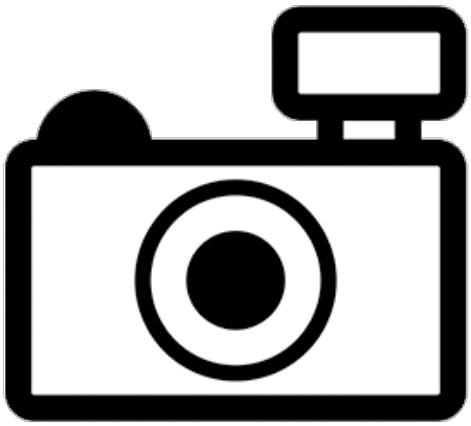
White Amur Bream (*Parabramis pekinensis*)
Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, May 2011
Revised, July 2019
Web Version, 2/10/2021

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

From Fricke et al. (2019):

"East Asia."

From Froese and Pauly (2019):

"Asia: Basin of the Amur, from Blagoveshchensk to the very mouths. Sungari, Ussuri, Lake Khanka, Liao [Russia]. China south to Shanghai and Ningpo."

"Recorded from Zhujiang (=Pearl River), Qiantangjiang, Changjiang, Huai River, Yellow River, Yalujiang [Luo and Chen 1998], all drainages of Guangdong Province [Lu 1991] and Tungting Lake where it is known as "yu-pien-tzu" [Nichols 1943]. [China]"

"Known from northern Vietnam [Kottelat 2001]."

"Occurs in the Ussuri River, Lake Khanka and the middle and lower reaches of the Amur [Reshetnikov et al. 1997]. [Russia]"

According to Froese and Pauly (2019), *P. pekinensis* is also native to Hong Kong.

Status in the United States

There are no reported, established populations of *Parabramis pekinensis* in the United States. No records of this species in trade were found.

From Mississippi Secretary of State (2019):

"All species of the following animals and plants have been determined to be detrimental to the State's native resources and further sales or distribution are prohibited in Mississippi. No person shall import, sell, possess, transport, release or cause to be released into the waters of the state any of the following aquatic species [including all species of *Parabramis*] or hybrids thereof."

Parabramis pekinensis falls within Group I of New Mexico's Department of Game and Fish Director's Species Importation List (New Mexico Department of Game and Fish 2010). Group I species "are designated semi-domesticated animals and do not require an importation permit." Species within family Cyprinidae have the additional restriction of "Not to be used as bait fish."

From Texas Parks and Wildlife (2020):

"The organisms listed here [including all species of *Parabramis*] are legally classified as exotic, harmful, or potentially harmful. No person may possess or place them into water of this state except as authorized by the department. Permits are required for any individual to possess, sell, import, export, transport or propagate listed species for zoological or research purposes; for aquaculture(allowed only for Blue, Nile, or Mozambique tilapia, Triploid Grass Carp, or Pacific White Shrimp); or for aquatic weed control (for example, Triploid Grass Carp in private ponds)."

Means of Introductions in the United States

There are no reported introductions of *Parabramis pekinensis* in the United States.

Remarks

There are no additional remarks for this species.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

"**Current status:** Valid as *Parabramis pekinensis* (Basilewsky 1855)."

From ITIS (2019):

Kingdom Animalia
  Subkingdom Bilateria
    Infrakingdom Deuterostomia
      Phylum Chordata
        Subphylum Vertebrata
          Infraphylum Gnathostomata
            Superclass Actinopterygii
              Class Teleostei
                Superorder Ostariophysi
                Order Cypriniformes
                Superfamily Cyprinoidea
                Family Cyprinidae
                Genus *Parabramis* Bleeker, 1865
                Species *Parabramis pekinensis* (Basilewsky, 1855)

Size, Weight, and Age Range

From Froese and Pauly (2019):

"55.0 cm TL male/unsexed; [Berg 1964]; common length : 8.5 cm SL male/unsexed; [Nichols 1943]; max. published weight: 4.1 kg [Berg 1964]; max. reported age: 17 years [Novikov et al. 2002]."

Environment

From Froese and Pauly (2019):

"Freshwater; brackish; benthopelagic; amphidromous [Riede 2004] […] 10°C - 20°C [Baensch and Riehl 1997] [assumed to be the recommended aquarium temperature];"

Climate

From Froese and Pauly (2019):

"Temperate; […] 54°N - 23°N, 112°E - 142°E."

Distribution Outside the United States

Native

From Fricke et al. (2019):

"East Asia."

From Froese and Pauly (2019):

"Asia: Basin of the Amur, from Blagoveshchensk to the very mouths. Sungari, Ussuri, Lake Khanka, Liao [Russia]. China south to Shanghai and Ningpo."

