

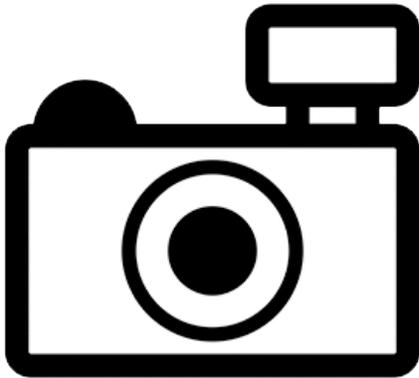
Hypostomus oculus (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2013

Revised, September 2018

Web Version, 4/22/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Armbruster (2003):

“Found in the Rio Marañon drainage of Peru, the Río Napo drainage of Ecuador, and the Río Ortegusa drainage of Colombia, all tributaries of the Upper Río Amazonas drainage [...]”

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 fish 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 Velasquez et al. (2016):

“The species is listed as Data Deficient because its exact range is unknown - the currently few known localities are very distant from each other, and it is not known whether they are connected. It may have a considerably restricted and disjunct range. Furthermore, the population status is not known.”

According to Fricke et al. (2018), the original name of this species was *Panaque oculeus*. GBIF Secretariat (2017) lists *Cochliodon oculeus* as an additional synonym of *H. oculeus*. Information searches for this report were conducted using both synonyms as well as the currently accepted scientific name.

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 oculus* (Fowler, 1943)”

“Current Standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 21.7 cm SL male/unsexed; [Armbruster 2003]”

Environment

From Froese and Pauly (2011):

“Freshwater; benthopelagic; pH range: 5.8 - 6.8. [...] 18°C - 24°C [Baensch and Riehl 1997; assumed to represent recommended aquarium water temperatures]”

Climate/Range

From Froese and Pauly (2018):

“Tropical; [...]”

From Velasquez et al. (2016):

“This species occurs between 150 to 600 m asl [above sea level].”

Distribution Outside the United States

Native

From Armbruster (2003):

“Found in the Rio Marañon drainage of Peru, the Río Napo drainage of Ecuador, and the Río Ortegusa drainage of Colombia, all tributaries of the Upper Río Amazonas drainage [...]”

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 Armbruster (2003):

“Body almost entirely dark brown with medium to large spots present. Spots increasing in size posteriorly and almost coalescing to form stripes on caudal peduncle. Spots on abdomen large, often confluent with one another and forming crescents and rings. Abdomen slightly lighter than sides, particularly in juveniles. Individuals below 100 mm SL often entirely dark brown except for faint spots on dorsal and paired fins and with lighter abdomen.”

“Dorsal fin occasionally large, reaching beyond adipose fin when depressed, but dorsal fin generally reaching preadipose plate or slightly beyond when depressed. Pectoral-fin spine when depressed ventral to pelvic fin reaches beyond bases of pelvic-fin rays. Pectoral-fin spine supporting numerous stout, recurved, hypertrophied odontodes in nuptial males.”

“Keels sharp, strongly developed. Orbits forming ridge distinctly raised above medial surface of head; ridges of dorsal and lateral aspect of head well-developed. Longitudinal ridge on pterotic-supracleithrum beginning at posterodorsal corner of eye formed from raised bone and slightly larger odontodes absent. Opercle usually not supporting odontodes, but one to ten odontodes may be present, and odontodes on opercle more numerous in juveniles. Nuptial body odontodes present [...] Platelets in skin anterior to dorsal fin spine usually absent or not numerous [...] Each jaw with 7-18 teeth (mode = 8), teeth large and spoon-shaped. Average angle between dentaries 65° (SD = 10°; range: 48°-89°; N=23). Lateral line plates 27-30; dorsal plates 7-9; interdorsal plates 5-7; adipose caudal plates 9-11.”

Biology

From Armbruster (2003):

“Loricariids are typically algivorous or detritivorous, but the *Hypostomus cochliodon* group (formerly the genus *Cochliodon* Kner) and *Panaque* Eigenmann are unique among fishes in that they consume wood (Schaefer & Stewart 1993; Nelson et al. 1999).”

From Velasquez et al. (2016):

“It lives in rivers and streams with white and clear waters, gravel, rocks, permanent pools, mountain rivulets.”

Human Uses

From Velasquez et al. (2016):

“This species is fished at local level for subsistence.”

