

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

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2012

Revised, July 2018

Web Version, 7/13/2018



Photo: ONG OeBenin. Licensed under Creative Commons CC BY-NC. Available: <https://www.inaturalist.org/photos/4555850>. (July 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Africa: Senegal, Volta, Niger-Benue, Chad, Gambia [Lévêque and Daget 1984; Reid 1985; Lévêque 1990; Lévêque 2003] and Culufi rivers [Reid 1985]. Not known to occur outside West Africa [Reid 1985].”

Froese and Pauly (2018) report that *L. senegalensis* is native to 15 countries: Benin, Burkina Faso, Cameroon, Chad, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Senegal, Togo.

Status in the United States

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

Means of Introductions into the United States

This species has not been reported as introduced or established in the United States.

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 Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Labeo*
Species *Labeo senegalensis*”

“Current Standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Maturity: L_m 17.5 range ? - ? cm

Max length : 65.0 cm TL male/unsexed; [Lévêque and Daget 1984]; max. published weight: 3.8 kg [Lévêque and Daget 1984]; max. reported age: 6 years [Blake and Blake 1978]”

Environment

From Froese and Pauly (2018):

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

“[...] 22°C - 26°C [Baensch and Riehl 1995; assumed to represent recommended aquarium water temperatures]”

Climate/Range

From Froese and Pauly (2018):

“Tropical; [...] 28°N - 2°N, 18°W - 24°E”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Africa: Senegal, Volta, Niger-Benue, Chad, Gambia [Lévêque and Daget 1984; Reid 1985; Lévêque 1990; Lévêque 2003] and Culufi rivers [Reid 1985]. Not known to occur outside West Africa [Reid 1985].”

Froese and Pauly (2018) report that *L. senegalensis* is native to 15 countries: Benin, Burkina Faso, Cameroon, Chad, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Senegal, Togo.

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description

From Froese and Pauly (2018):

“Dorsal soft rays (total): 16-19; Anal soft rays: 8 - 11. Diagnosis: dorsal profile straight to slightly arched; rostral lobe poorly developed, its free margin smooth; margin of upper lip papillose, its inner surface smooth; body depth 2.5-3.2x SL; depth of caudal peduncle 0.8-1.2x its length; 36-60 (50-150 mm) and 52-65 (150-250 mm) gill rakers; scale formula 5.5-7.5/36-41/6.5-7.5; 3.5-4.5 scales between lateral line and pelvic-fin base; 16 scales around caudal peduncle; 12-15 dorsal fin branched rays; body silvery in life [...] [Lévêque 1990; Lévêque 2003].”

Biology

From Montchowui et al. (2010):

“Aspects of the reproductive biology and population structure of *Labeo senegalensis* were investigated in the Ouémé River between April 2005 and March 2006. Reproductive strategy was investigated using gonadosomatic index, ovarian structure and fecundity. Average size-at-

first-maturity (L_{50}) was estimated at 29 cm TL for females and 25.7 cm TL for males. The average sex ratio (1:0.96) was not significantly different from unity. Oocyte diameter frequency distribution suggests synchronous development with a single total spawning. Absolute fecundity ranged between 12 948 and 74 832 eggs. *Labeo senegalensis* is a highly fecund fish that presents a seasonal cycle of reproduction from May to October during the rainy season.”

From Adeyemi and Akombo (2012):

“The findings of this study showed that 80.65% of items in the diet of *Labeo senegalensis* were plant materials with other materials forming 19.35% of the components. *Labeo senegalensis* in Idah area of River Niger of Kogi State [Nigeria] could therefore [sic] termed a herbivorous detritivore feeding more on plant materials.”

From Reichard (2008):

“Two *Labeo* species, *Labeo parvus* Boulenger, 1902 and *Labeo coubie* Rüppell, 1832, were bottom-dwelling, while *Labeo senegalensis* Valenciennes, 1842, were not [...]”

“Indeed, in *L. senegalensis*, whose body shape strongly suggests a demersal habit, no contact with the river bed was observed.”

Human Uses

From Froese and Pauly (2018):

“Fisheries: commercial”

From Montchowui et al. (2010):

“*Labeo senegalensis*, locally called ‘Gbogbé’, is the larger of the two *Labeo* species present in the Ouémé River (Lalèyè et al. 2004) and is an important species in catches, as well being as a [sic] popular food fish. Therefore, it currently experiences a high fishing pressure (Montchowui et al. 2008).”

Diseases

From Froese and Pauly (2018):

“*Thelohanellus* Infection (*Thelohanellus* sp.), Parasitic infestations (protozoa, worms, etc.)”

According to Šimková et al. (2017), *L. senegalensis* is host to the gill monogenean parasites *Dactylogyrus senegalensis* and *D. titus*.

No OIE-reportable diseases have been documented in this species.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No information available. No introductions of this species have been reported.

