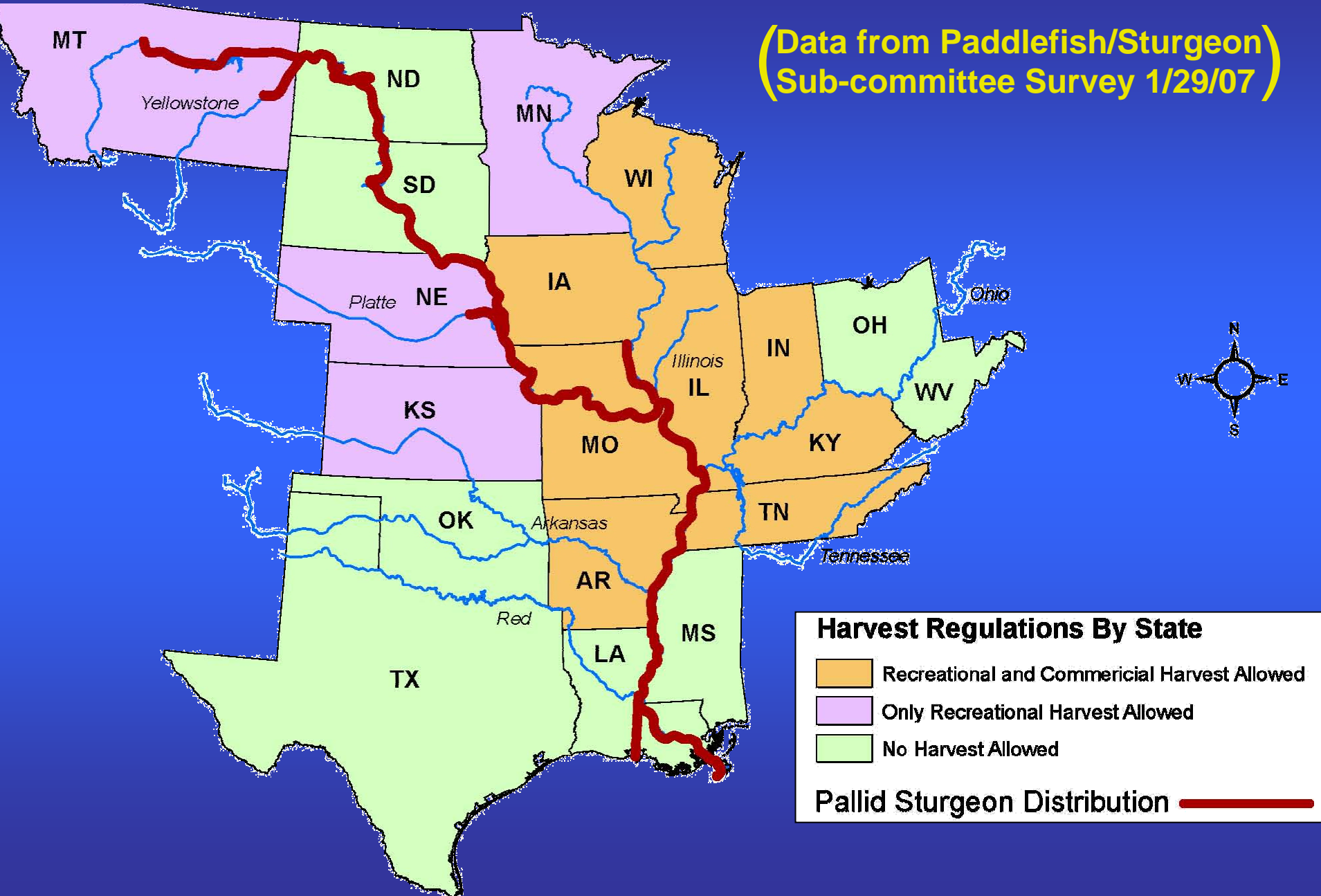
Landings of
Acipenseriformes in
Russia, 1988-2000

Russian sturgeon harvest
(tonnes x1000)



Current Shovelnose Sturgeon Harvest Regulations

(Data from Paddlefish/Sturgeon
Sub-committee Survey 1/29/07)



Iowa

97 shovelnose permit holders
14 reporting shovelnose harvest on the Upper Mississippi River

Pallid sturgeon not found in Upper Mississippi River in Iowa

0 reporting shovelnose harvest on the Missouri River

Shovelnose harvest prohibited on the Missouri River

Missouri

258 Commercial Fishers
- all species

13 shovelnose permit holders
- 8 resident & 5 non-resident

Shovelnose roe harvesters:
- 8 Missouri R. (no non-residents)
- 13 Mississippi River

Shovelnose harvest is permitted in the Missouri River

Illinois

1,231 Commercial Fishers
- all species

87 licensed roe harvesters

18 shovelnose roe harvesters fishing Mississippi River south of Alton, IL.
- known as open river reach
- pallid sturgeon occur

