Tilapia discolor
Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2015

Photo not available.

1 Native Range, and Status in the United States

Native Range
From Froese and Pauly (2015):

"Africa: Bia, Tano and Pra Rivers (southeast Côte d'Ivoire and southwest Ghana) as well as in Lake Bosumtwi in Ghana [Teugels and Thys van den Audenaerde 2003]."

Status in the United States
This species has not been reported from the U.S.

Means of Introductions in the United States
This species has not been reported from the U.S.

Remarks
From Awaïss and Lalèyè (2015):

"The estimated extent of occurrence is over 50,000 km² but the area of occupancy is less than 2,000 km². It is only known from three locations. The main threats posed to this fish species include effluents from mining activities in the Pra, and urbanisation and agricultural development in Ghana. These effluents may contain heavy metals like arsenic, mercury and compounds like cyanide. Also, the removal of vegetation pertaining to mining activities, and commercial timber felling, may cause increasing sediment loads, and its attendant problems to the life of the fish. Another major threat is pollution of the water bodies by inadequately treated human waste and by domestic discharges arising from increasing residential developments. The species is therefore assessed as Vulnerable."

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
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus Tilapia Smith, 1840
Species *Tilapia discolor* (Günther, 1903)"

"Taxonomic Status: valid"

Size, Weight, and Age Range

From Froese and Pauly (2015):

"Max length : 22.5 cm TL male/unsexed; [Teugels and Thys van den Audenaerde 1991]"

Environment

From Froese and Pauly (2015):

"Freshwater; demersal; non-migratory."

Climate/Range

From Froese and Pauly (2015):

"Tropical; 10°N - 5°N"

Distribution Outside the United States

Native

From Froese and Pauly (2015):

"Côte d'Ivoire; Ghana"

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 Froese and Pauly (2015):

"Dorsal spines (total): 14 - 16; Dorsal soft rays (total): 12-15; Anal spines: 3; Anal soft rays: 8 - 9. Diagnosis: lower pharyngeal bone about as long as broad, and with anterior lamella shorter than toothed area; median pharyngeal teeth not broadened; upper profile of head strongly convex; dorsal fin with 14-16 spines and 12-15 soft rays; flanks and belly whitish; head, back and flanks with irregular black spots; no bifurcated dark vertical bars on flanks; dorsal and anal without orange-red upper margin; caudal greyish to blackish [Teugels and Thys van den Audenaerde 2003]."

Biology
From Froese and Pauly (2015):

"Oviparous [Breder and Rosen 1966]. Substrate brooders [Owusu-Frimpong 1987]. Eggs are laid and incubated in nests which are guarded by both parents [Owusu-Frimpong 1987]."

"Courtship occurs as male circular displays around the females. Unresponsive females are chased away from the spawning area by the males. Distinct pairing [Breder and Rosen 1966] is resorted to after courtship. Each couple prepares the nest in a chosen suitable substrate where the eggs are laid in batches, fertilised, incubated and hatched. Both parents guard the eggs from intruders."

Human uses
From Awaïss and Lalèyè (2010):

"This species is harvested for human consumption."

Diseases
No OIE-notifiable diseases have been reported for this species.

Threat to humans
From Froese and Pauly (2015):

"Harmless"

3 Impacts of Introductions
No introductions of this species have been reported.

4 Global Distribution

Figure 1. Global distribution of *Tilapia discolor*. Map from GBIF (2015). Point in western Côte d'Ivoire was not included in climate matching (Sec. 6) due to positional uncertainty.

5 Distribution within the United States

This species has not been reported in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) is medium for far southeastern Florida, and low elsewhere. Climate 6 proportion indicated that the contiguous U.S. has a low climate match. The range for a low climate match is 0.000 to 0.005; the climate match of *T. discolor* is 0.0.

