

Chinese Sucker (*Myxocyprinus asiaticus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, Web Version – 03/08/2018



Photo: Chinese Academy of Fishery Sciences. Licensed under Creative Commons BY-BC 3.0 Unported. Available: <http://www.fishbase.org/photos/PicturesSummary.php?ID=12304&what=species>.

1 Native Range and Status in the United States

Native Range

From ITIS (2017):

“Geographic Division: Southern Asia”

From Froese and Pauly (2017):

“Asia: China (Yangtze River basin).”

From Zhang et al. (2000b):

“*Myxocyprinus asiaticus* (Bleeker) is a kind of endemic species of fish in China. The fish is only distributed naturally in Changjiang (Yangtze) and Minjiang Rivers, but the stock of the fish distributed in Minjiang River may be disappeared at present.”

Status in the United States

There were no records of *Myxocyprinus asiaticus* in the United States found.

Means of Introductions in the United States

There were no records of *Myxocyprinus asiaticus* in the United States found.

Remarks

From Zhang et al. (2000b):

“The population of the fish [*M. asiaticus*] living in Changjiang River has gone down quickly in the past two or three decades. The fish has been designated by the state as the second rank of aquatically protected animals, but its stock in Changjiang River has been less than two Chinese sturgeons, *Acipenser sinensis* and *A. dabrynus*, designated by the state as the first rank of aquatically protected animals. The reasons accountable for the decline of the fish resources are due to the low reproduction capacity and the long development time of the fish, overfishing and water pollution. The return of the individuals cultured is one of the main measures to recover the natural resources of *Myxocyprinus asiaticus*.”

From Zhang et al. (2000a):

“Chinese sucker *Myxocyprinus asiaticus* Bleeker is a rare species of fish, and belongs to the family Catostomidae of Cypriniformes. Most species in this family are distributed in North America, and only 1 species, the Chinese sucker, is found in Asia. This Chinese sucker was recently listed in the China Red Data Book of Endangered Animals (Yue & Chen 1998[:57–60]).”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

“Taxonomic Status: Current Standing: valid”

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata

Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cobitoidea
Family Catostomidae
Subfamily Cycleptinae
Genus *Myxocyprinus*
Species *Myxocyprinus asiaticus*

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length: 60.0 cm TL male/unsexed; [Baensch and Riehl 1995]; common length: 22.0 cm SL male/unsexed; [Nichols 1943]”

Environment

From Froese and Pauly (2017):

“Freshwater; demersal [Riede 2004]. [...]; 15°C - 28°C [assumed to be recommended aquarium temperature range] [Baensch and Riehl 1995]”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; [...]”

Distribution Outside the United States

Native

From ITIS (2017):

“Geographic Division: Southern Asia”

From Froese and Pauly (2017):

“Asia: China (Yangtze River basin).”

From Zhang et al. (2000b):

“*Myxocyprinus asiaticus* (Bleeker) is a kind of endemic species of fish in China. The fish is only distributed naturally in Changjiang (Yangtze) and Minjiang Rivers, but the stock of the fish distributed in Minjiang River may be disappeared at present.”

Introduced

There were no records of *Myxocyprinus asiaticus* introductions.

Means of Introduction Outside the United States

There were no records of *Myxocyprinus asiaticus* introductions.

Short Description

From Froese and Pauly (2017):

“Body color in fries brown with 3 slanted dark bands on side of body; male adults red, female dark purple and a broad rouge-red vertical zone along lateral of body. Triangular and dorsal fin higher, extremely long and reaching as far as opposing to rear of anal fin; lips thick and with many small papilla; barbels absent; pharyngeal teeth 1 row and arranged like a comb [Wang 1998].”

Biology

From Froese and Pauly (2017):

“Fries like to stay in groups between gravel and rocks in slow-moving waters mostly in upper layer [Wang 1998]. Juveniles and adults like to swim in the middle and bottom layers of waters and move more briskly than the fries [Wang 1998].”

“Potamodromous. Migrating within streams, migratory in rivers, e.g. *Saliminus*, *Moxostoma*, *Labeo*. Migrations should be cyclical and predictable and cover more than 100 km.”

From Zhang and Zhao (2000):

“Authors studied morphological characteristics of the early development of the Chinese sucker. The fertilized eggs were obtained by artificial fertilization. The mature eggs were spherical in shape, measuring 1.8-2.0 mm in diameter. Fertilized eggs were expanded to 3.8-4.0 mm in diameter after absorbing water. At the average water temperature of 18.7deg C, the embryonic development took 163h to develop into larvae; and then took another 9-10 days to develop into juveniles. The newly hatching larvae were 9.0 mm in total length. Under artificial rearing conditions, about 9-10th day after hatching, the yolk sac was greatly absorbed, and normal juveniles began to feed initially.”