Shovelnose harvest is permitted

Arkansas

63 Commercial Fishers (all species)
14 shovelnose permit holders
(only 4 permits issued in 2002)

0 shovelnose roe harvesters fishing Mississippi River

Shovelnose sturgeon harvest is prohibited for Arkansas fishers on the Arkansas portion of Mississippi River

Tennessee

83 licensed roe harvesters
- all species
- 80 resident & 3 non-resident

17 shovelnose permit holders

Kentucky

334 Commercial Fishers
- all species

74 licensed roe harvesters

16 shovelnose permit holders

9 shovelnose roe harvesters fishing Mississippi River

Shovelnose harvest is permitted

Problem

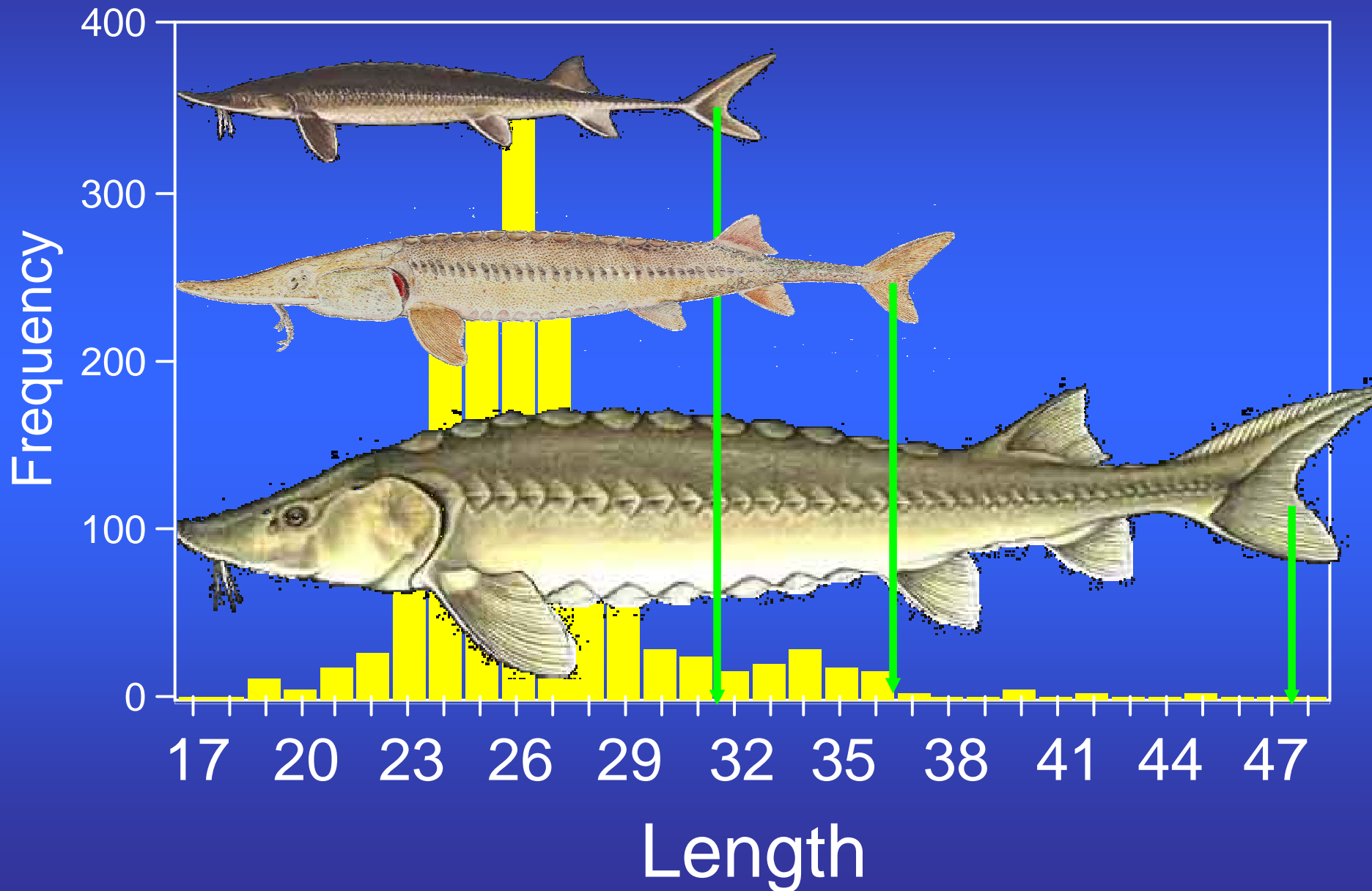
Current Protective Commercial Regulations Not Adequate to Protect Pallid Sturgeon

- Slot limits- sturgeon 24 to 32 inches can be harvested for roe.

	shovelnose sturgeon	pallid sturgeon
Slot	24" to 32"	No Harvest
Mean Length	23"	29"

- Therefore, slot limit is protective of only oldest and largest individuals.
- Identification training
 - Accurate identification of pallid sturgeon requires careful morphological measurements, multivariate analyses and sometimes genetic analysis.

