

# *Tilapia gutturosa*

## Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2015

Photo not available.

### 1 Native Range, and Status in the United States

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#### Native Range

From Froese and Pauly (2015):

“Africa: endemic to Lake Bermin, Cameroon [Stiassny et al. 2008].”

#### Status in the United States

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

#### Means of Introductions in the United States

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

#### Remarks

From Moelants (2010):

“Critically Endangered ... The species is endemic to the crater Lake Bermin. The species is currently major threat is from oil plantations and slash and burn agriculture leading to sedimentation and pollution in the lake (one location). There is also a potential threat from the lake 'burping' - CO<sub>2</sub> (as in Lake Nyos and Lake Barombi-Mbo). In addition deforestation of the surroundings of the crater may cause more wind which could lead to the lake 'turning', as the lake is stratified, lower layer being very low in oxygen and high in organic matter. Higher winds may cause currents in the lake which could cause this lower layer to mix with the upper layer where the fish live. This would cause a massive decrease in oxygen in the water and kills the fish.”

### 2 Biology and Ecology

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#### 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  
Species *Tilapia gutturosa* Stiassny, Schliewen and Dominey, 1992”

“Taxonomic Status: valid”

### **Size, Weight, and Age Range**

From Froese and Pauly (2015):

“Max length : 6.4 cm SL male/unsexed; [Axelrod 1993]”

### **Environment**

From Froese and Pauly (2015):

“Freshwater; benthopelagic.”

### **Climate/Range**

From Froese and Pauly (2015):

“Tropical”

### **Distribution Outside the United States**

Native

From Froese and Pauly (2015):

“Africa: endemic to Lake Bermin, Cameroon [Stiassny et al. 2008].”

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): 10-11; Anal spines: 3; Anal soft rays: 7 - 8. Diagnosis: lower pharyngeal jaw robust and massive, with a large, heart-shaped dentigerous plate, covered with numerous fine, regularly arrayed teeth; mouth not squared or obtuse; ventral margin of lower lip smooth; ratio of lower jaw length to lower jaw width > 1; oral jaw teeth fixed with non-spatulate crowns [Stiassny et al. 2002, 2008]. 13-16 gill rakers on first arch [Stiassny et al. 2002].”

## Biology

From Froese and Pauly (2015): “Substrate

brooder [Stiassny et al. 2008].”

## Human uses

No information available.

## Diseases

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

## Threat to humans

From Froese and Pauly (2015):

“Harmless”

## 3 Impacts of Introductions

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No introductions of this species have been reported.

## 4 Global Distribution

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**Figure 1.** Global distribution of *T. gutturosa*. Map from GBIF (2015).