“Recorded from Zhujiang (=Pearl River), Qiantangjiang, Changjiang, Huai River, Yellow River, Yalujiang [Luo and Chen 1998], all drainages of Guangdong Province [Lu 1991] and Tungting Lake where it is known as "yu-pien-tzu" [Nichols 1943]. [China]”

“Known from northern Vietnam [Kottelat 2001].”

“Occurs in the Ussuri River, Lake Khanka and the middle and lower reaches of the Amur [Reshetnikov et al. 1997]. [Russia]”

According to Froese and Pauly (2019), *P. pekinensis* is also native to Hong Kong.

Introduced

There have been at least six introductions of *P. pekinensis* internationally (Froese and Pauly 2019). Two introductions probably did not lead to establishment in: Albania (year and source of population unknown [FAO 1997]) and Greece (year and source of population unknown [FAO 1997]). Two introductions did not lead to establishment in: Romania (between 1960-1962, source of population from China [FAO 1997]) and Hungary (in 1963, source of population unknown [Welcomme 1988]). Two introductions resulted in established populations in: Turkmenistan (year of introduction unknown; source of population from Yangtze Basin, China [Sal'nikov 1998]) and Uzbekistan (year of introduction unknown; source of population from China [Kamilov and Urchinov 1995]).

From Petr (2003):

“In slow flowing large canals and side storage reservoirs, as present alongside the Karakum canal in Turkmenistan, fish with pelagic eggs, such as *Aral barbel*, razor fish, the introduced Chinese carps and white Amur bream (*Parabramis pekinensis*) have been doing well. The introduced fish are well established in the Karakum canal and breed there.”

Ye et al. (2015) report that *P. pekinensis* was introduced to Lake Dianchi in southwestern China to “improve fisheries”, but are currently “absent, not acclimatized”.

From Ye et al. (2015):

“[…] some of the introduced species, such as breams (*Megalobrama amblycephala, Parabramis pekinensis*) could not become naturalized in the wild due to unsuccessful reproduction and/or intolerance to water pollution, and they apparently vanished soon after their introduction (Yang 1996).”

From Economidis et al. (2000):

“This species was introduced into Lake Mikri Prespa [Greece] by Albania in 1959 (Rakaj 1995).”

Means of Introduction Outside the United States

Froese and Pauly (2019):

"A popular cultured fish, introduced from its native range to other regions in the country [China] (intensive culture and extensive stocking in all kinds of inland waters) [Ma et al. 2003]."

"This has been translocated to areas within the country [Russia] for stocking in open waters. However it has failed to establish self-sustaining populations [Bogutskaya and Naseka 2002]."

Short Description

No physical description of *P. pekinensis* was reported in the literature.

Biology

From Froese and Pauly (2019):

"Feeds on higher aquatic plants."

"Assuming standard cyprinid reproduction."

From Gosline (1978):

"Viable hybrid offspring from crosses between *Hypophthalmichthys molitrix* and each of the following cyprinids have been reported: *Aristichthys nobilis*, *Ctenopharyngodon idella*, *Parabramis pekinensis*, and *Megalobrama terminalis* by Makeyeva and Sukanovna [sic] (1966); […]"

Human Uses

Casal (2006) reports that *P. pekinensis* was the tenth most popular fish used for freshwater aquaculture globally in the year 2000, with 511,730 metric tons produced that year.

From Froese and Pauly (2019):

"Its flesh is tasty but very bony. One of the most important commercial fishes of China [Berg 1964]."

Diseases

No records of OIE-reportable diseases (OIE 2019) were found for *Parabramis pekinensis.*

According to Wang et al. (2012), *P. pekinensis* can be infected with *Aeromonas hydrophila*.

According to Poelen et al. (2019) *Parabramis pekinensis* can be host to *Dactylogyrus petruscheweskyi*, *Falciungius parabramis*, *Carassotrema wui*, *Cotylaspis chinensis*, *Pseudorhadinorhynchus markewitchi*, *Pseudorhadinorhynchus pseudaspii*, *Dactylogyrus pekinensis*, *Dactylogyrus parabramis*, *Paradiplozoon parabramisi*, Diplozoon, *Aspidogaster*

parabramae, *Carassotrema koreanum*, *Carassotrema schistorchis*, Carassotrema, *Camallanus cotti*, *Clonorchis sinensis*, Dactylogyrus, *Aeromonas sobria*, *Aeromonas veronii*, and *Aeromonas hydrophila*.