01-02 Sturgeon Harvest



Problem

Inability to correctly distinguish shovelnose from pallid sturgeon

In these areas, pallid and shovelnose sturgeon are very similar in appearance (Murphy et al. 2007), which can result in misidentification if only general appearance is considered.

Pallid sturgeon from the Lower Mississippi were morphologically more similar to shovelnose sturgeon than were pallid sturgeon from the Upper Missouri River (Kuhajda et al. 2007).

Character designation to species can be confounded by the size of the individuals, and morphometric measurements and meristic counts are more accurate than morphology alone (Murphy et al. 2007, Kuhajda et al. 2007).

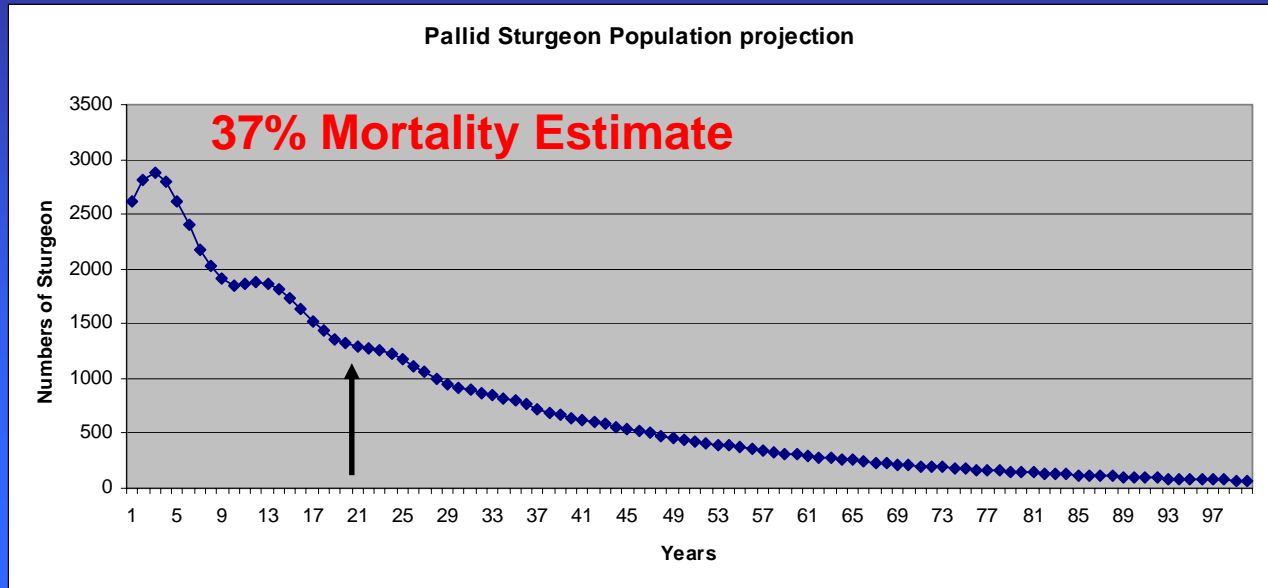
Murphy, C. E., J. J. Hoover, S. G. George, and K. J. Killgore. 2007. Morphometric variation among river sturgeons (*Scaphirhynchus* spp.) of the Middle and Lower Missouri. *Journal of Applied Ichthyology*. 23:313-323.

Kuhajda, B. R., R. L. Mayden, and R. M. Wood. 2007. Morphologic comparisons of hatchery-reared specimens of *Scaphirhynchus albus*, *Scaphirhynchus platyrhynchus*, and *S. albus* x *S. platyrhynchus* hybrids (Acipensiformes: Acipenseridae). *Journal of Applied Ichthyology*. 23:324-347.