Human Uses

From Froese and Pauly (2017):

“Fisheries: commercial; aquaculture: commercial”

From Zhang et al. (2000a):

“Because of its long dorsal fin and beautiful body color, the species [*Myxocyprinus asiaticus*] has been propagated and cultured as an ornamental fish.”

From Yuan et al. (2009):

“The fish [*Myxocyprinus asiaticus*] is naturally distributed mainly in the Yangtze River, especially in the upper reaches. The wild fish resources were greatly damaged because of the environmental changes and over fishing and late in sexual mature, to date the Chinese sucker has been an endangered species and has been listed in the second class of preserved animals in China.”

“The Chinese sucker is a species of great potential value in aquaculture. In the absence of some specific feed for Chinese sucker, fish producers have customarily fed eel feed (480 g kg⁻¹ protein), whereas Chinese sucker fed eel feed which is an easily produced fatty liver for long time. Chinese sucker is an omnivorous and partial to carnivorous species that has been widely cultured in China because of its delicious meat and rapid growth. Traditional culture of this fish mainly depends on chopped or minced trash fish and fish worm, which is difficult to store, easy to deteriorate water quality and may result in the spread of diseases. Recently, because of the shortage of fishery resources, available trash fish could not meet the demand for the expanding farming of Chinese sucker in China.”

Diseases

No records of OIE reportable diseases were found.

From Zhang et al. (2000a):

“From June to October 1998, a previously undescribed infectious and lethal disease was observed in the cultured Chinese sucker. The affected fish showed typical symptoms such as hemorrhage. Examination of the diseased fish failed to reveal pathogenic bacteria or parasitic agents infecting these fish. This suggested that the disease might be related to viral infection.”

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

No records of introductions of *Myxocyprinus asiaticus* were found.

4 Global Distribution



Figure 1. Known global distribution of *Myxocyprinus asiaticus* as reported by GBIF Secretariat (2017).

5 Distribution Within the United States

There were no records of *Myxocyprinus asiaticus* in the United States found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Myxocyprinus asiaticus* was highest along the southern Atlantic Coast, Florida, and in the middle of the country including areas of Texas, Oklahoma, and Kansas. It was especially low for the western third of the country and eastern New England. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.037, medium, and individually high in Florida, Georgia, Oklahoma, and South Carolina.

