

Payara (*Hydrolycus scomberoides*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, April 2011

Revised, February 2018

Web Version, 7/30/2018

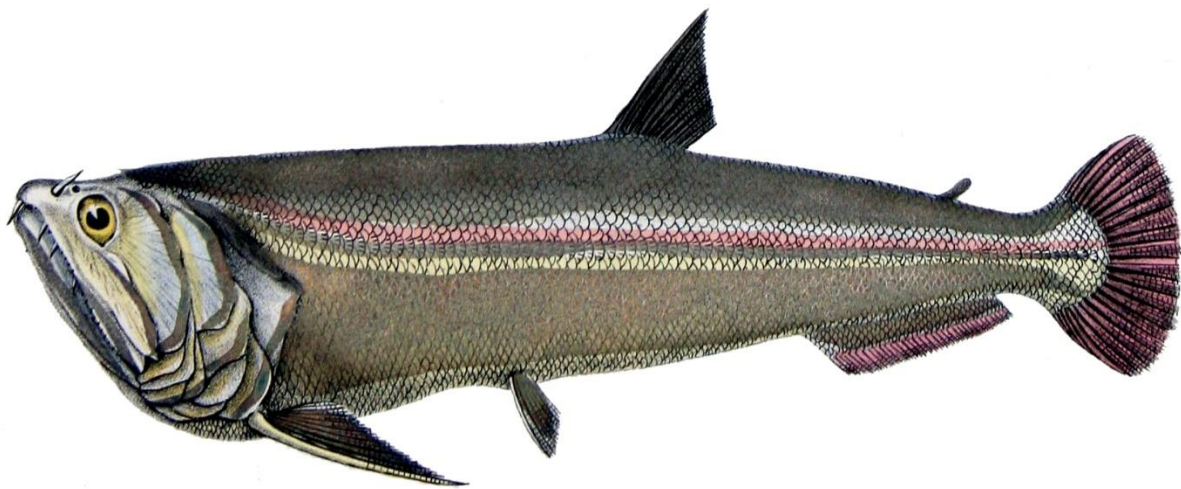


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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“South America: Amazon River basin.”

Froese and Pauly (2018) report that *H. scomberoides* is native to Bolivia, Brazil, Ecuador, and Peru; of questionable status in Venezuela; and that its report from Colombia was a misidentification (in contrast to Eschmeyer et al. 2018 and Diaz-Sarmiento and Alvarez-León 2003, below).

From Eschmeyer et al. (2018):

“Distribution: Amazon River basin: Bolivia, Colombia, Ecuador and Peru.”

Diaz-Sarmiento and Alvarez-León (2003) report *H. scomberoides* as a migrant species in the Middle Caquetá River Basin, Colombia.

Status in the United States

This species has not been reported as introduced in the United States. However, review of online aquarium retailers such as petzonesd.com and seriouslyfish.com show that it is available for purchase within the United States.

Means of Introductions in the United States

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

Remarks

Eschmeyer et al. (2018) list *Cynodon pectoralis* as a synonym of *Hydrolycus scomberoides*.

Froese and Pauly (2018) list *Hydrocyon scomberoides*, *Hydrolicus scomberoides*, *Cynodon pectoralis*, and *Hydrolycus pectoralis* as synonyms for *Hydrolycus scomberoides*.

Information searches for this ERSS were conducted using all of the above synonyms, as well as the accepted scientific name, *Hydrolycus scomberoides*, as search terms.

The common name “Payara” is applied to multiple species in the genus *Hydrolycus*.

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 Characiformes
Family Cynodontidae
Subfamily Cynodontinae
Genus *Hydrolycus*
Species *Hydrolycus scomberoides* (Cuvier, 1819)”

“Taxonomic Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 117 cm TL male/unsexed; [IGFA 2001]; max. published weight: 17.8 kg [IGFA 2001]”

“Maximum length reported to reach 40 cm TL [Baensch and Riehl 1995].”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

“[...] 24°C - 28°C [Baensch and Riehl 1995; assumed to represent recommended aquarium water temperature]”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“South America: Amazon River basin.”

Froese and Pauly (2018) report that *H. scomberoides* is native to Bolivia, Brazil, Ecuador, and Peru; of questionable status in Venezuela; and that its report from Colombia was a misidentification (in contrast to Eschmeyer et al. 2018 and Diaz-Sarmiento and Alvarez-León 2003, below).

From Eschmeyer et al. (2018):

“Distribution: Amazon River basin: Bolivia, Colombia, Ecuador and Peru.”

