

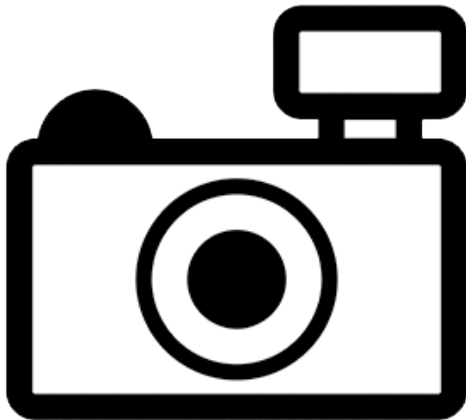
***Andinoacara coeruleopunctatus* (a cichlid, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2014

Revised, January 2018

Web Version, 6/13/2018



No Photo Available

1 Native Range, and Status in the United States

Native Range

From Froese and Pauly (2017):

“Central America: Atlantic slope of Panama and Pacific slope of Costa Rica (Coto River).”

Status in the United States

This species has not been reported as introduced or established in the United States. No documented trade was found for this species in the United States.

Means of Introductions in the United States

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

Remarks

From Musilová et al. (2009):

“*Andinoacara* species were previously placed within the genus *Aequidens* Eigenmann & Bray, 1894. [...] We demonstrate that *Andinoacara* species are not synonymous with *Aequidens* and have to be placed in a different genus.”

Species information for this report was collected by searching on both the accepted scientific name, *Andinoacara coeruleopunctatus*, and the synonym, *Aequidens coeruleopunctatus*.

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 Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Acanthopterygii
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus *Aequidens*
Species *Aequidens coeruleopunctatus*”

From Eschmeyer et al. (2018):

“Valid as *Andinoacara coeruleopunctatus* (Kner 1863).”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“[...] Max length : 14.5 cm TL male/unsexed; [Conkel 1993]”

Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic; pH range: 5.5 - 8.0; dH range: 1.5 - 8.”

“[...] 22°C - 29°C [Bussing 1998; unknown if this temperature range refers to natural habitats or aquaria, nor whether it refers to water or air temperatures]”

Climate/Range

From Froese and Pauly (2017):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“Central America: Atlantic slope of Panama and Pacific slope of Costa Rica (Coto River).”

Introduced

This species has not been reported as introduced outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced outside of its native range.

Short Description

No information reported for this species.

Biology

From Froese and Pauly (2017):

“Inhabits stagnant waters as well as shallow waters of smaller rivers with organic material and low velocity. Abundant in creeks with much organic matter but also resides in the shallow waters of rivers [Bussing 1998]. Feeds on aquatic insects. Forms small groups on the river bottoms.”

“An open bottom spawner which produces hundreds of eggs. Both parents care for their eggs until the fry are a week into free-swimming [Axelrod 1993].”

Human Uses

From Froese and Pauly (2017):

“Fisheries: subsistence fisheries”

Diseases

No OIE reportable diseases have been documented for this species.

From Choudhury et al. (2013):

“The invasive and potentially pathogenic Asian fish tapeworm, *Bothriocephalus acheilognathi*, is reported for the first time from the vicinity of the Panama Canal zone, a region of international economic and environmental significance. The tapeworm was found in two cichlid species, *Aequidens coeruleopunctatus* [...] in two tributaries of the Chagres River/Panama Canal drainage, Soberania National Park area, Panama.”

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

There are no reported introductions for this species. Data on the impacts of introductions are lacking.

4 Global Distribution



Figure 1. Known global distribution of *Andinoacara coeruleopunctatus*, reported from southern Costa Rica, Panama and northern Columbia. Map from GBIF Secretariat (2017). *A. coeruleopunctatus* is a freshwater species, so location in Gulf of Panama does not represent an established population and therefore was omitted from the climate matching analysis.

5 Distribution Within the United States

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

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the United States. The highest match was in the southern tip of Florida. Climate 6 match indicated that the contiguous U.S. has a low climate match. The range for a low climate match is from 0.0 to 0.005, inclusive; climate match of *Andinoacara coeruleopunctatus* is 0.0.