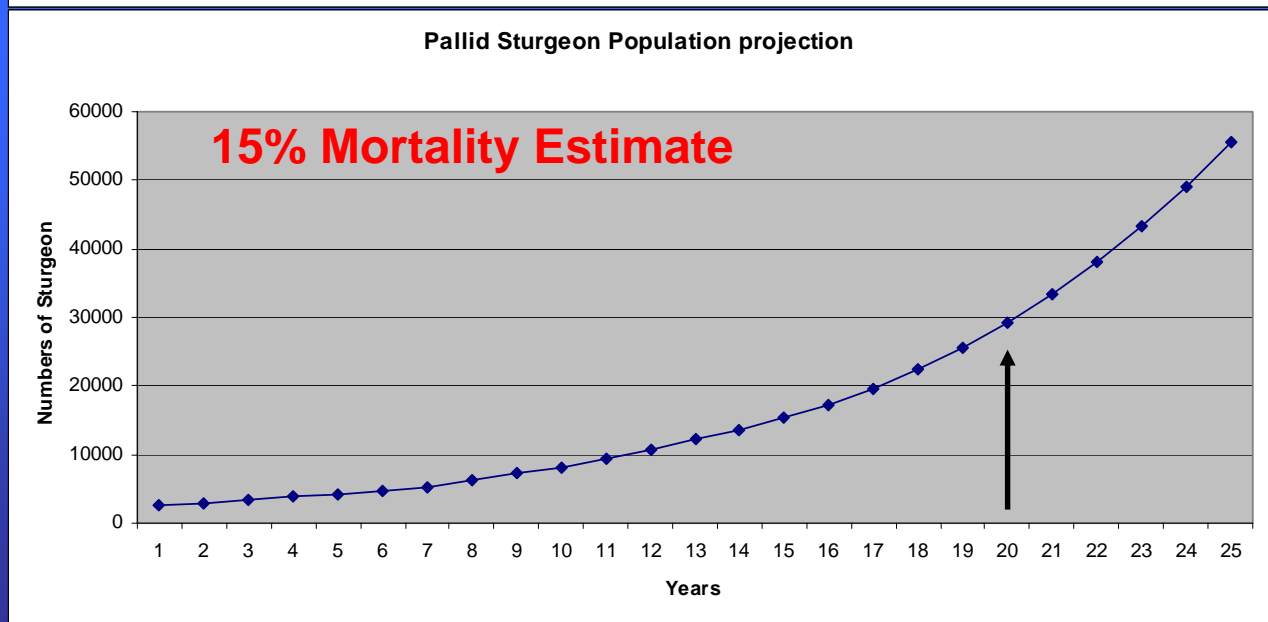
Problem

Pallid Sturgeon Population Mortality Model

37% mortality estimate based on Columbo et al. (2007) and Bettoli et al. (In Review).



15% mortality estimate
Is slightly higher than that
estimated by Killgore et al.
(2007)



Option: List the Shovelnose under the Endangered Species Act, Section 4(e), Similarity of Appearance to Pallid Sturgeon

- A species may be listed under the ESA due to Similarity of Appearance (SOA) to a species currently protected under the ESA if:
 - enforcement personnel would have substantial difficulty differentiating between the protected and unlisted species;
 - this difficulty results in an increase in threat to the protected species; and
 - listing the species due to SOA will substantially facilitate enforcement of the ESA and conservation of the protected species.

Rationale for Similarity of Appearance: shovelnose and pallid sturgeon

- Differentiating between pallid sturgeon and shovelnose sturgeon requires consideration of multiple characters, careful measurement, and may require multivariate and genetic analysis.
- Fisherman and Law enforcement officers are unable to accurately identify shovelnose and pallid sturgeon in a field situation.
- Age Structure – considerably lower where commercial fishing occurs for shovelnose sturgeon
- Mortality rates of both pallid and shovelnose sturgeon are more than twice as high in areas where commercial shovelnose fishing occurs, indicating that fishermen are either unable to correctly identify pallids, or are intentionally taking pallids.
- Mortality models indicate that conservation of pallid sturgeon cannot occur in areas where commercial shovelnose harvest is permitted.

When a species closely resembles a listed species, enforcement of the Act is difficult thus resulting in the need to list as SOA. SOA listings have been used to protect and conserve both threatened and endangered species. Following is a list of U.S. species that are protected because they closely resemble a listed species, or have population listed in a separate part of their range:

American Alligator: Southeastern U.S.A.

American Black Bear: U.S.A. (LA, all counties; MS, TX, only within the historic county range of the Louisiana black bear)

Puma: U.S.A. (FL)

Desert Tortoise: AZ south and east of Colorado River, and Mexico, when found outside of Mexico or said range in AZ.

Bog Turtle: U.S.A. (GA, NC, SC, TN, VA)

Process for a Similarity of Appearance listing

- Publication of a proposed rule in the Federal Register.
- Give public notice of the impending regulation.
- Make the proposal available for public comment.
- Hold a public hearing, if requested.
- Publication of a final rule within 12 months of publication of the proposal.
- Timeline: 18 months to 2 years.

SOA options the Service is considering

- SOA applicable to where commercial fishing occurs and the two species are sympatric,
- SOA for entire range of shovelnose,
- A 4(d) rule exempting recreational fishing could be incorporated into either of the above.

Alternative to SOA Listing

- States closure of waters to commercial harvest of shovelnose sturgeon in areas where pallid sturgeon are found would be protective of pallid sturgeon and eliminate the need for an SOA listing.