Diaz-Sarmiento and Alvarez-León (2003) report *H. scomberoides* as a migrant species in the Middle Caquetá River Basin, Colombia.

Introduced

No introductions have been reported.

Means of Introduction Outside the United States

No introductions have been reported.

Short Description

From Clark (2010):

“*H. scomberoides* is relatively easy to identify among the four fish in the genus, as it's the only one with a black spot at the base of the pectoral fin, apart from *H. tatauaia* which has a black spot and a black line running vertically with the operculum.”

Biology

From Froese and Pauly (2018):

“Apparently carnivorous, probably ichthyophagous.”

Human Uses

From Froese and Pauly (2018):

“Fisheries: minor commercial; gamefish: yes; aquarium: public aquariums”

Review of online aquarium retailers such as petzonesd.com and seriouslyfish.com show that it is available for purchase within the United States.

Diseases

Tavares-Dias et al. (2014) determined *H. scomberoides* is a host for the cymothoid parasite *Braga patagonica*.

From Varella and Malta (2001):

“*Brasergasilus mamorensis* sp. n., collected from the nasal cavities of *Hydrolycus pectoralis* (Guenther, 1866) in the Mamoré River, Rondônia State, Brazil, is described.”

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

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

Souza-Araujo et al. (2016) found *H. scomberoides* has total mercury concentrations higher than World Health Organization limits in the Bacajá River basin in Brazil.

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution



Figure 1. Known global distribution of *Hydrolycus scomberoides*, reported from South America. Map from GBIF Secretariat (2018). The occurrences in Venezuela, Guyana, eastern Colombia, Paraguay, and the most southeastern occurrence in Brazil are outside the known established range of *H. scomberoides* (Amazon River basin, Froese and Pauly 2018) and were not included in the climate matching analysis.

5 Distribution Within the United States

No introductions have been reported within the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) for *Hydrolycus scomberoides* in the contiguous United States is low overall, represented by a Climate6 score of 0.005. Scores of 0.005 and below are classified as low match. Locally, southern peninsular Florida has a high match, while coastal areas of Texas, Louisiana, Georgia, and the remainder of peninsular Florida have a medium match. The rest of the contiguous United States has a low climate match for *H. scomberoides*.

