

***Labeo boga* (a carp, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, May 2012

Revised, March 2018

Web Version, 5/30/2018

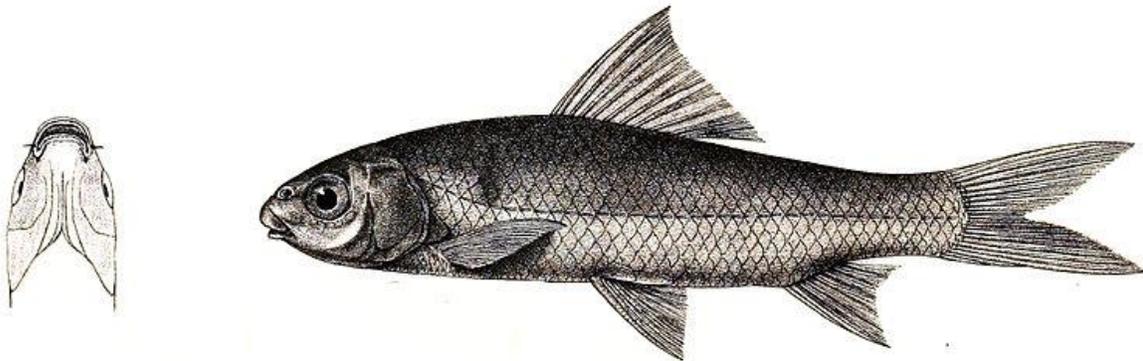


Photo: C. L. Griesbach. Public domain. Available:
https://commons.wikimedia.org/wiki/File:Labeo_boga_Griesbach_128.jpg. (March 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Asia: Pakistan, India, Bangladesh, Nepal and Myanmar.”

Status in the United States

This species has not been reported as introduced or established in the U.S.

Means of Introductions in the United States

This species has not been reported as introduced or established in the U.S.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysii
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Labeo*
Species *Labeo boga* (Hamilton, 1822)”

From Eschmeyer et al. (2018):

“Current status: Valid as *Labeo boga* (Hamilton 1822). Cyprinidae: Labeoninae.

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 30.0 cm TL male/unsexed; [Talwar and Jhingran 1991]”

From Hossain et al. (2015):

“[...] the maximum body weight of *L. boga* recorded in this study was 276.10 g which is much less than that recorded by Parvin et al. (2011) as 450 g in Rajshahi while studying the sex ratio and fecundity of this species.”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic; potamodromous [Riede 2004].”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Asia: Pakistan, India, Bangladesh, Nepal and Myanmar.”

From Dahanukar (2010):

“Throughout India except western face of the Western Ghats. Also Pakistan, Nepal, Bangladesh and Myanmar (Menon 1999).”

“This carp is common in the tributaries of the Ganga and also in the Godavari and Krishna rivers (Talwar and Jhingran 1991).”

Introduced

This species has not been reported as introduced or established outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced or established outside of its native range.

Short Description

From Günther (1868):

“Mouth crescent-shaped, transverse, not very broad. Upper and lower jaws with well-developed lips, which are continuous; each jaw with a sharp inner fold. Two small barbels hidden in a deep lateral groove. Snout rather thick, projecting beyond the lower jaw, with a small lobe on each side. Eye of moderate size, somewhat behind the middle of the length of the head. There are five longitudinal series of scales between the lateral line and the root of the ventral fin. Body oblong, its depth being more than the length of the head. The origin of the dorsal fin is considerably in advance of that of the ventral, and nearer to the end of the snout than to the root of the caudal. Caudal fin deeply forked. Coloration uniform.”

From Tropical Fish Finder (2018):

“*Labeo boga* is known as the Violet Gilled Shark because of its peculiar appearance. It is basically colourless except for a vague pinkish-grey tint, but its gills are clearly visible through its transparent gill covers, resulting in a very distinctive looking fish.”

Biology

From Dahanukar (2010):

“*Labeo boga* inhabits large rivers and their tributaries, above tidal influence (Menon 1999). It attains a length of 30 cm and it spawns in flooded rivers (Talwar and Jhingran 1991).”

Human Uses

From Hossain et al. (2015):

“The boga lebeo, *Labeo boga* (Hamilton 1822) [...] is a commercially important indigenous fish species of Bangladesh.”

From Parvin et al. (2011):

“The fish tastes sweet and is a rich source of protein for the common people of Bangladesh.”

From Seriously Fish (2018):

“Despite its unsuitability for the majority of home aquaria, this species is available in the aquarium trade on an irregular basis, and has also been marketed as ‘violet-gilled shark’, ‘red-gilled violet shark’ and ‘blushing violet shark’.”

Diseases

No information available. No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

4 Global Distribution



Figure 1. Known global distribution of *Labeo boga*. Map from GBIF Secretariat (2018). The location in the Bay of Bengal was assumed to be an error and was not used in the climate matching analysis because *L. boga* is a freshwater species.