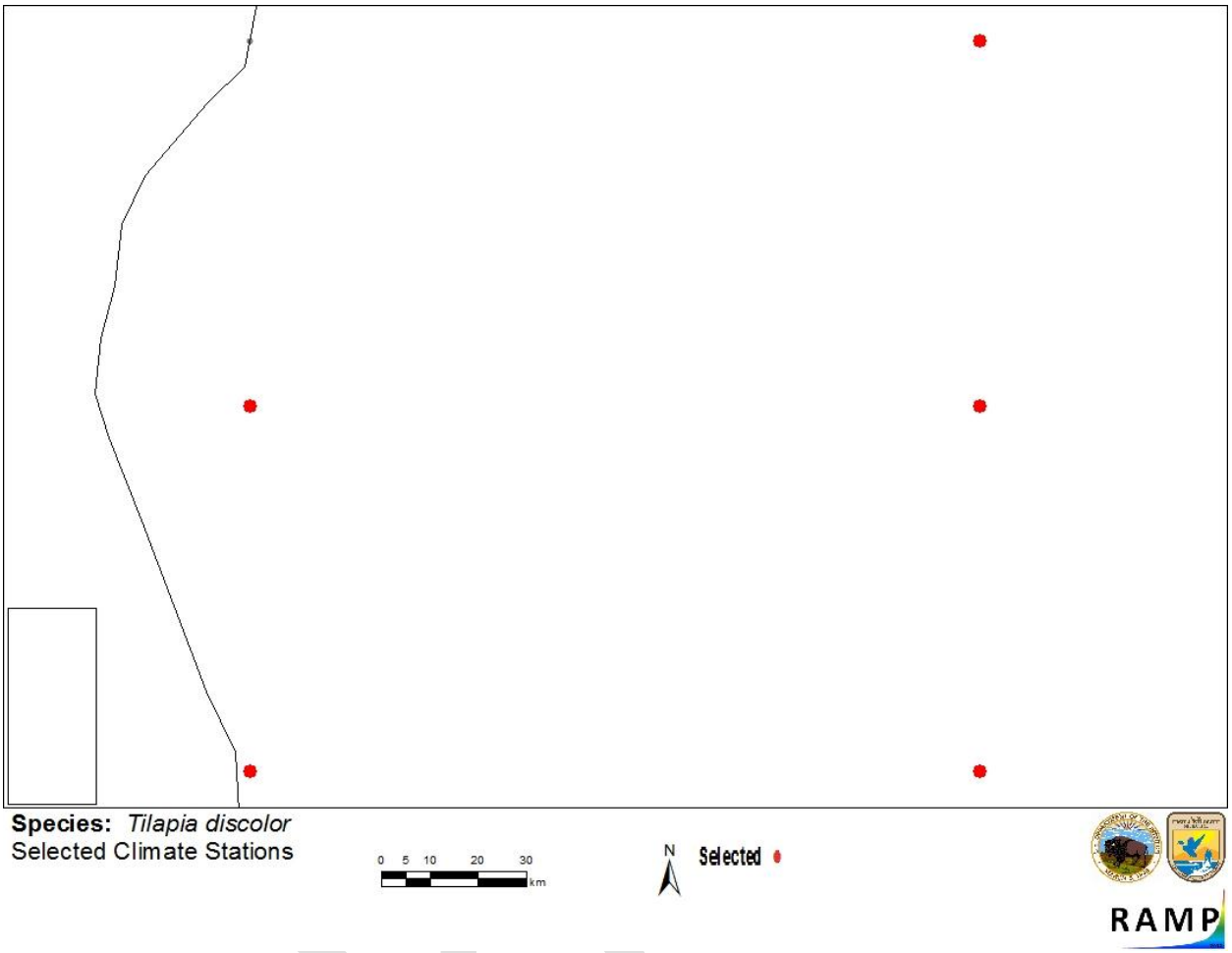

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *T. discolor* climate matching. Source locations from GBIF (2015). Source locations are in Côte d'Ivoire and Ghana.