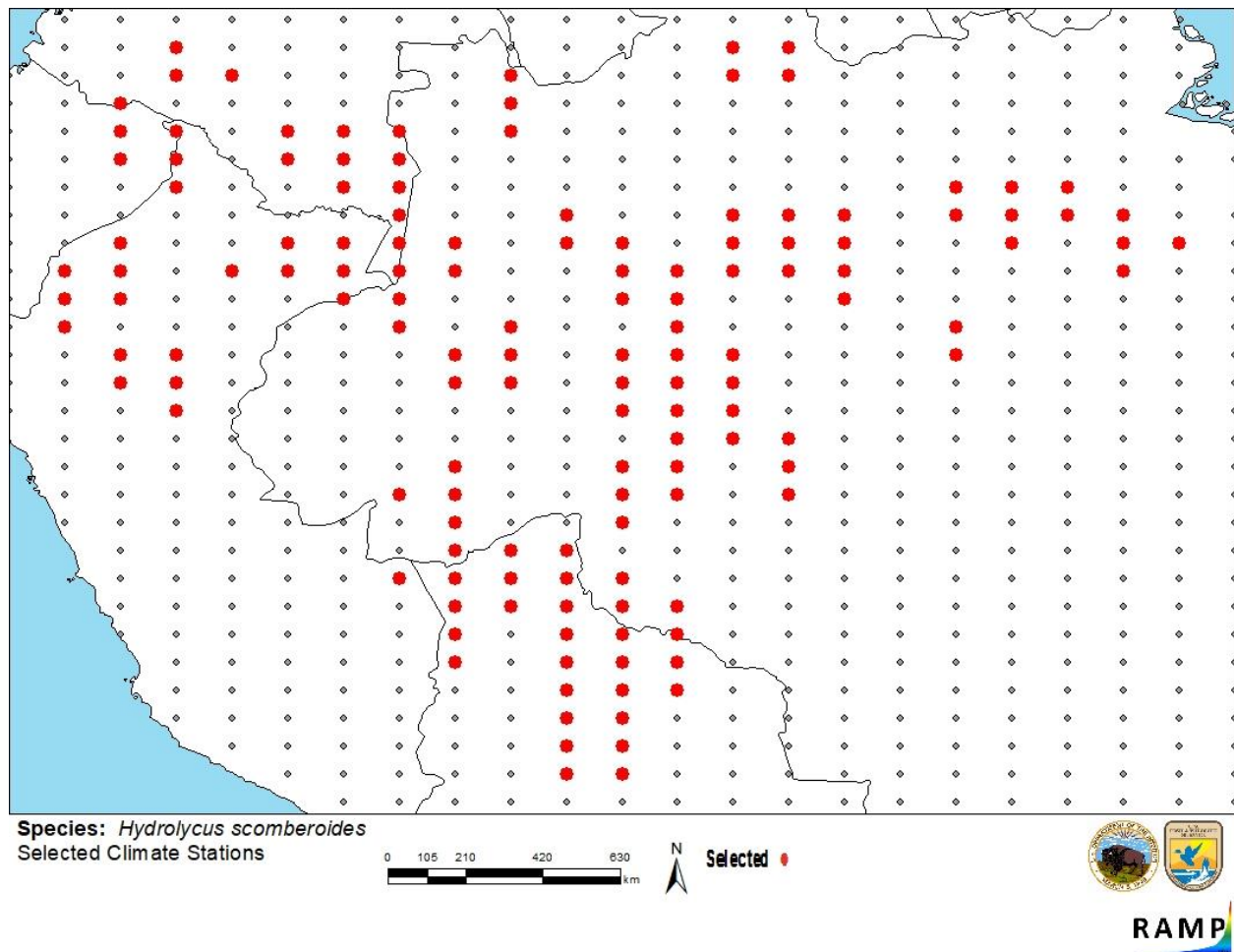


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in South America selected as source locations (red; Colombia, Ecuador, Peru, Brazil, Bolivia) and non-source locations (gray) for *H. scomberoides* climate matching. Source locations from GBIF Secretariat (2018).