5 Distribution Within the United States

This species has not been reported as introduced or established in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the Continental U.S. was 0.0, which is a low climate match. The climate match across the entire contiguous U.S. was low except for in Southern Arizona, Texas, and Florida, where the climate match was medium to low.

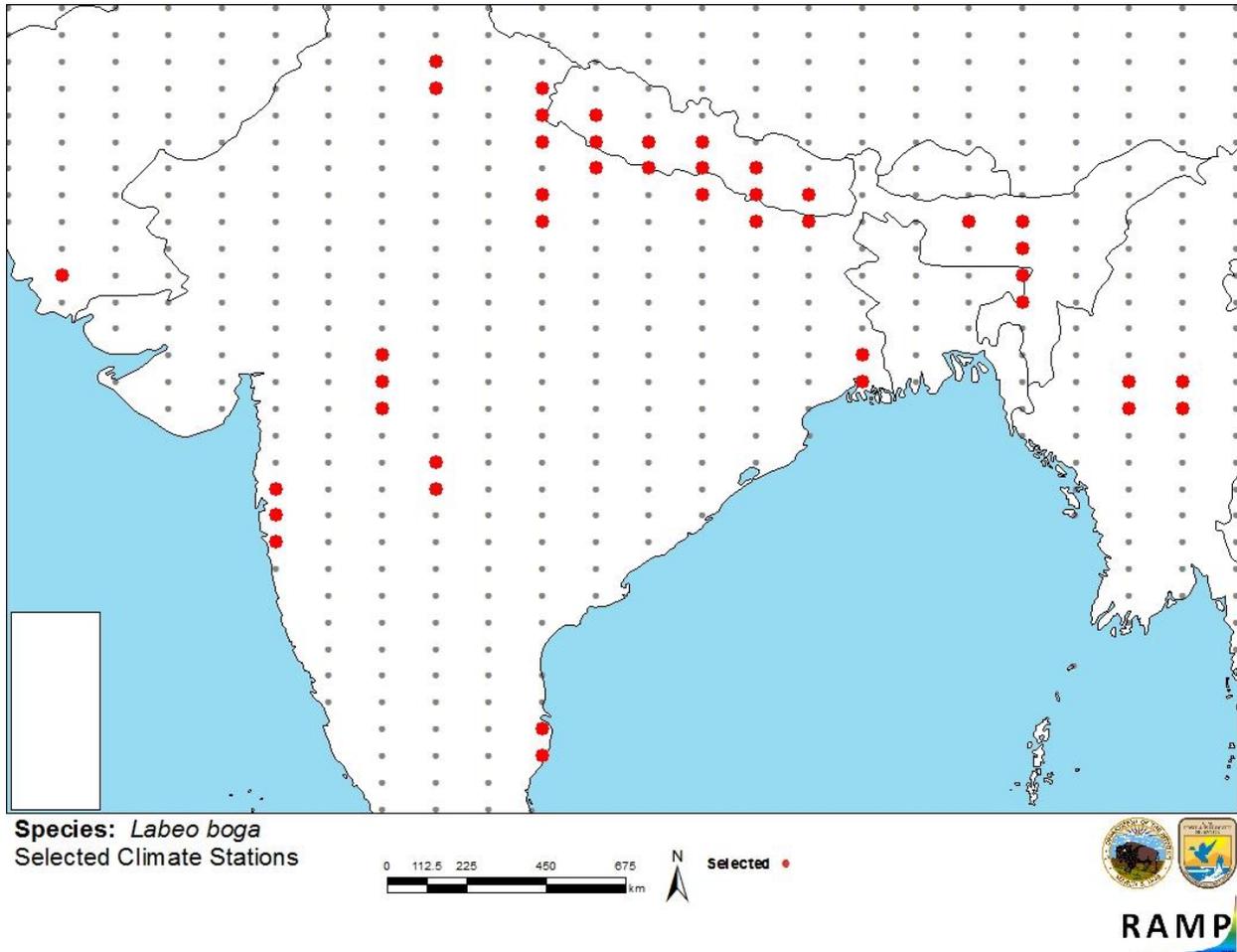


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; India, Nepal, Myanmar, and Pakistan) and non-source locations (gray) for *Labeo boga* climate matching. Source locations from GBIF Secretariat (2018).

