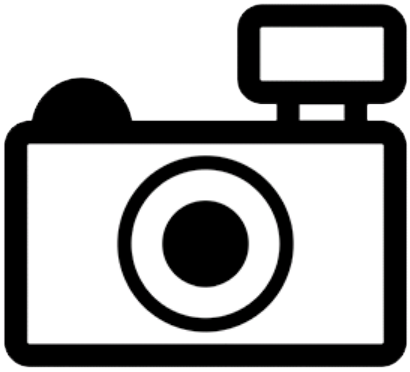
Hypostomus macrophthalmus (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2012
Revised, September 2018
Web Version, 2/25/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"South America: Sipaliwini River basin [Suriname]."

From Boeseman (1968):

"The present species has hitherto only been found in the upper reaches of the Sipaliwini River, but in fact this is the only locality in the upper Corantijn River basin explored."

Status in the United States

This species has not been reported as introduced or established in the United States. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"Several morphologically distinct but unidentified *Hypostomus* species have been recorded as established in the United States: these included populations in Indian Springs in Nevada; Hillsborough County in Florida; and the San Antonio River and San Felipe Creek in Texas (Courtenay and Deacon 1982; Courtenay et al. 1984, 1986; Courtenay and Stauffer 1990; Page and Burr 1991; López-Fernández and Winemiller 2005). A population of an unidentified *Hypostomus* species is firmly established in Hawaii (Devick 1991a, b). Reported from Arizona, Colorado, Connecticut, Louisiana, and Pennsylvania. Failed in Connecticut, Massachusetts, and Pennsylvania."

This species was not found for sale from U.S.-based online aquarium retailers and it does not appear to be in trade in the United States.

Means of Introduction into the United States

This species has not been reported as introduced or established in the United States. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"Members of this genus have been introduced through a combination of fish farm escapes or releases, and aquarium releases (Courtenay and Stauffer 1990; Courtenay and Williams 1992). In Texas, the initial introduction occurred when *Hypostomus* entered local streams after escaping from pool and canal systems of the San Antonio Zoological Gardens in or before 1962 (Barron 1964); the Comal County introduction was probably due to an aquarium release (Whiteside and Berkhouse 1992)."

Remarks

From Nico et al. (2018):

"The genus *Hypostomus* contains about 116 species (Burgess 1989). Highlighting the serious need for additional taxonomic and systematic work, Armbruster (1997) concluded that it is currently impossible to identify most species in the genus. Several apparently different *Hypostomus* species have been collected in the United States but not definitively identified to species level (Page and Burr 1991; Courtenay and Stauffer 1990). Distinguishing characteristics of the genus and a key to loricariid genera were provided by Burgess (1989) and Armbruster (1997). Photographs appeared in Burgess (1989) and Ferraris (1991). *Hypostomus* has officially replaced the generic name *Plecostomus*. The genus was included in the key to Texas fishes of Hubbs et al. (1991) and several identifying traits were also given by Page and Burr (1991)."

From Mol (2012):

"*Remarks:* a questionable species, the type specimen is juvenile (Weber *et al.*, 2012)."

This species was originally described as *Hypostomus pseudohemiurus macrophthalmus* (Boeseman 1968; Fricke et al. 2018). Both the original name and the currently accepted scientific name were used in searching for information for this report.

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 Siluriformes
Family Loricariidae
Subfamily Hypostominae
Genus *Hypostomus*
Species *Hypostomus macrophthalmus* Boeseman, 1968"

"Current Standing: valid"

From Fricke et al. (2018):

"Valid as *Hypostomus macrophthalmus* Boeseman 1968. Loricariidae: Hypostominae."

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 7.9 cm SL male/unsexed; [Weber 2003]"

Environment

From Froese and Pauly (2018):

"Freshwater; demersal."

Climate/Range

From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States

Native

From Froese and Pauly (2018):

"South America: Sipaliwini River basin [Suriname]."

From Boeseman (1968):

"The present species has hitherto only been found in the upper reaches of the Sipaliwini River, but in fact this is the only locality in the upper Corantijn River basin explored."

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 Mol (2012):

"*Diagnostic characteristics*: depth caudal peduncle 1.35-1.7 in interdorsal length; dorsal and caudal fins mostly spotted or with bands; dark spots relatively large, ovate, lacking on posterior part of caudal peduncle; lower caudal lobe dusky without spots"

Biology

From Boeseman (1968):

"All specimens were collected in or near rapids."

From Mol (2012):

"*Position in the water column*: bottom"

Human Uses

Information not available.

Diseases

Information not available. No OIE-reportable diseases have been documented in this species.