4 Global Distribution



Figure 1. Known global distribution of *Labeo senegalensis*, reported from western Africa. Source locations from GBIF Secretariat (2017). Although the location in the Central African Republic was not listed among the countries where *L. senegalensis* is native, the location is within the Chad basin where *L. senegalensis* is native so the point was included in the climate matching analysis. No georeferenced occurrences were available for established populations of *L. senegalensis* in Gambia, Guinea, Guinea-Bissau, or Mauritania.

5 Distribution within the United States

This species has not been reported as introduced or established in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was medium in southern coastal Texas and southern Florida, and low throughout the remainder of the contiguous United States. Climate 6 score indicated that the contiguous United States has a low climate match overall. Scores of 0.005 and below are classified as low match; Climate 6 score for *L. senegalensis* was 0.000.

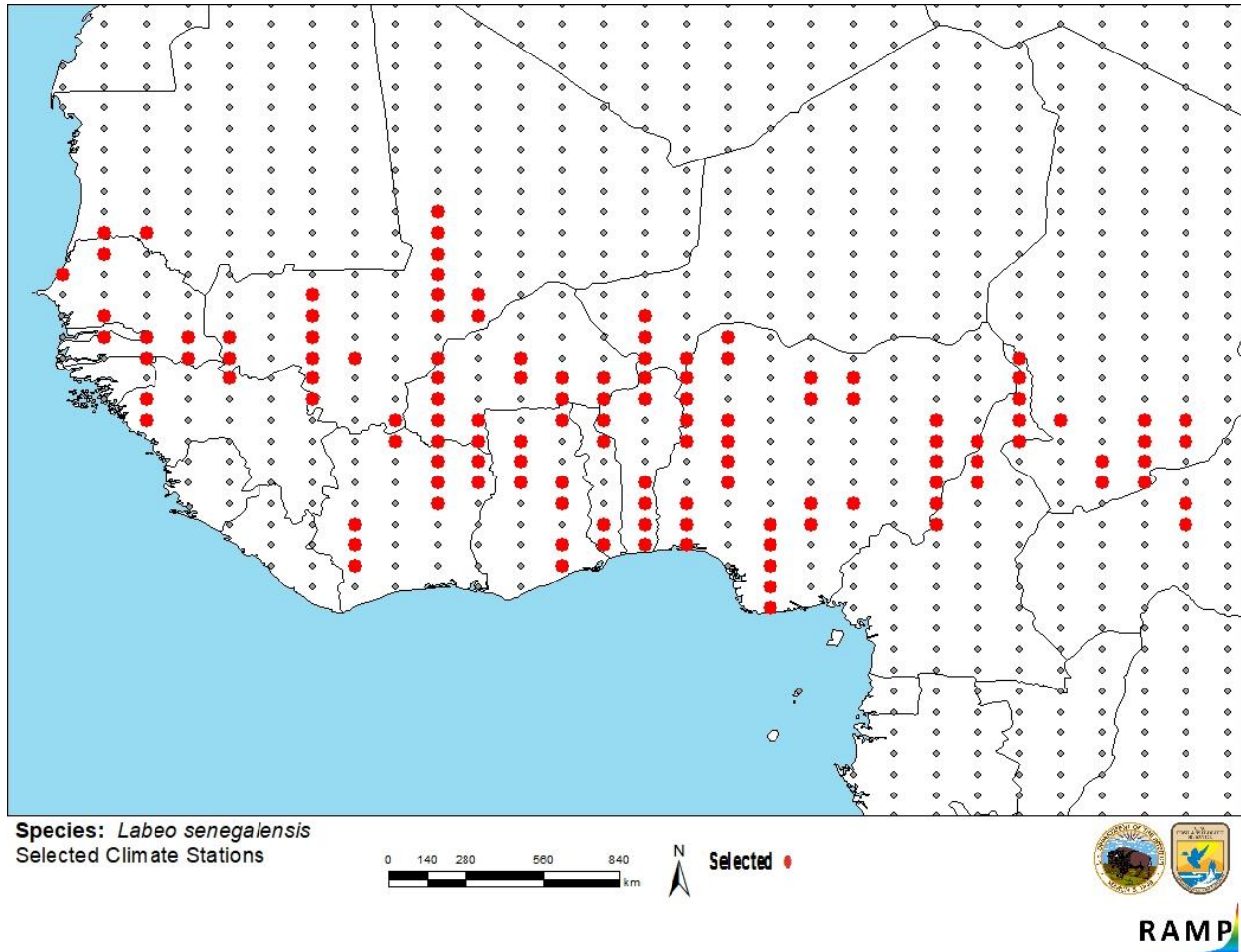


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in West Africa selected as source locations (red; Mauritania, Senegal, Gambia, Guinea-Bissau, Guinea, Ivory Coast, Mali, Burkina Faso, Ghana, Togo, Benin, Nigeria, Niger, Cameroon, Chad, Central African Republic) and non-source locations (gray) for *L. senegalensis* climate matching. Source locations from GBIF Secretariat (2017).