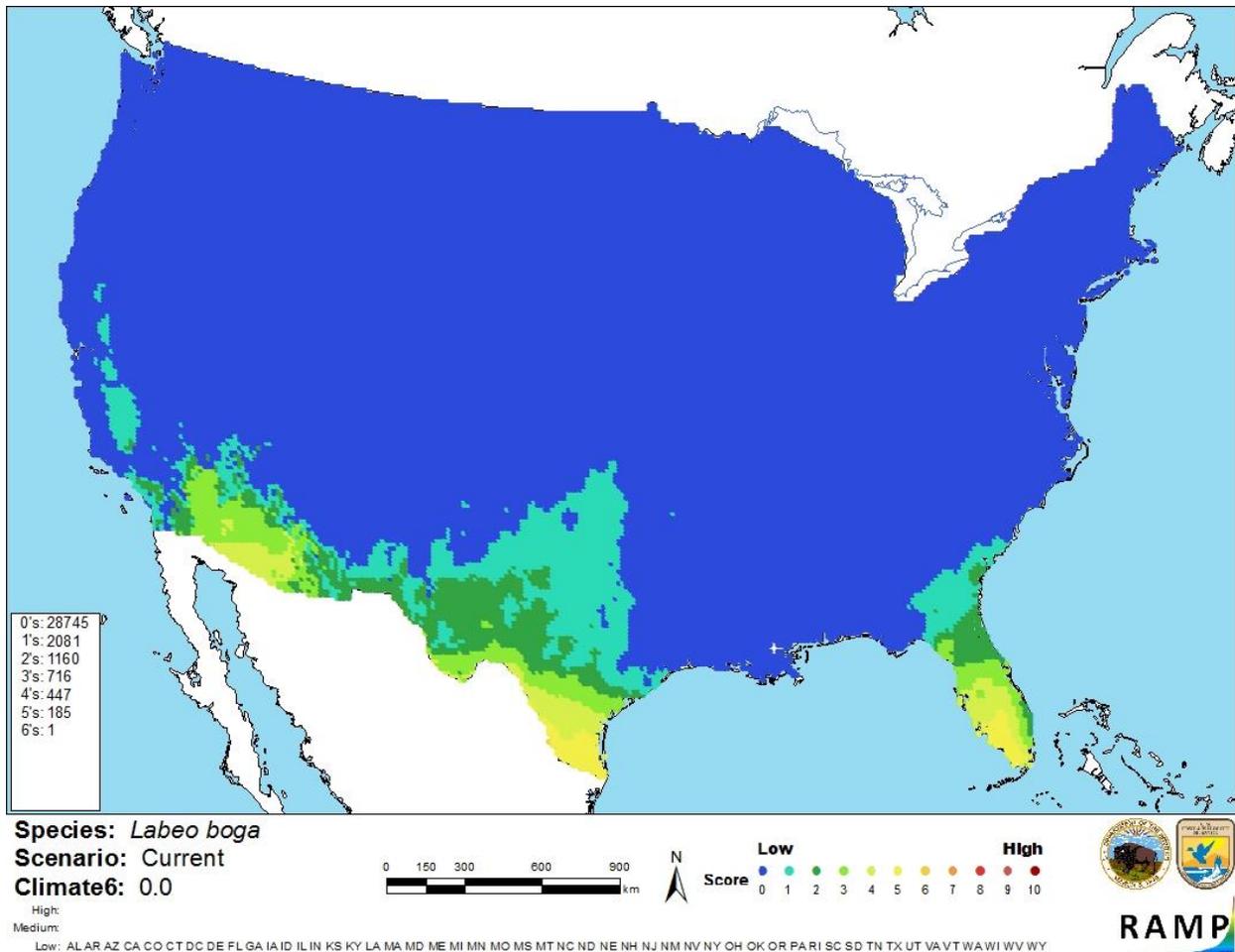


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Labeo boga* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0= Lowest match, 10=Highest match.

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
$0.000 < X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

There is some information available on the biology and distribution of *Labeo boga*. No introductions of this species outside of its native range have been documented. Because of this, no impacts of introductions have been documented, so certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Labeo boga is a carp native to the Indian Subcontinent. This species is sometimes used in the aquarium trade, but it has never been reported as introduced outside of its native range. *L. boga* has a low climate match with the contiguous United States. Because of a lack of information from which to base an assessment of invasive potential, certainty of this assessment is low. The overall risk assessment category is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **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.

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Hossain, M. Y., S. Jahan, M. A. S. Jewel, M. M. Rahman, M. M. Khatun, and S. Jasmine. 2015. Biological aspects of the critically endangered fish, *Labeo boga* in the Ganges River, Northwestern Bangladesh. *Sains Malaysiana* 44(1):31-40.

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Parvin, M.R., Al-Misned, F.A. & Mortuza, M.G. 2011. The fecundity and sex ratio of *Labeo boga* (Hamilton) (Cypriniformes: Cyprinidae) of Rajshahi, Bangladesh. *Continental Journal of Fisheries and Aquatic Science* 5(3): 19-21.

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Tropical Fish Finder. 2018. The bigger shark-minnows. Available: <http://www.tropicalfishfinder.co.uk/article-detail?id=140>. (March 2018).

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.

Menon, A. G. K. 1999. Check list - fresh water fishes of India. Records of the Zoological Survey of India, Occasional Paper 175.

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, Germany.

Talwar, P. K., and A. G. Jhingran. 1991. Inland fishes of India and adjacent countries volume 1. A. A. Balkema, Rotterdam, The Netherlands.