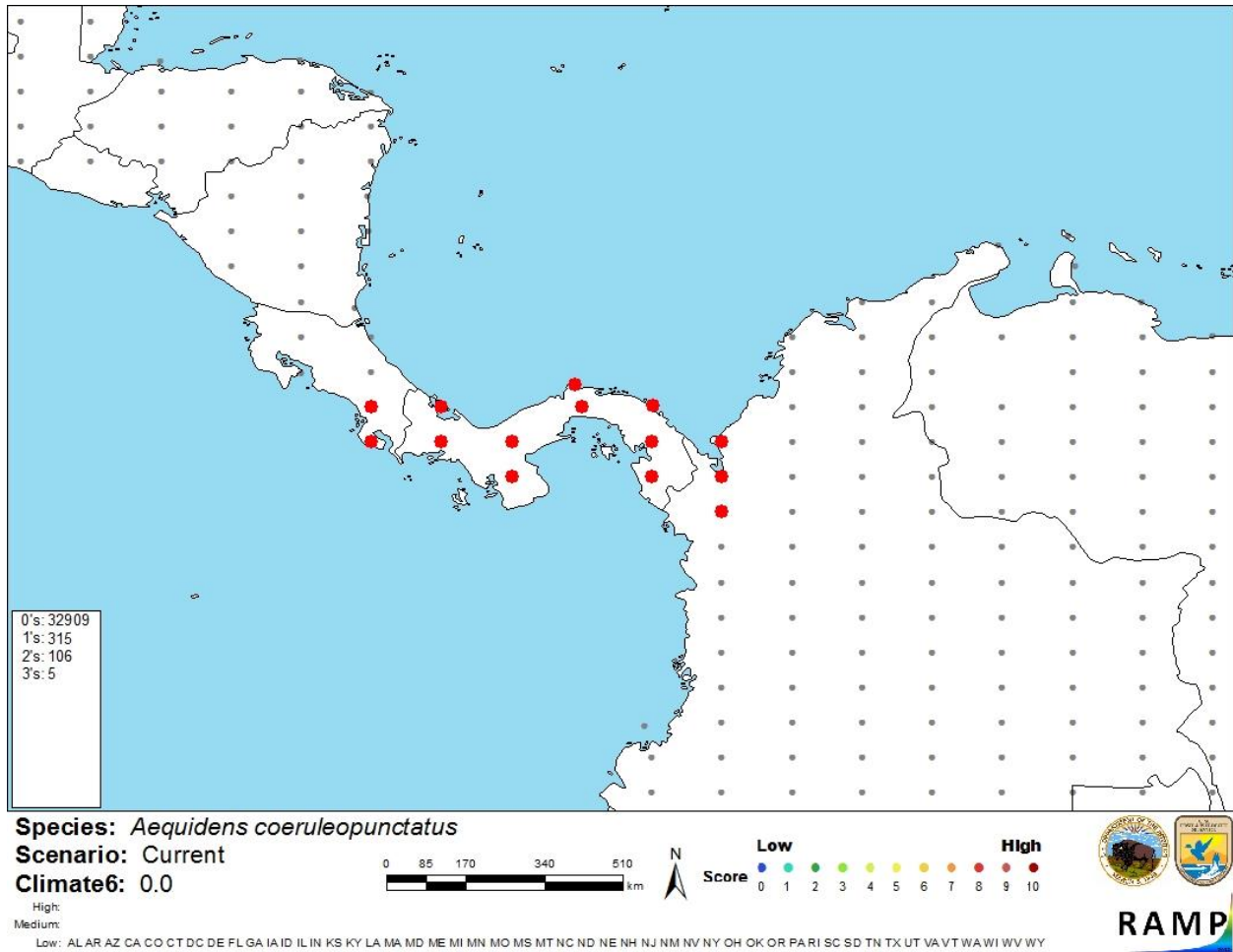


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Costa Rica, Panama, northwestern Colombia) and non-source locations (gray) for *Andinoacara coeruleopunctatus* climate matching. Source locations from GBIF Secretariat (2017).