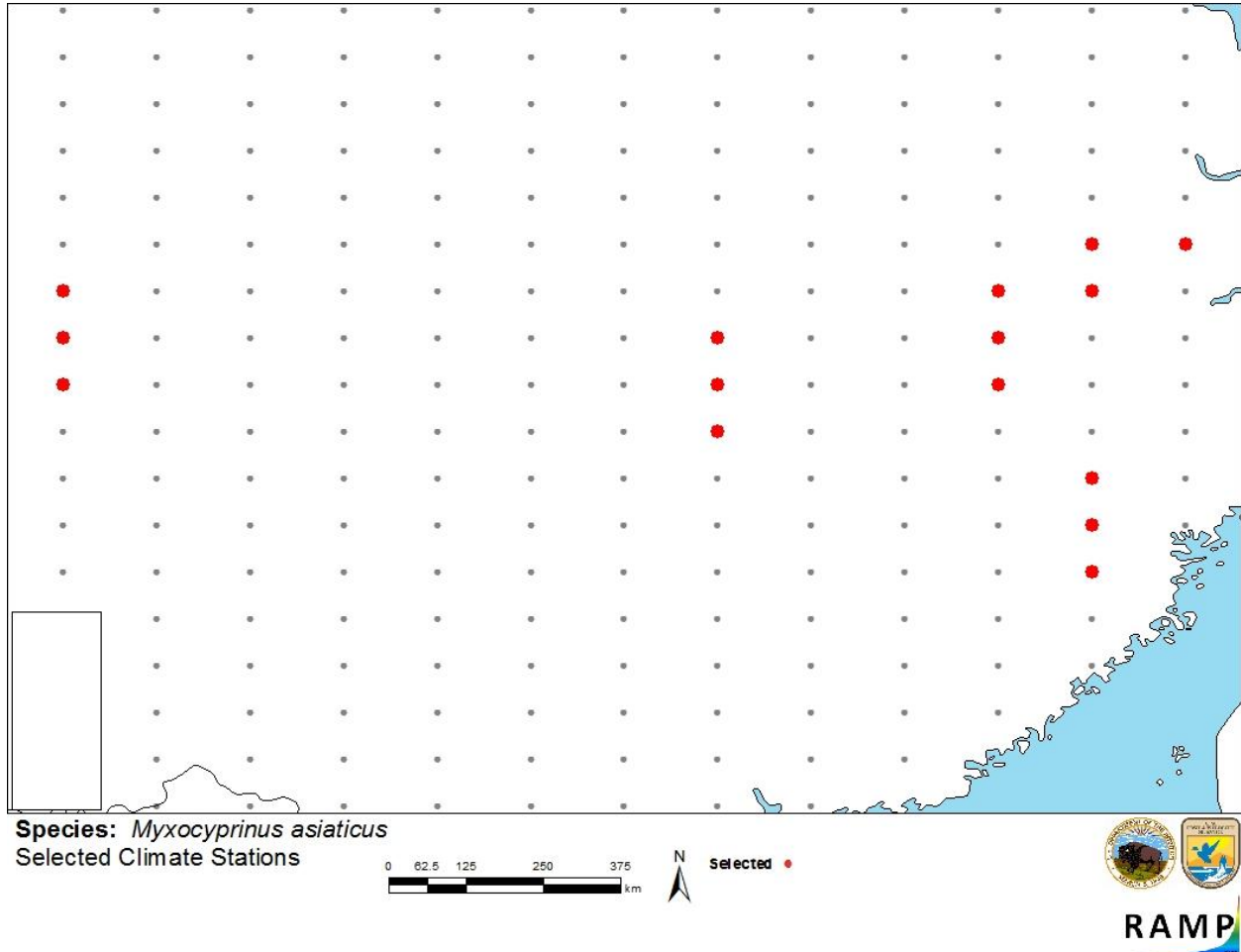


Figure 2. RAMP (Sanders et al. 2014) source map of central and eastern China showing weather stations selected as source locations (red) and non-source locations (gray) for *Myxocyprinus asiaticus* climate matching. Source locations from GBIF Secretariat (2017).

