

***Aequidens michaeli* (no English common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, web version – 03/29/2018



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2015):

“South America: Rio Amazonas basin, in the lower Rio Xingu at Altamira and Belo Monte, Brazil.”

Status in the United States

No records of *Aequidens michaeli* in the United States were found.

Means of Introductions in the United States

No records of *Aequidens michaeli* in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2015):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Acanthopterygii
Family Cichlidae
Genus *Aequidens*
Species *Aequidens michaeli* Kullander, 1995”

From Eschmeyer et al. (2017):

“*michaeli*, *Aequidens* Kullander [S. O.] 1995:163 [...], Fig. 14 [Ichthyological Exploration of Freshwaters v. 6 (no. 2)] Rio Xingú drainage, Belo Monte, rocky pool near Cachoeira, Pará State, Brazil. Holotype: MZUSP 32674. Paratypes: INPA 4220 (12); MZUSP 39085 (20); NRM 13979 (5), 13082 (1), 16458 (2). •Valid as *Aequidens michaeli* Kullander 1995 -- (Kullander in Reis et al. 2003:608 [...]). **Current status:** Valid as *Aequidens michaeli* Kullander 1995. Cichlidae: Cichlinae.”

Size, Weight, and Age Range

From Froese and Pauly (2015):

“Max length: 20.0 cm TL male/unsexed; [Stawikowski and Werner 1998]; common length: 14.0 cm TL male/unsexed; [Stawikowski and Werner 1998]”

Environment

From Froese and Pauly (2015):

“Freshwater; benthopelagic. [...]; ? - 35°C [assumed to be recommended aquarium temperature range] [Stawikowski and Werner 1998]”

Climate/Range

From Froese and Pauly (2015):

“Subtropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2015):

“South America: Rio Amazonas basin, in the lower Rio Xingu at Altamira and Belo Monte, Brazil.”

Introduced

No records of *Aequidens michaeli* introductions were found.

Means of Introduction Outside the United States

No records of *Aequidens michaeli* introductions were found.

Short Description

From Kullander (2004):

“A moderately large (to ca 125 mm SL), relatively deep-bodied (depth 45-50% of SL) *Aequidens* species with triserial predorsal scale arrangement and E1 scales 24 (usually) or 25. It is most similar to *A. epae*, *A. gerciliae* and *A. metae* with which it shares presence of buccal stripes and black-margined dorsal scales, but readily distinguished from all those species by colour characteristics, most notably by having (1) dark vertical bars as components of the adult colour pattern, (2) lateral band distinctly expressed only anterior to the midlateral spot, (3) buccal pattern consisting of short stripes and spots extending onto the gill cover and chest, occasionally also the humeral region, (4) black, contrasted spot at middle of margin of each scale above the upper lateral line; and (5) lack of cheek spot. The modal number of dorsal fin spines, 14, distinguishes from most other *Aequidens* species, which have 15 spines.”

Biology

From Froese and Pauly (2015):

“Eggs and larvae are defended by both parents [Stawikowski and Werner 1998].”

“Eggs are deposited on hard substrate; eggs and larvae are defended by both parents [Stawikowski and Werner 1998].”

From Kullander (2004):

“Both Goulding and Stawikowski collected the species in rocky pools associated with rapids.”

Human Uses

From Kullander (2004):

“The species is being kept as aquarium fish in Europe and was reported as a biparental substrate brooder by Stawikowski (1991).”

Diseases

No information on diseases of *Aequidens michaeli* was found.

Threat to Humans

From Froese and Pauly (2015):

“Harmless”

3 Impacts of Introductions

No records of *Aequidens michaeli* introductions were found.

4 Global Distribution



Figure 1. Known global distribution of *Aequidens michaeli*. Locations are in Brazil. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

No records of *Aequidens michaeli* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Aequidens michaeli* was low across the contiguous United States. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.000, low, and no states had an individually high climate match.