Diseases

No information 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. oculeus* 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



Figure 1. Known global distribution of *H. oculeus*, reported from the Amazon River basin in South America. Map from GBIF Secretariat (2017). Occurrences reported in Brazil and southeastern Colombia were excluded from the climate matching analysis because *H. oculeus* is not known to be established in these locations.

5 Distribution within the United States

There is currently no known distribution of *Hypostomus oculeus* 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

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low throughout most of the contiguous United States. Medium matches occurred in isolated patches in New Mexico, coastal California, and coastal Washington near Seattle. 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 *H. oculeus* was 0.000.

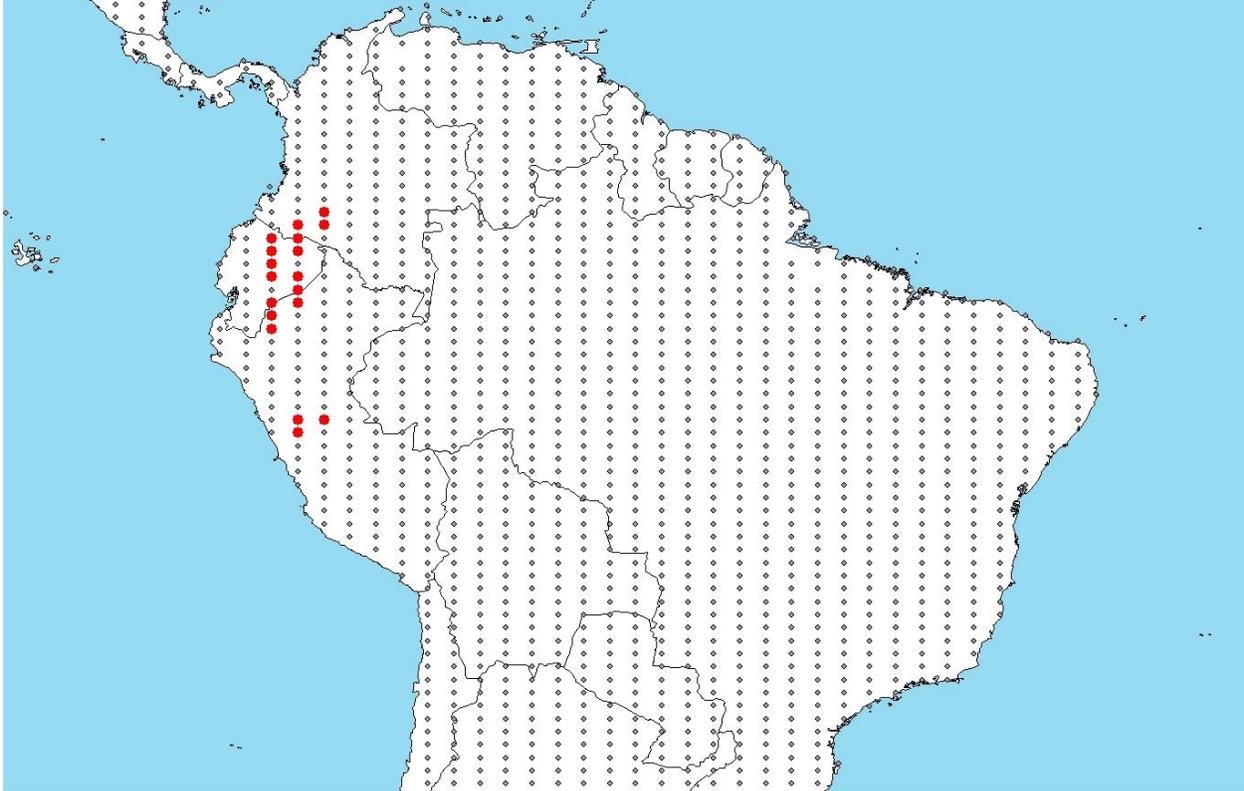


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Colombia, Ecuador, Peru) and non-source locations (gray) for *H. oculus* climate matching. Source locations from GBIF Secretariat (2017).