Threat to Humans

Clonorchis sinensis, which parasitizes *P. pekinensis* (Poelen et al. 2014) is transferable to humans (CDC 2019).

From CDC (2019):

"The trematode *Clonorchis sinensis* (Chinese or oriental liver fluke) is an important foodborne pathogen and cause of liver disease in Asia. This appears to be the only species in the genus involved in human infection."

"Liver flukes infect the liver, gallbladder, and bile duct in humans. While most infected persons have no symptoms, infections that last a long time can result in severe symptoms and serious illness. Infections are not known to last longer than 25–30 years, the lifespan of the parasite."

3 Impacts of Introductions

From Skolka and Preda (2010):

"During the last decades, 31 fish species [including *P. pekinensis*] were introduced successfully in freshwater ecosystems [along the Black Sea coast and Danube Delta in Romania] for aquaculture. Acclimatized in artificial pounds, these species are capable to develop self-sustaining populations in natural ecosystems (Iacob & Petrescu-Mag, 2008; DAISIE). Taking account of the current economic situation and of the uncontrolled development of aquaculture in private ponds, these species represent a real threat to biodiversity."

4 History of Invasiveness

Parabramis pekinensis is a commonly used fish in the freshwater aquaculture industry globally in the year 2000, with 511,730 metric tons produced that year. It has been introduced from its native range to other regions in China and Russia, but no known established populations exist. Therefore, the history of invasiveness is data deficient.

5 Global Distribution

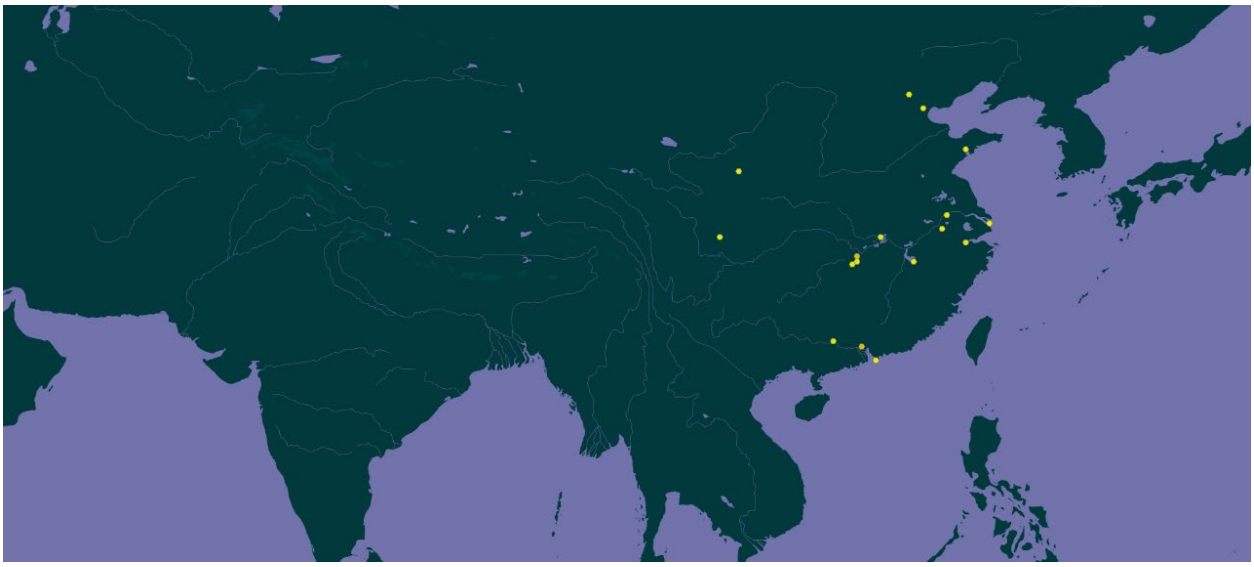


Figure 1. Known global distribution of *Parabramis pekinensis*. Map from GBIF Secretariat (2019). Established populations in Vietnam, Uzbekistan and Turkmenistan are provided by Froese and Pauly (2019). However, the exact locations of these populations are unknown and therefore not used to select source points for the climate match.

6 Distribution Within the United States

No wild populations of *Parabramis pekinensis* have been reported in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Parabramis pekinensis* was mostly low to medium for the contiguous United States. There were patches of low climate match on the west and northeastern coasts. The patches of medium and high climate match were located in the central and southeastern portions of the United States. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.098, medium (scores greater than 0.005, but less than 0.103, are classified as medium). The following States had medium individual climate scores: Arkansas, Arizona, Missouri, and South Dakota. The following States had high individual climate scores: Colorado, Florida, Georgia, Kansas, Montana, North Carolina, North Dakota, Nebraska, New Mexico, Oklahoma, South Carolina, Texas, and Wyoming.