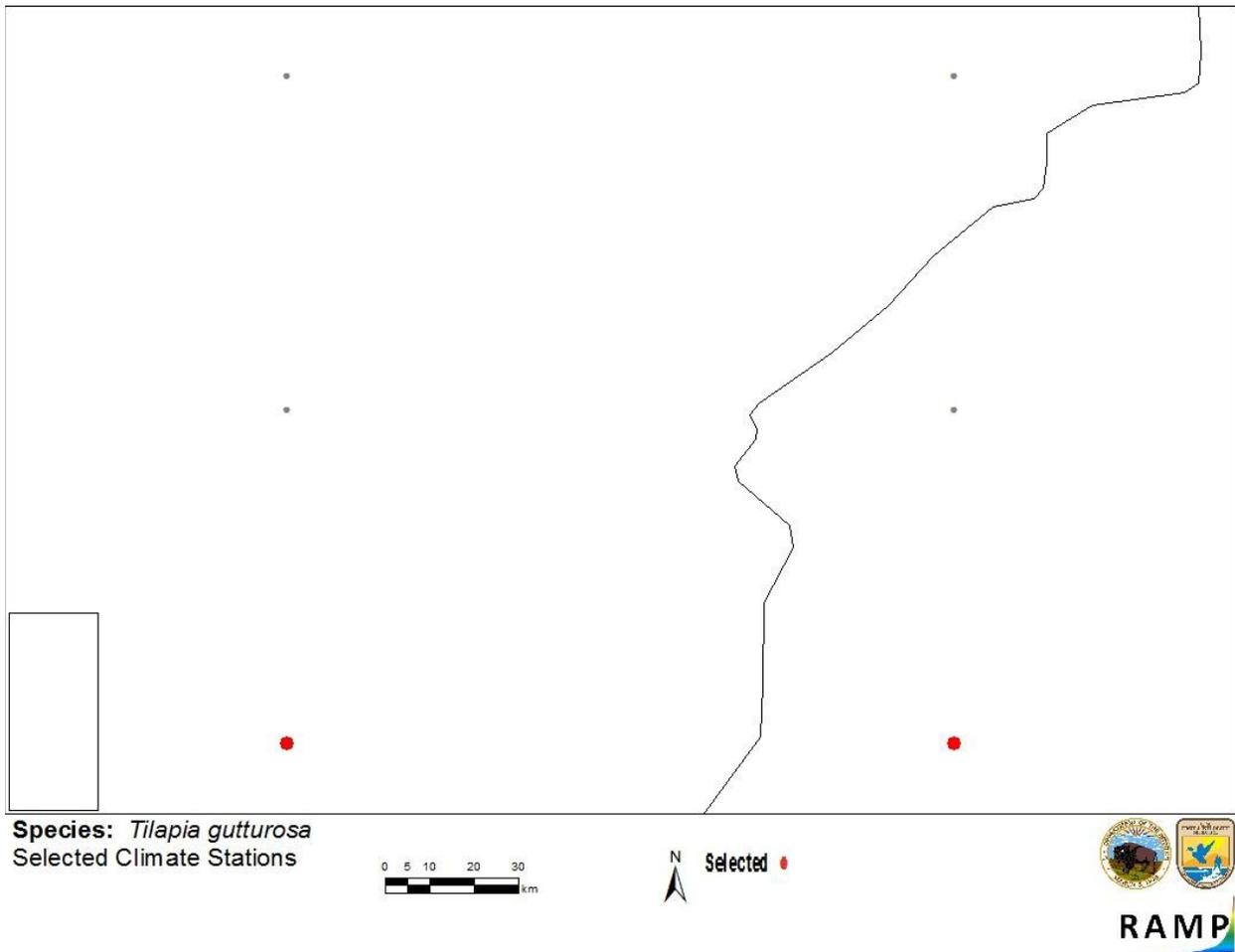
## 5 Distribution within the United States

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

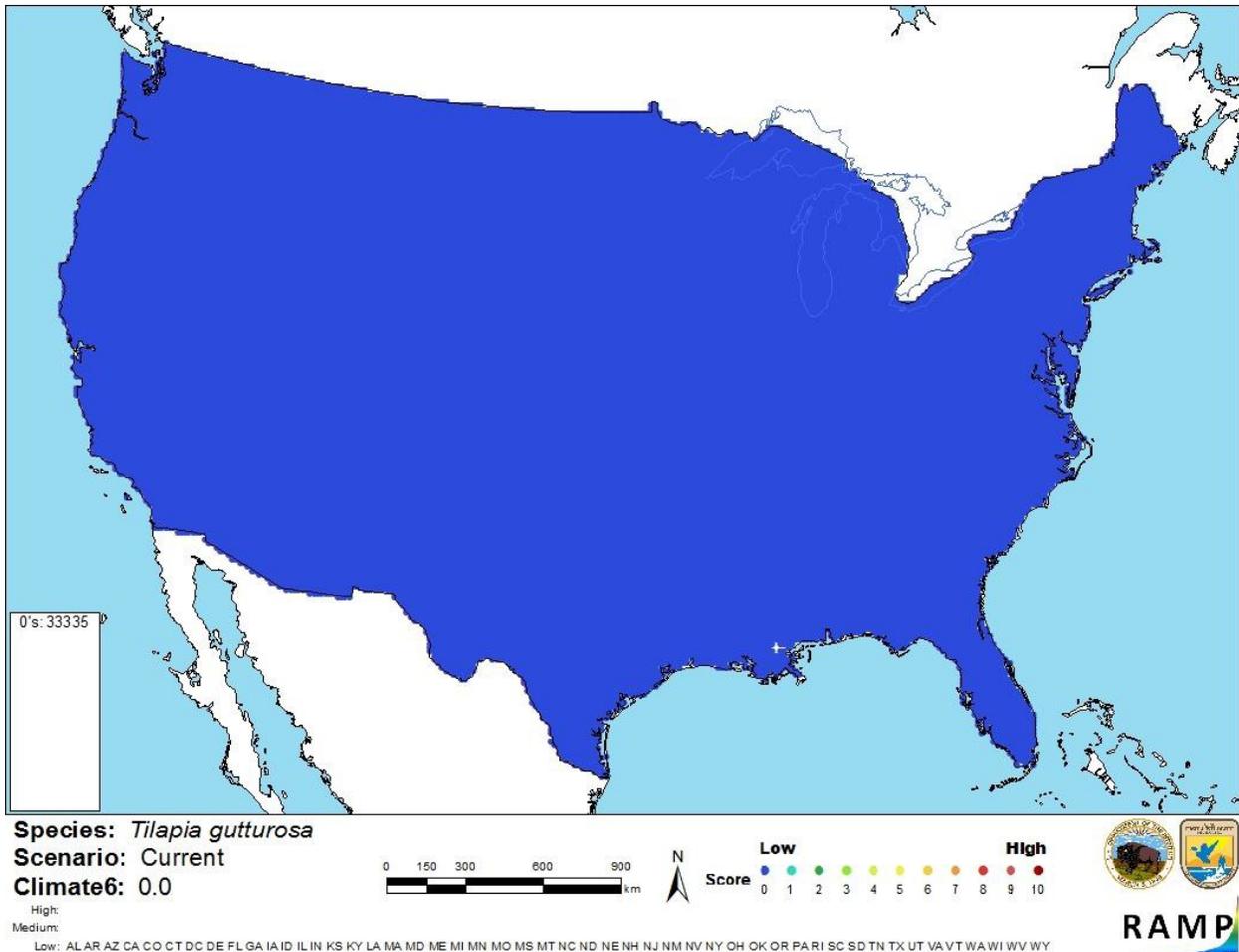
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the contiguous U.S., reflected in a Climate 6 proportion of 0.0. The range for a low climate match is 0.000 to 0.005.