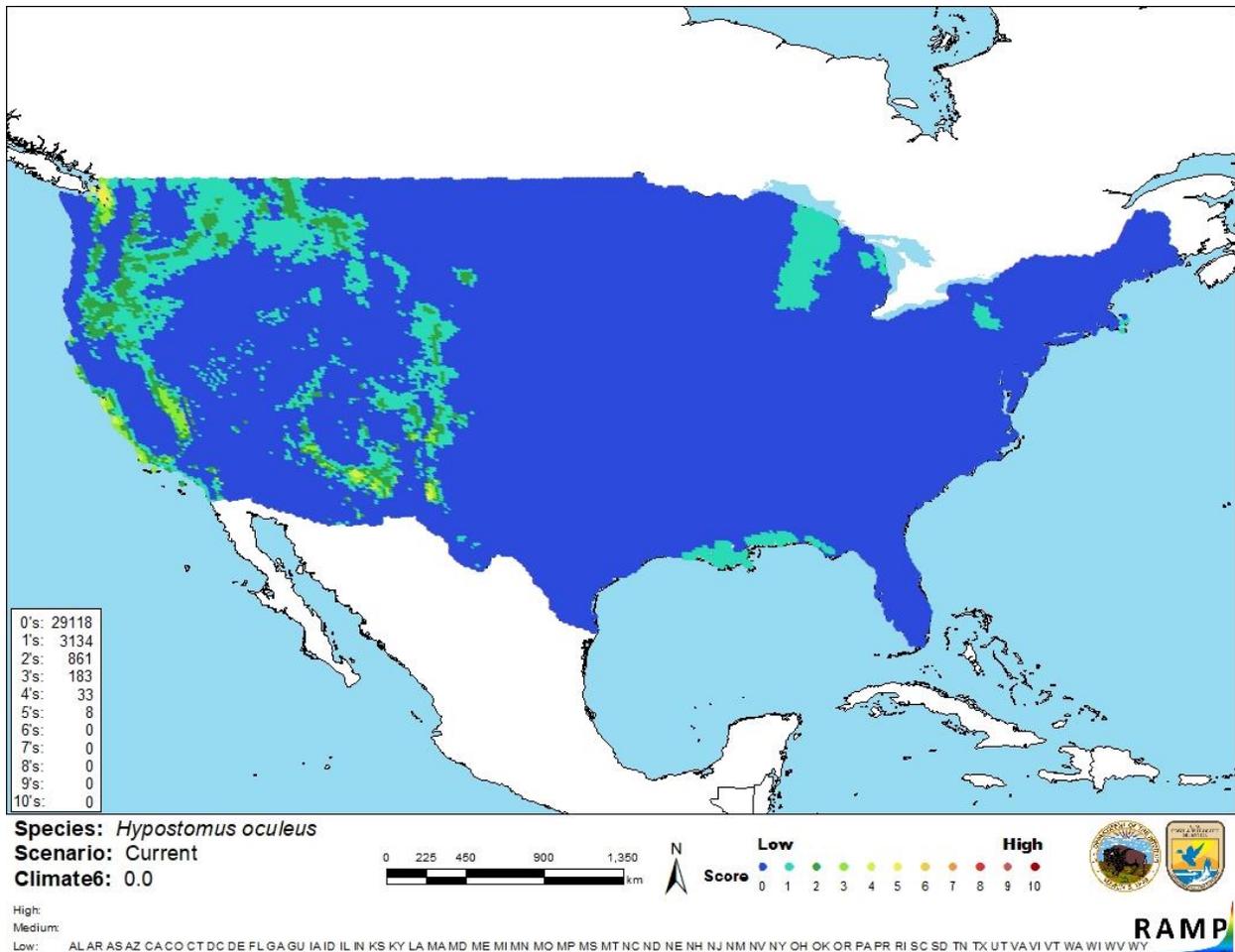


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *H. oculus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0= Lowest match, 10= Highest match.

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

Limited information was available on the biology and ecology of *H. oculus*. The native range is not exactly known, particularly because it is disjunct. 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. oculus*. 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 oculeus is a catfish native to the Rio Marañon drainage of Peru, the Río Napo drainage of Ecuador, and the Río Ortegusa drainage of Colombia. The catfish is consumed locally within the native range, but is not known to be in trade in the United States. 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. Climate match to the contiguous United States was low overall, with only small and scattered areas of medium match. Because of the lack of documented introduction history and substantial taxonomic uncertainty, certainty of this assessment is low and overall risk 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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10 References Quoted But Not Accessed

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