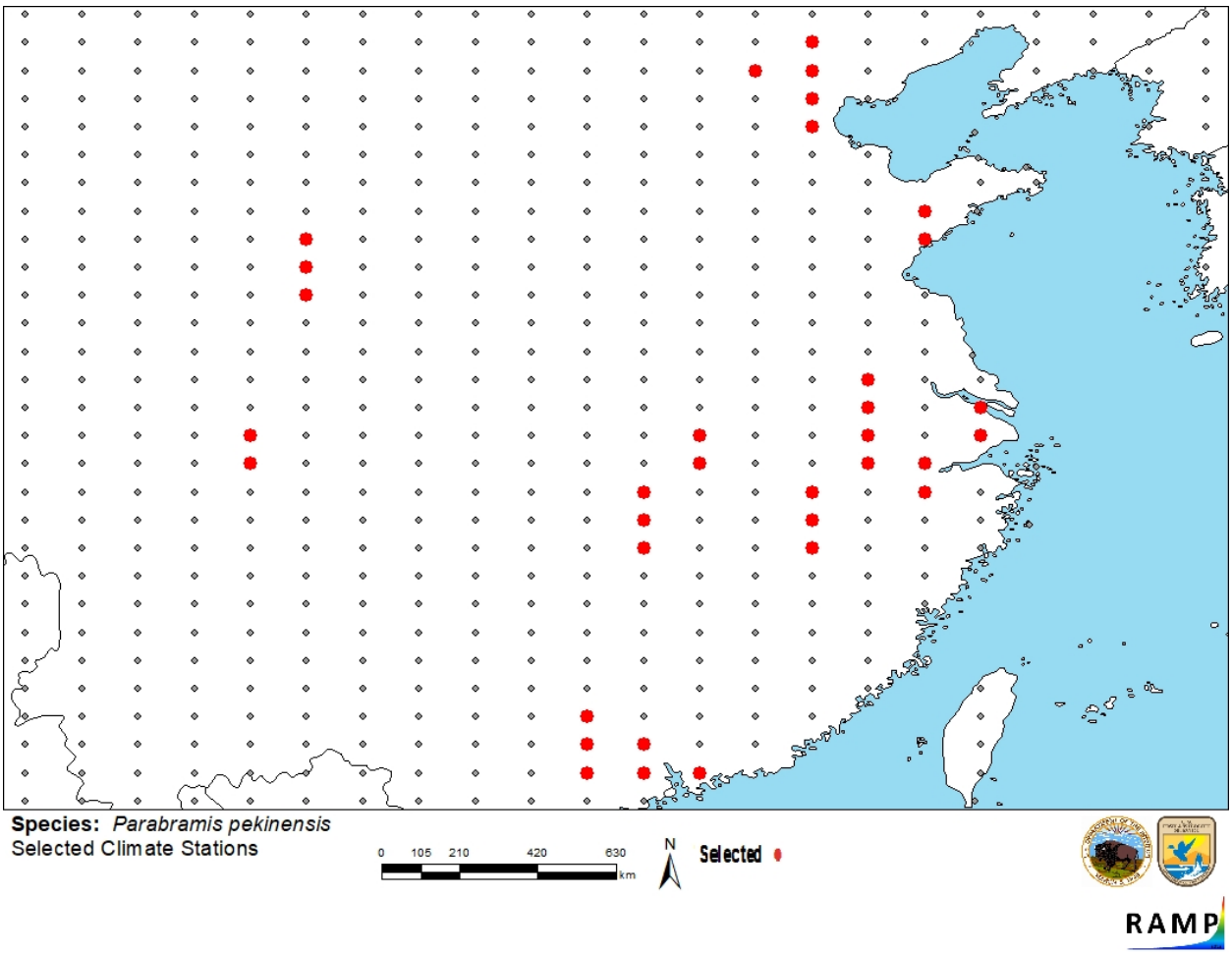


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in eastern China selected as source locations and non-source locations (gray) for *Parabramis pekinensis* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences and do not necessarily represent the locations of occurrences themselves.