Threat to Humans

From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions

No introductions of *H. macrophthalmus* have been reported outside its native range so no impacts of introduction are known. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"The effects of these loricariid catfish is largely unknown. In Texas, Hubbs et al. (1978) reported possible local displacement of algae-feeding native fishes such as *Campostoma anomalum* by *Hypostomus*, and López-Fernández and Winemiller (2005) suggest that reductions in *Dionda diaboli* abundance in portions of San Felipe Creek are due to population increases of *Hypostomus*. Because of their abundance in Hawaii, introduced *Hypostomus*, *Pterygoplichthys*, and *Ancistrus* may compete for food and space with native stream species (Devick 1989; Sabaj and Englund 1999)."

4 Global Distribution

No georeferenced occurrences of this species were available (GBIF Secretariat 2017).

Figure 1. Map of Suriname highlighting the Sipaliwini River (circled in purple, in southern Suriname), where *H. macrophthalmus* is native (Froese and Pauly 2018). Map: U.S. Central Intelligence Agency. Public domain. Available: https://commons.wikimedia.org/wiki/File:Suriname_pol91.jpg.

5 Distribution within the United States

There is currently no known distribution of *Hypostomus macrophthalmus* within the United States; however, unidentified species of *Hypostomus* are established in Nevada, Florida, Texas, and Hawaii.

6 Climate Matching

Summary of Climate Matching Analysis

Note: The climate match is based on the entire river reported as the native range of this species because no georeferenced occurrences were available.

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low throughout the contiguous United States, reflected in a Climate 6 score of 0.000. Scores of 0.005 and below are classified as low match. All states had a low climate score.

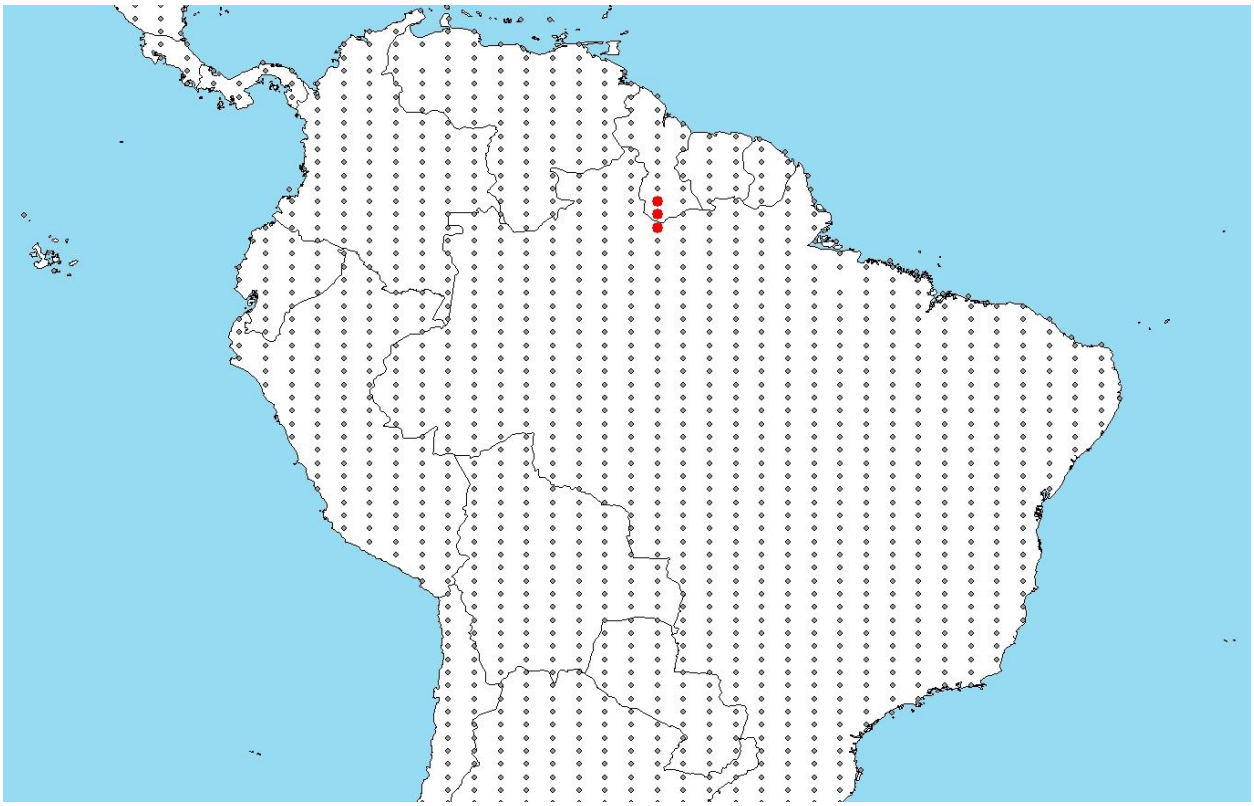


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Suriname, Brazil) and non-source locations (gray) for *Hypostomus macrophthalmus* climate matching. Source locations from verbal description of range given by Froese and Pauly (2018). Selected weather stations are within 100 km of species occurrences and do not necessarily represent the location of occurrences themselves.