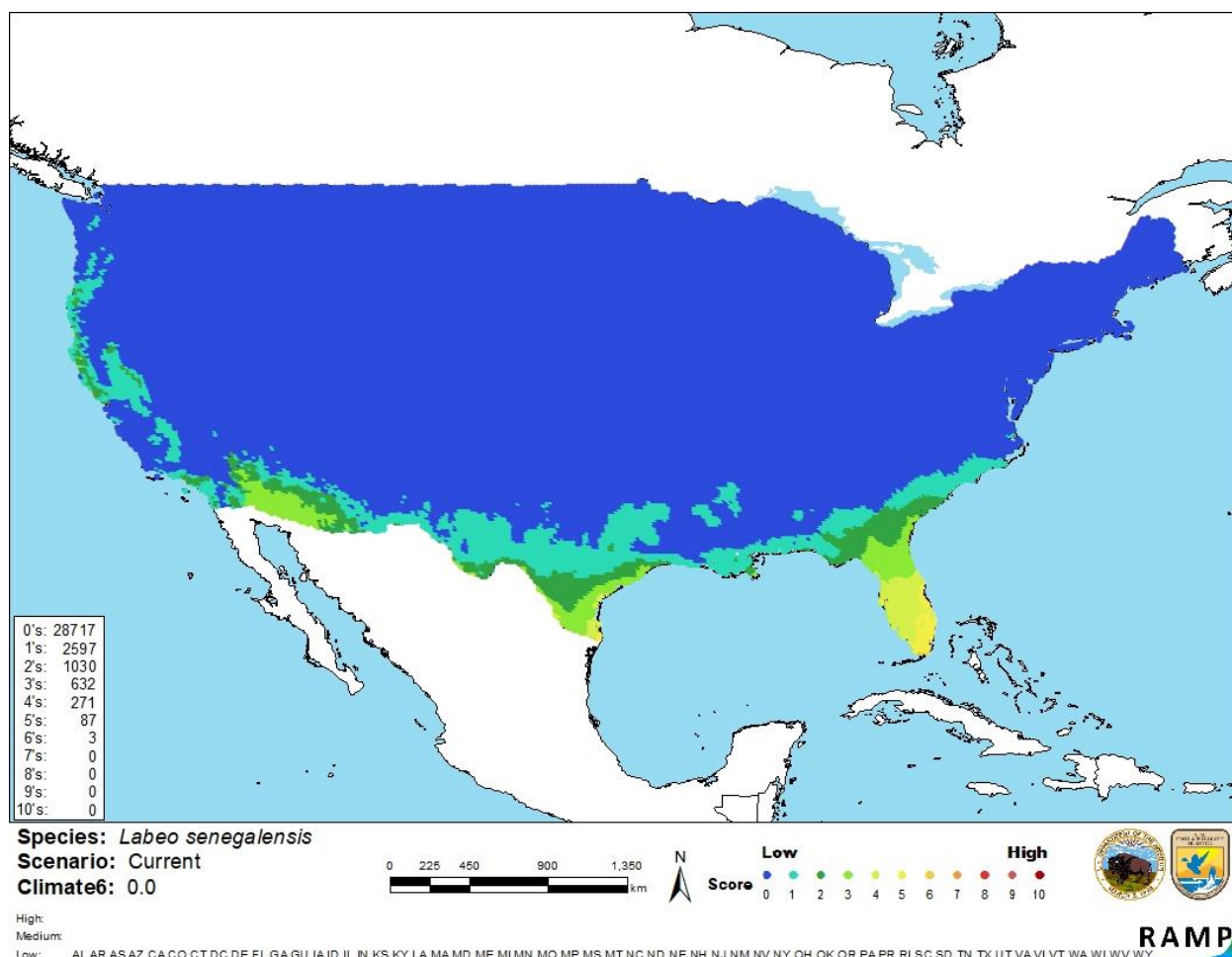


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *L. senegalensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Information is available on the biology, ecology, and distribution of *Labeo senegalensis*. However, no introductions of this species have been reported so any impacts of introduction of this species remain unknown. Without further information on introductions, certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Labeo senegalensis is a species of carp broadly distributed in West Africa. It is harvested commercially and used as a food fish. *L. senegalensis* is susceptible to various parasitic infections. No introductions of *L. senegalensis* have been reported, and any impacts of introduction remain unknown. Therefore, certainty of assessment is low. Climate match to the contiguous United States was low overall, with medium matches only in southern Florida and southern Texas. Without a history of introduction on which to base the assessment of risk, the overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: 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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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.

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