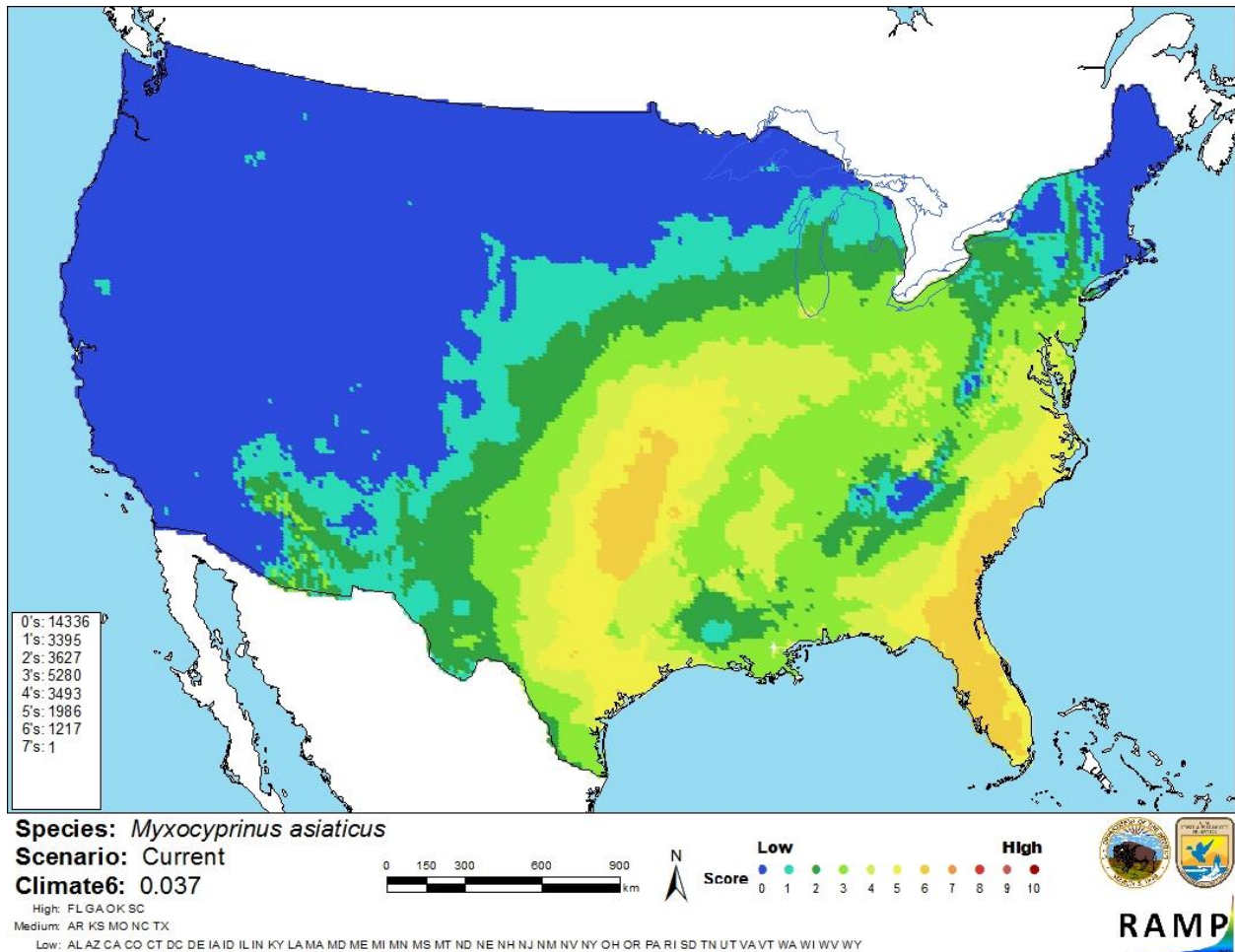


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Myxocyprinus asiaticus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of this assessment is low. Minimal information about *Myxocyprinus asiaticus* was available. No records of introductions were found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Myxocyprinus asiaticus is a freshwater fish endemic to China and is listed as endangered in its native range. The species is used in both the aquarium trade and in aquaculture. The history of invasiveness for *M. asiaticus* is uncertain. No records of introductions were found outside of its native range. The climate match for the contiguous U.S. is medium with highest matched areas in portions of the southern Atlantic Coast, Texas, Oklahoma, and Kansas. The certainty of assessment is low due to general lack of information. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information** No additional remarks.
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

- Froese, R., and D. Pauly, editors. 2017. *Myxocyprinus asiaticus* (Bleeker, 1864). FishBase. Available: <http://www.fishbase.org/summary/12304>. (January 2017).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Myxocyprinus asiaticus* (Bleeker, 1864). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2359106>. (January 2017).
- ITIS (Integrated Taxonomic Information System). 2017. *Myxocyprinus asiaticus* (Bleeker, 1864). Integrated Taxonomic Information System, Reston, Virginia. Available: <https://www.itis.gov/servlet/SingleRpt/SingleRpt#null>. (January 2017).
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk assessment mapping program: RAMP. U.S. Fish and Wildlife Service.
- Yuan, Y. C., S. Y. Gong, Z. Luo, H. J. Yang, G. B. Zhang, and Z. J. Chu. 2009. Effects of dietary protein to energy ratios on growth and body composition of juvenile Chinese sucker, *Myxocyprinus asiaticus*. *Aquaculture Nutrition* 16(2):205–212.
- Zhang, C., and Y. Zhao. 2000. Early development of Chinese sucker (*Myxocyprinus asiaticus*). *Dong wu xue Bao* 46(4):438–447. (English abstract.)

Zhang, Q., Z. Li, and J. Gui. 2000a. Isolation of a lethal rhabdovirus from the cultured Chinese sucker *Myxocyprinus asiaticus*. *Diseases of Aquatic Organisms* 42:1–9.

Zhang, C., Y. Zhao, and J. Kang. 2000b. A discussion on resources status of *Myxocyprinus asiaticus* (Bleeker) and their conservation and the recovery. *Journal of Natural Resources* 15(2):155–159. (English abstract.)

10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

Baensch, H. A., and R. Riehl. 1995. *Aquarien atlas. Band 4*. Mergus Verlag GmbH, Verlag für Natur-und Heimtierkunde, Melle, Germany.

Nichols, J. T. 1943. *The freshwater fishes of China. Natural history of Central Asia: volume IX*. The American Museum of Natural History, New York.

Riede, K. 2004. *Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081*. Federal Agency for Nature Conservation, Bonn.

Wang, S., editor. 1998. *China red data book of endangered animals. Pisces*. National Environmental Protection Agency. Endangered Species Scientific Commission. Science Press, Beijing.

Yue, P., and Y. Chen. 1998. *China red data book of endangered animals—pisces*. Science Press, Beijing.