**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *T. gutturosa* climate matching. Source location (in Cameroon) from GBIF (2015).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *T. gutturosa* 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

Little information is available on the biology of *T. gutturosa* and it has not become established outside its native range. The certainty of this assessment is high because the lack of information about this species precludes any assessment other than “uncertain” risk.

## 8 Risk Assessment

### Summary of Risk to the Continental United States

*Tilapia gutturosa* is endemic to Lake Bermin in Cameroon, and has not been reported as introduced outside of this location. The species is, in fact, critically endangered in its native range due to deforestation and agriculture. Because *T. gutturosa* has no history of invasiveness, it is currently impossible to know what impacts *T. gutturosa* might have if introduced to the U.S. Climate match to the contiguous U.S. is low, but this may be an underestimate because environmental factors other than climate tolerance may be responsible for the restriction of the

species to a single lake. Tropical and sub-tropical areas of the U.S. may be suitable habitat for this tropical species. Overall risk of this species 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

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

Froese, R., and D. Pauly, editors. 2015. *Tilapia gutturosa* Stiassny, Schliewen & Dominey, 1992. FishBase. Available: <http://www.fishbase.org/summary/Tilapia-gutturosa.html>. (June 2015).

Global Biodiversity Information Facility (GBIF). 2015. GBIF backbone taxonomy: *Tilapia gutturosa* Stiassny, Schliewen & Dominey, 1992. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2370663>. (June 2015).

Integrated Taxonomic Information System (ITIS). 2015. *Tilapia gutturosa* Stiassny, Schliewen and Dominey, 1992. Integrated Taxonomic Information System, Reston, Virginia. Available: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=648970](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648970). (June 2015).

Moelants, T. 2010. *Tilapia gutturosa*. The IUCN Red List of Threatened Species, version 2015.2. Available: <http://www.iucnredlist.org/details/21892/0>. (June 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

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**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.

Stiassny, M. L. J., A. Lamboj, D. De Weirtdt, and G. G. Teugels. 2008. Cichlidae. Pages 269-403 in M. L. J. Stiassny, G. G. Teugels, and C. D. Hopkins, editors. The fresh and brackish water fishes of Lower Guinea, West-Central Africa, volume 2. Coll. faune et flore tropicales 42. Institut de recherche de développement, Paris, France, Muséum national d'histoire naturelle, Paris, France and Musée royal de l'Afrique Central, Tervuren, Belgium.

Stiassny, M. L. J., U. K. Schliewen, and W. J. Dominey. 1992. A new species flock of cichlid fishes from Lake Bermin, Cameroon with a description of eight new species of *Tilapia* (Labroidei: Cichlidae). Ichthyological Exploration of Freshwaters 3(4):311-346.