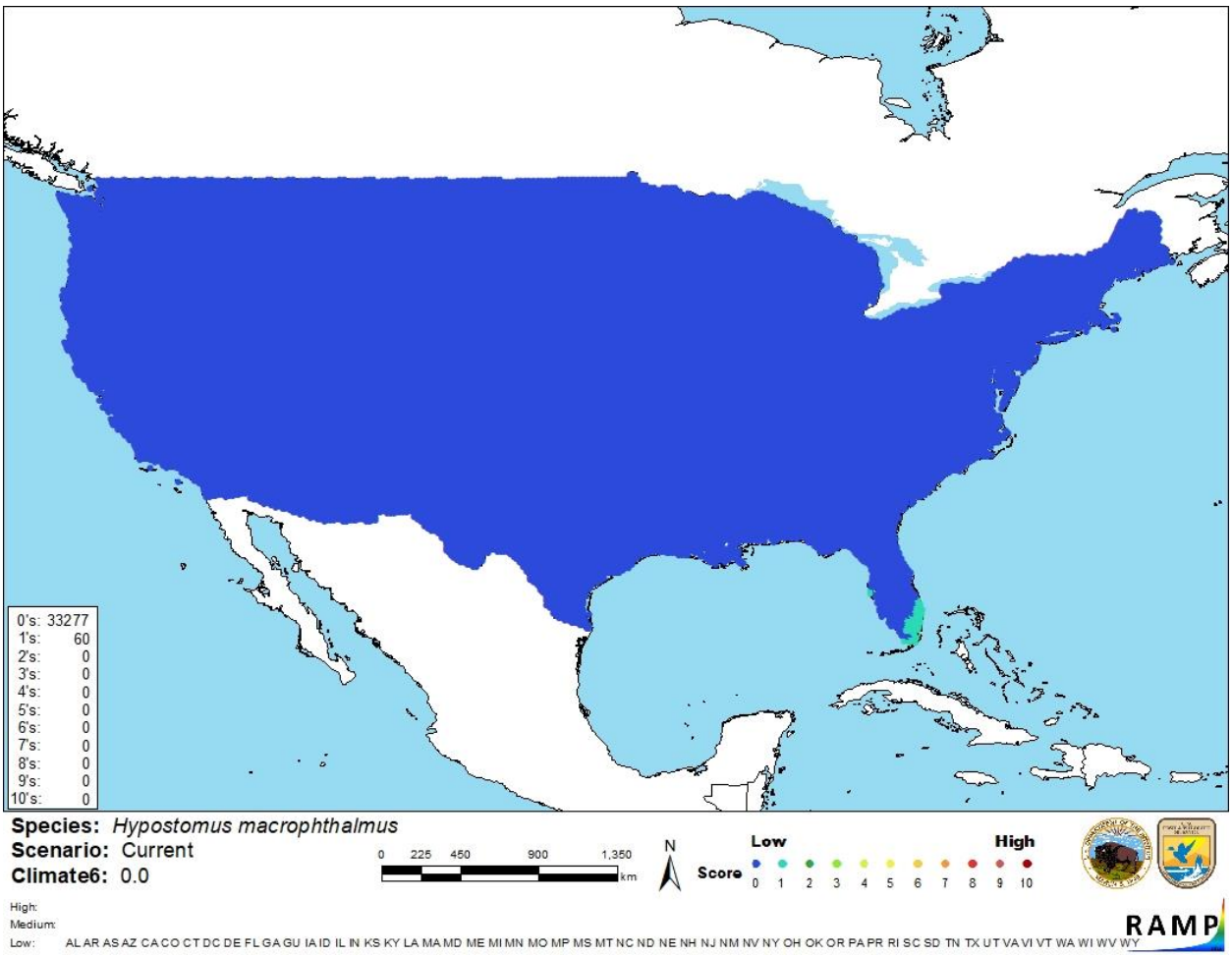


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Hypostomus macrophthalmus* in the contiguous United States based on source locations reported by Froese and Pauly (2018). 0= Lowest match, 10= Highest match.

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

Extremely limited information was available on the biology and ecology of *H. macrophthalmus*. It has not been reported as introduced outside its native range, so no impacts of introduction are known. However, unidentified species of *Hypostomus* have become established in the United States, and it is possible that one or more of those populations could be identified later as *H. macrophthalmus*. There is considerable uncertainty about the taxonomy of this genus and about species-level identification. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Hypostomus macrophthalmus is a catfish native to the Sipaliwini River basin in Suriname. This species has no documented history of introduction in the United States or elsewhere outside its native range. However, unidentified species of *Hypostomus* are established in the United States. History of invasiveness is uncertain. *H. macrophthalmus* does not appear to be present in trade in the United States or elsewhere. Climate match was low throughout the contiguous United States. Because of the lack of documented introduction history, lack of georeferenced occurrences for the climate matching analysis, and substantial taxonomic uncertainty, certainty of this assessment is low. The overall risk 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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