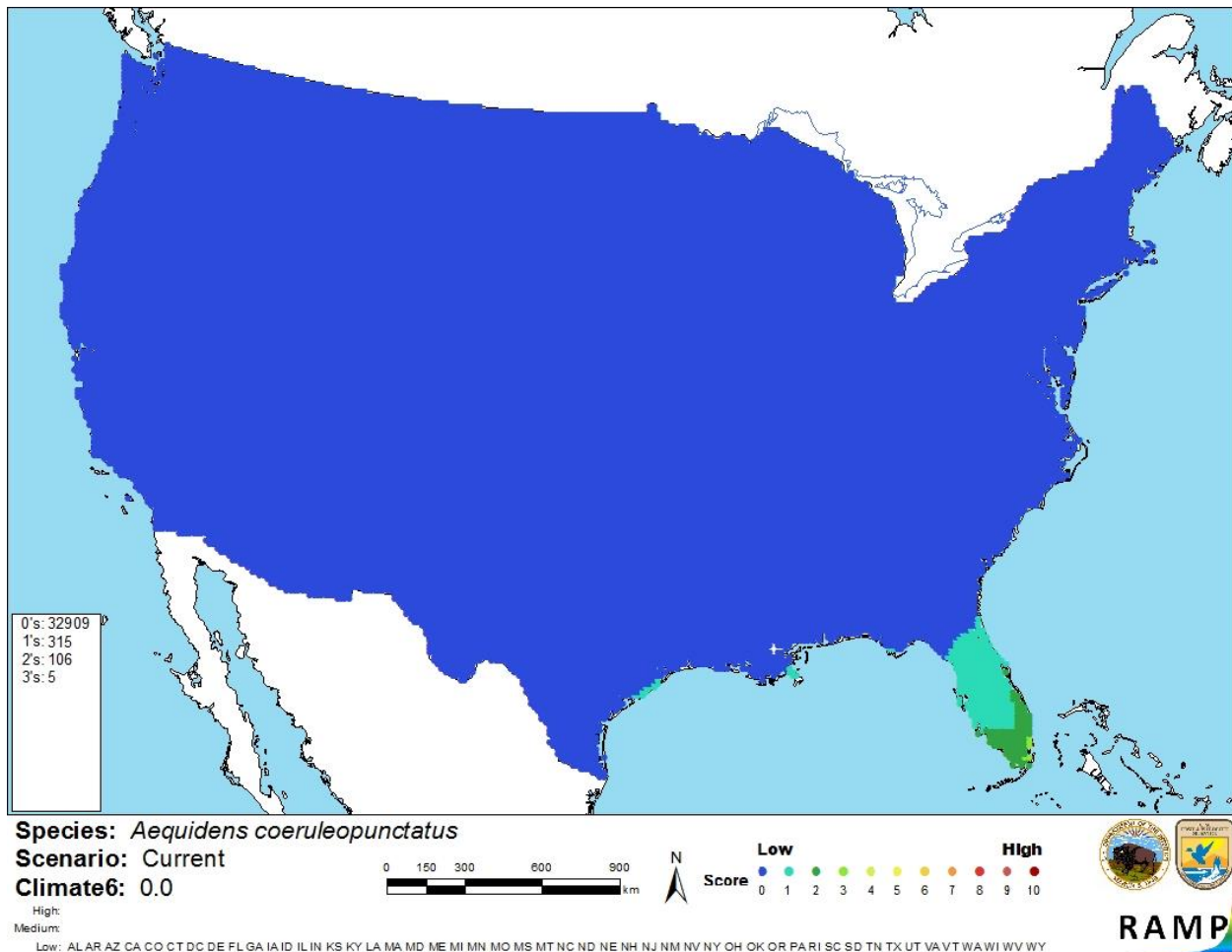


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Andinoacara coeruleopunctatus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0= Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Information on the biology and distribution of *A. coeruleopunctatus* is not widely available. No introductions of this species have been reported and scientific information on the impacts of introductions are lacking. Absence of this information makes the certainty of this assessment low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Andinoacara coeruleopunctatus is a freshwater fish species native to Central America. No introductions of this species have been reported. Data on impacts of introductions are lacking; absence of this information makes the certainty of this assessment low. Climate match with the contiguous United States is low. Overall risk posed by 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.

- Choudhury, A., Z. Shuai, G. Perez-Ponce de Leon, A. Martinez-Aquino, C. Brosseau, and E. Gale. 2013. The invasive Asian fish tapeworm, *Bothriocephalus acheilognathi* Yamaguti, 1934, in the Chagres River/Panama Canal drainage, Panama. *BioInvasions Records* 2(2):99-104.
- Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. *Catalog of fishes: genera, species, references*. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (June 2018).
- Froese, R., and D. Pauly, editors. 2017. *Andinoacara coeruleopunctatus* (Kner, 1863). FishBase. Available: <http://www.fishbase.us/summary/Andinoacara-coeruleopunctatus.html>. (January 2018).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Aequidens coeruleopunctatus* (Kner 1863). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5208311> (January 2018).
- ITIS (Integrated Taxonomic Information System). 2018. *Aequidens coeruleopunctatus* (Kner 1863). Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648233 (January 2018).
- Musilová, Z., O. Říčan, and J. Novák. 2009. Phylogeny of the Neotropical cichlid fish tribe Cichlasomatini (Teleostei: Cichlidae) based on morphological and molecular data, with

the description of a new genus. *Journal of Zoological Systematics and Evolutionary Research* 47(3):234-247.

Sanders, S., C. Castiglione, and M. H. 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.

Axelrod, H. R. 1993. The most complete colored lexicon of cichlids. T. F. H. Publications, Neptune City, New Jersey.

Bussing, W. A. 1998. Peces de las aguas continentales de Costa Rica [Freshwater fishes of Costa Rica], 2nd edition. Editorial de la Universidad de Costa Rica, San José, Costa Rica.

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Kner, R. 1863. Eine Uebersicht der ichthyologischen Ausbeute des Herrn Professors Dr. Mor. Wagner in Central-Amerika. *Sitzungsber. Königlich Bayerische Akademie der Wissenschaften zu München* 2:220-230.

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