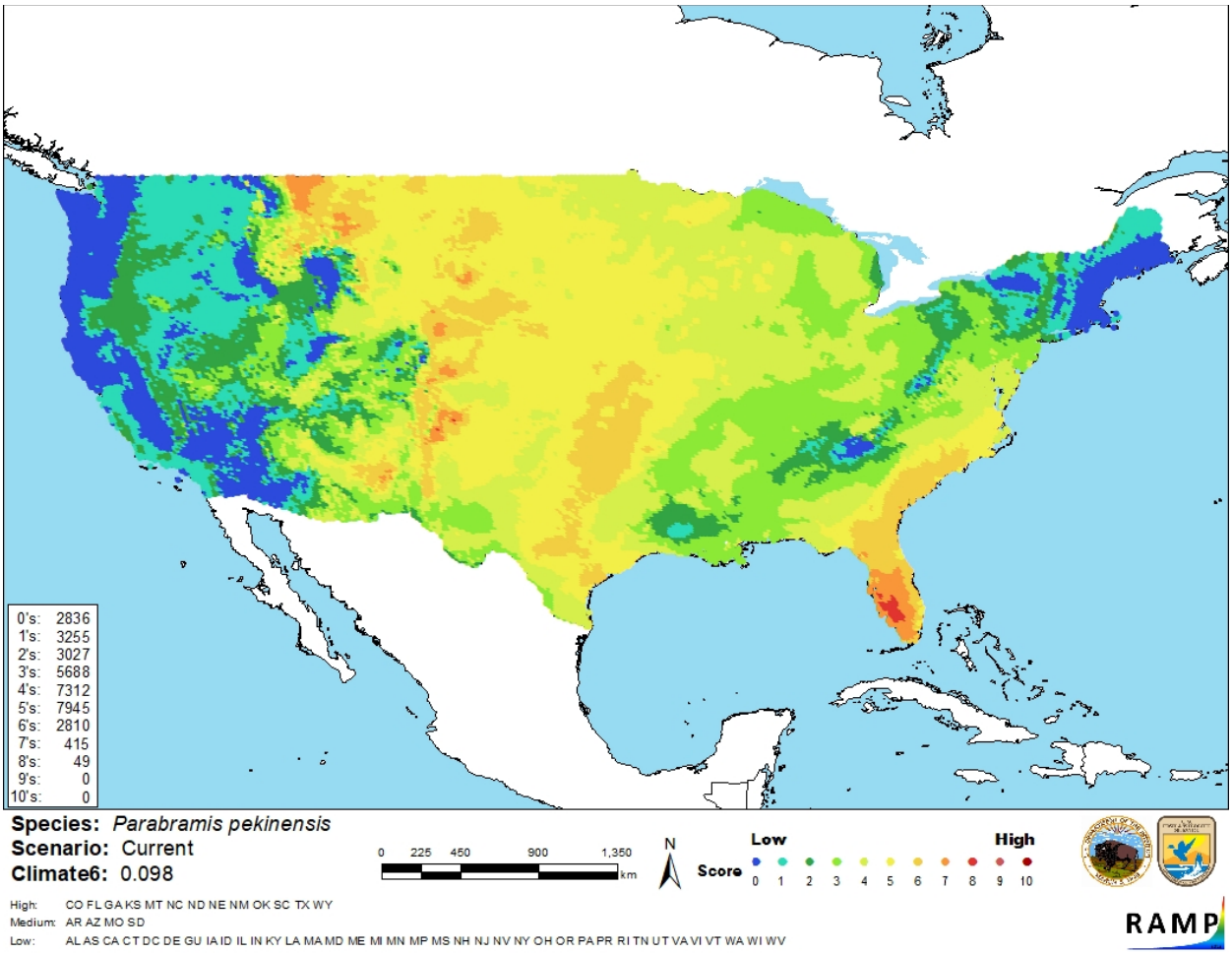


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Parabramis pekinensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

The certainty of assessment for *Parabramis pekinensis* is low. There was information on aquaculture introductions of *Parabramis pekinensis* globally, but several populations did not establish successfully. There are documented threats to biodiversity from aquaculture in Romania, but no literature of potential for invasiveness in the United States.

9 Risk Assessment

Summary of Risk to the Contiguous United States

White Amur bream (*Parabramis pekinensis*) is an Asian cyprinid fish that is native to freshwater and brackish rivers in China, Russia, Hong Kong, and Vietnam. It is an important species for human consumption, but it can also serve as an intermediate host for the trematode *Clonorchis sinensis*, which causes illness in humans. The history of invasiveness is data deficient; *P. pekinensis* has been introduced to lakes and canals outside of its native range in China, Russia, Greece, Albania, Uzbekistan, and Turkmenistan with mixed results. The overall climate match for the contiguous United States was medium. Most of the contiguous United States had medium or high climate matches, but the western and northeastern coasts had low climate match. The certainty of assessment is low due to a general lack of information. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): Data Deficient**
- **Overall Climate Match Category (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information: None**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

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11 Literature Cited in Quoted Material

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.

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