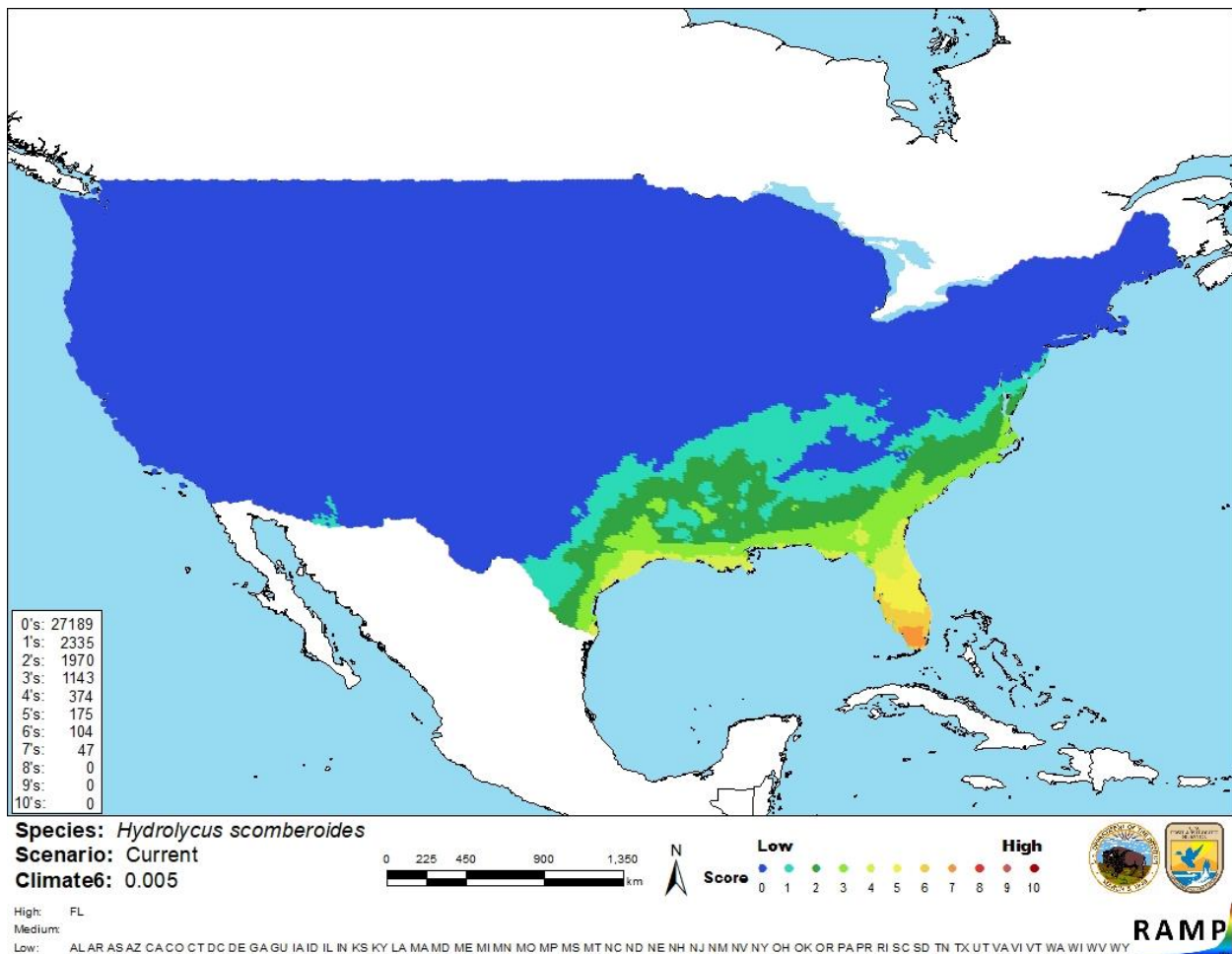


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *H. scomberoides* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Information on the biology and distribution of this species is not readily available. No introductions of this species have been reported, so any impacts of introduction of this species remain unknown. Given the very limited amount of existing information on *Hydrolycus scomberoides*, the certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Hydrolycus scomberoides, commonly known as Payara, is a large carnivorous fish found throughout the Amazon River basin in South America. A carrier of the *Braga patagonica* and *Brasergasilus mamorensis* parasites, it is used as a gamefish, as a minor target for commercial fisheries, and in the aquarium trade. *H. scomberoides* is available for purchase within the United States. Information on the biology and distribution of *H. scomberoides* is not readily available. No reports of introductions beyond its native range were found. The overall climate match for the contiguous United States is low, with a high match in southern peninsula Florida. The overall risk assessment for this species 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.

- Clark, M. 2010. *Hydrolycus scomberoides*. Practical Fishkeeping. Available: <https://www.practicalfishkeeping.co.uk/features/articles/Hydrolycus%20scomberoides>. (July 2018).
- Diaz-Sarmiento, J. A., and R. Alvarez-León. 2003. Migratory fishes of the Colombian Amazon. Pages 303-344 in J. Carolsfeld, B. Harvey, C. Ross, and A. Baer, editors. Migratory fishes of South America: biology, fisheries and conservation status. The International Bank for Reconstruction and Development, Washington, D.C.
- Froese, R., and D. Pauly, editors. 2018. *Hydrolycus scomberoides* Cuvier, 1819. FishBase. Available: <http://www.fishbase.us/summary/SpeciesSummary.php?ID=6419&genusname=Hydrolycus&speciesname=scomberoides&AT=Hydrocyon+scomberoides>. (February 2018, July 2018).
- GBIF Secretariat. 2018. GBIF backbone taxonomy: *Hydrolycus scomberoides* Cuvier, 1819. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2352282>. (February 2018).
- ITIS (Integrated Taxonomic Information System). 2018. *Hydrolycus scomberoides* Cuvier, 1819. Integrated Taxonomic Information System, Reston, Virginia. Available:

https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=639859#null. (February 2018).

Sanders, S., C. Castiglione, and M. H. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

Souza-Araujo, J., T. Giarrizzo, M. O. Lima, and M. B. G. Souza. 2016. Mercury and methyl mercury in fishes from Bacaja River (Brazilian Amazon): evidence for bioaccumulation and biomagnification. *Journal of Fish Biology* 89(1):249-263.

Tavares-Dias, M., C. S. O. Araújo, M. S. Barros, and G. M. Viana. 2014. New hosts and distribution records of *Braga patagonica*, a parasite cymothoidae of fishes from the Amazon. *Brazilian Journal of Aquatic Science and Technology*, 18(1):91-97.

Varella, A. M. B., and J. C. O. Malta. 2001. *Brasergasilus mamorensis* sp. n. (Copepoda: Ergasilidae) from the nasal cavities of *Hydrolycus pectoralis* (Guenther, 1866) (Characiformes: Cynodontidae) from the Brazilian Amazon, and considerations about Abergasilinae. *Acta Amazonica* 30(1):323-330.

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.

Baensch, H. A., and R. Riehl. 1995. *Aquarien Atlas*, volume 4. Mergus Verlag GmbH, Verlag für Natur-und Heimtierkunde, Melle, Germany.

IGFA. 2001. Database of IGFA angling records until 2001. IGFA, Fort Lauderdale, Florida.