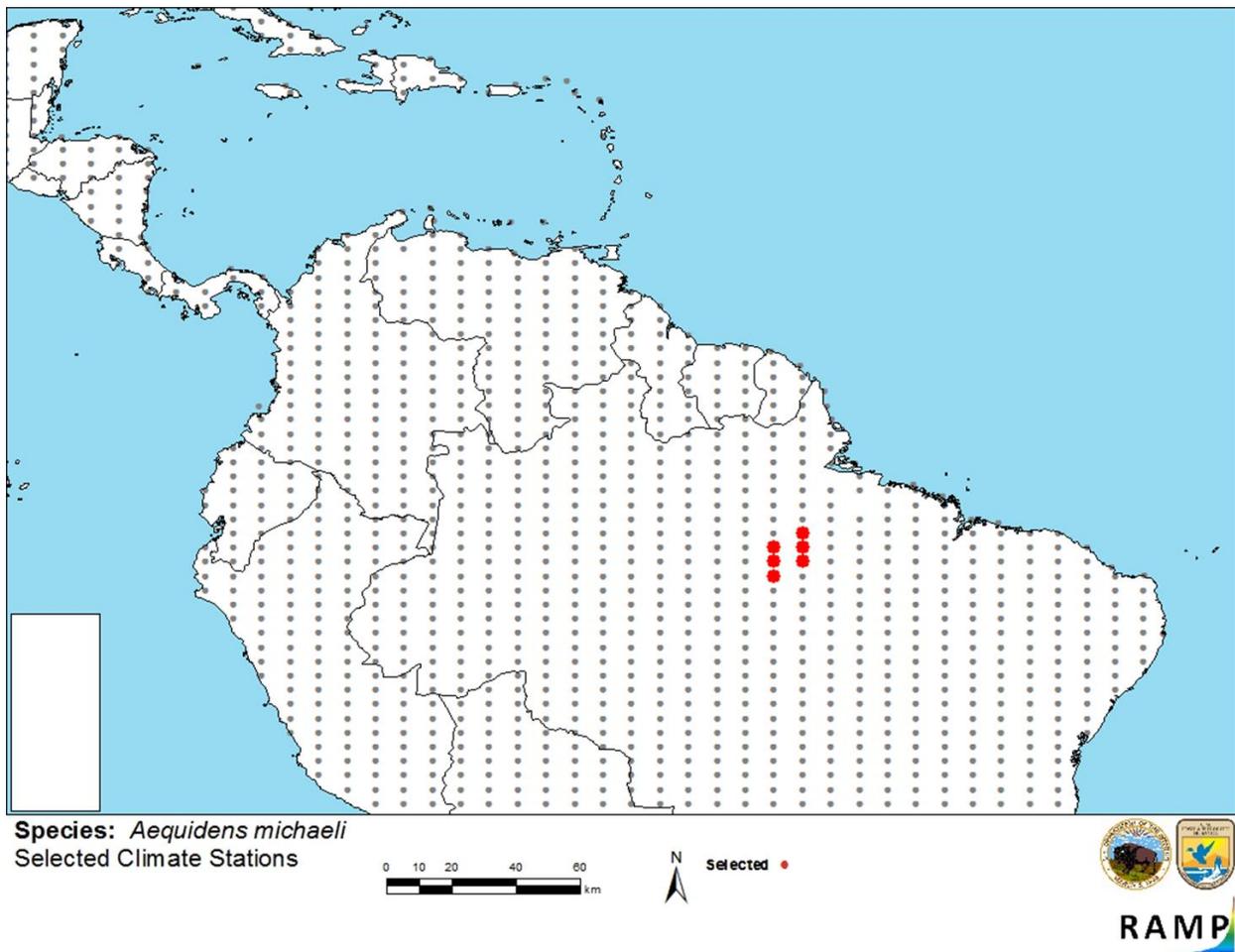


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Brazil selected as source locations (red) and non-source locations (grey) for *Aequidens michaeli* climate matching. Source locations from GBIF Secretariat (2017).