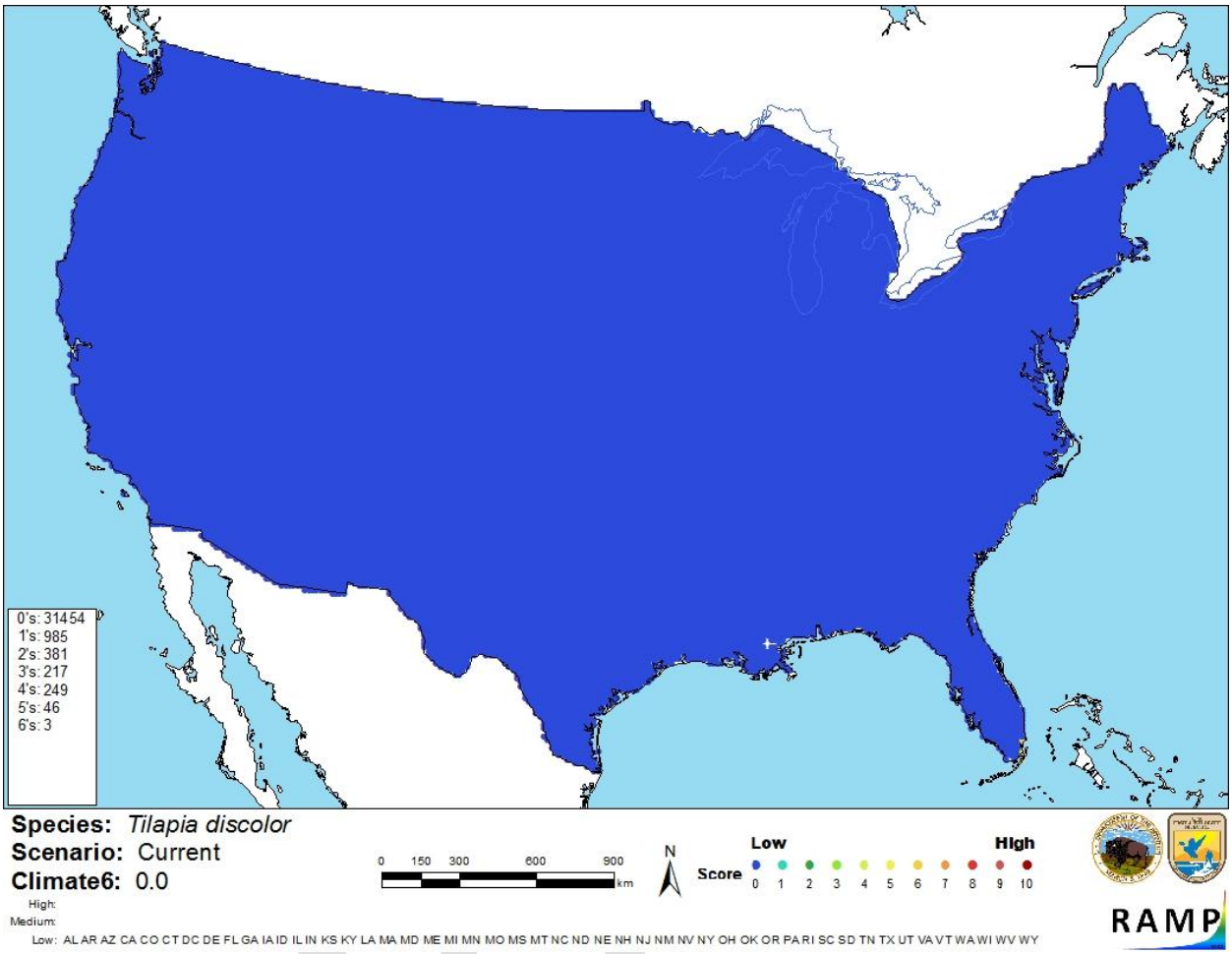

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *T. discolor* in the continental United States based on source locations reported by GBIF (2015). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

7 Certainty of Assessment

Tilapia discolor has not become established outside its native range. The certainty of this assessment is high because the lack of information about the ecological effects of this species outside its native habitat precludes any assessment other than "uncertain" risk.

8 Risk Assessment

Summary of Risk to the Continental United States

Tilapia discolor is a demersal cichlid native to southeastern Côte d'Ivoire and southwestern Ghana. It has not been reported outside its native range. Because *T. discolor* has no history of invasion, it is currently impossible to know what impacts *T. discolor* might have if introduced to the U.S. Climate match to the contiguous U.S. is low. Overall risk is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3):** Uncertain
- **Climate Match (Sec.6):** Low
- **Certainty of Assessment (Sec. 7):** High
- **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.

Awaïss, A., and P. Lalèyè. 2010. *Tilapia discolor*. The IUCN Red List of Threatened Species, version 2015.2. Available: http://www.iucnredlist.org/details/182500/0. (June 2015).

Froese, R., and D. Pauly, editors. 2015. *Tilapia discolor* (Günther, 1903). FishBase. Available: http://www.fishbase.org/summary/2487. (June 2015).

Global Biodiversity Information Facility (GBIF). 2015. GBIF backbone taxonomy: *Tilapia discolor* (Günther, 1903). Global Biodiversity Information Facility, Copenhagen. Available: http://www.gbif.org/species/2370585. (June 2015).

Integrated Taxonomic Information System (ITIS). 2015. *Tilapia discolor* (Günther, 1903). Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648966. (June 2015).

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. US 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.

Breder, C. M., and D. E. Rosen. 1966. Modes of reproduction in fishes. T. F. H. Publications, Neptune City, New Jersey.

Owusu-Frimpong, M. 1987. Breeding behavioural pattern of the lake fish *Tilapia discolour* Günther (Teleostei, Cichlidae) in captivity. Journal of Fish Biology 30:1-5.

Teugels, G. G., and D. F. E. Thys van den Audenaerde. 1991. *Tilapia*. Pages 482-508 *in* J. Daget, J.-P. Gosse, G. G. Teugels, and D. F. E. Thys van den Audenaerde, editors. Check-list of the freshwater fishes of Africa (CLOFFA), volume 4. ISNB, Brussels; MRAC, Tervuren, Belgium; and ORSTOM, Paris.

Teugels, G. G., and D. F. E. Thys van den Audenaerde. 2003. Cichlidae. Pages 521-600 *in* D. Paugy, C. Lévêque and G. G. Teugels, editors. The fresh and brackish water fishes of West Africa, volume 2. Coll. faune et flore tropicales 40. Institut de recherche de développement, Paris, France, Muséum national d'histoire naturelle, Paris, France and Musée royal de l'Afrique Central, Tervuren, Belgium.