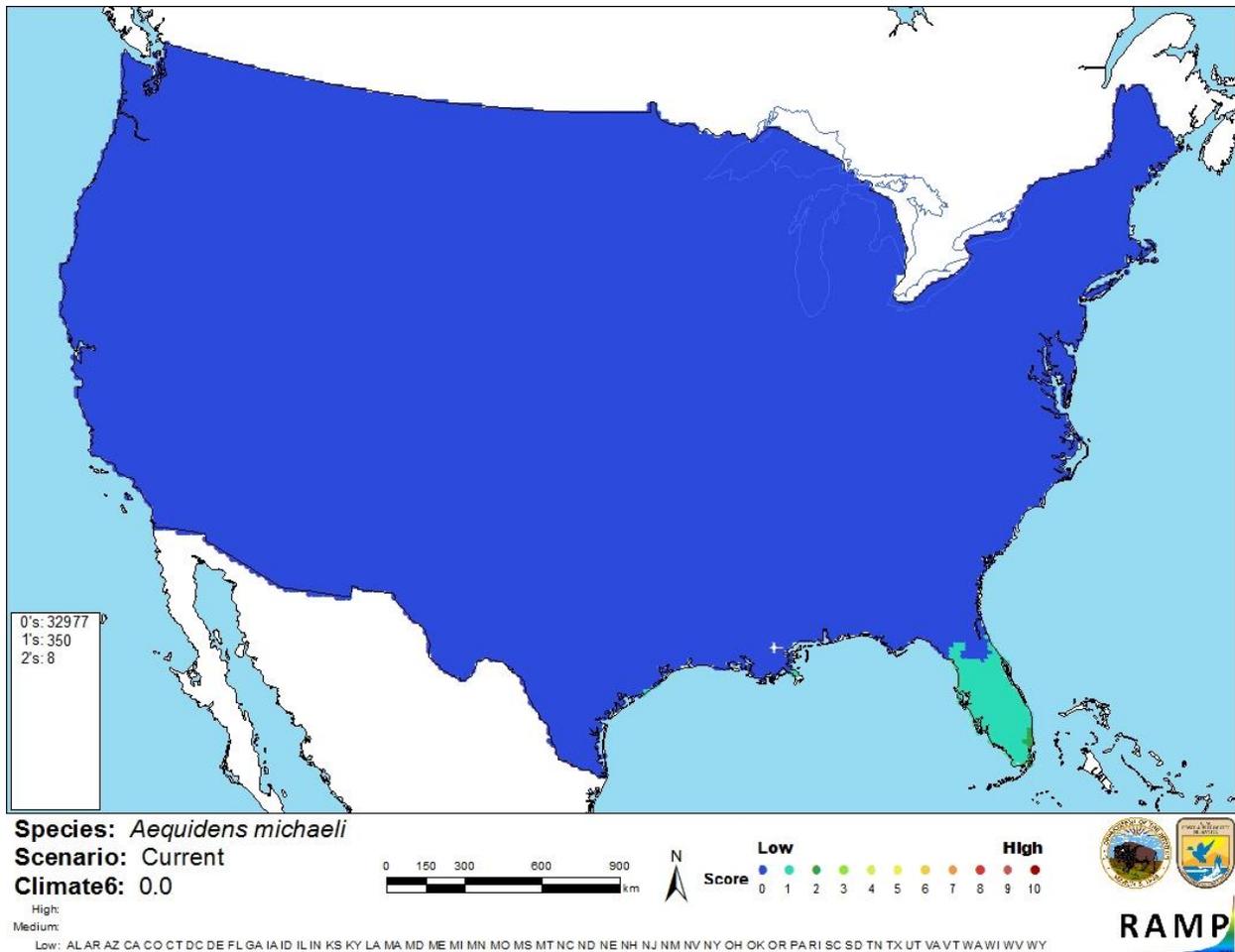


Figure 3. Map from RAMP (Sanders et al. 2014) of a current climate match for *Aequidens michaeli* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

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

The certainty of this assessment is low. General information about *Aequidens michaeli* was limited. There were no records of introductions found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness is uncertain. No records of introduction were found. The climate match is low, 0.00. The certainty of assessment is low. There is minimal information available. 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**
- **Remarks/Important additional information** No additional remarks.
- **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.

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2017. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmaintest.asp>. (August 2017).

Froese, R., and D. Pauly, editors. 2015. FishBase. *Aequidens michaeli* Kullander, 1995. Available: <http://www.fishbase.org/summary/Aequidens-michaeli.html>. (February 2015).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Aequidens michaeli* Kullander, 1995. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5208308>. (August 2017).

ITIS (Integrated Taxonomic Information System). 2015. *Aequidens michaeli* Kullander, 1995. Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648240. (February 2015).

Kullander, S. O. 2004. *Aequidens michaeli*. Swedish Museum of Natural History. Available: http://www2.nrm.se/ve/pisces/acara/ae_micha.shtml. (February 2015).

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk assessment mapping program: RAMP. U.S. Fish and Wildlife Service.

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.

Kullander, S. O. 1995. Three new cichlid species from southern Amazonia: *Aequidens gerciliae*, *A. epae* and *A. michaeli*. Ichthyological Explorations of Freshwaters 6(2):149–170.

Reis, R. E., S. O. Kullander, and C. J. Ferraris, Jr., editors. 2003. Check list of the freshwater fishes of South and Central America. CLOFFSCA. EDIPUCRS, Porto Alegre, Brazil.

Stawikowski, R. 1991. Aquarienbeobachtungen an *Aequidens* sp. 'Xingu'. DCG-Info 22:12–118.

Stawikowski, R., and U. Werner. 1998. Die Buntbarsche Amerikas, Band 1. Verlag Eugen Ulmer, Stuttgart, Germany.