# *Tilapia bemini*
## 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: endemic to Lake Bemin, 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):

"Red List Category & Criteria: Critically Endangered B1ab(iii)+2ab(iii) … 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' - CO2 (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

### 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 bemini* Thys van den Audenaerde, 1972"

"Taxonomic Status: valid"

## Size, Weight, and Age Range

From Froese and Pauly (2015):

"Max length : 6.7 cm SL male/unsexed; [Stiassny et al. 2008]"

"Maximum size recorded is 8.7 cm TL [Teugels and Thys van den Audenaerde 1991]."

## Environment

From Froese and Pauly (2015):

"Freshwater; benthopelagic."

## Climate/Range

From Froese and Pauly (2015):

"Tropical; 24°C - 26°C"

## Distribution Outside the United States

### Native

From Moelants (2010):

"Cameroon"

### 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): 15 - 16; Dorsal soft rays (total): 10-11; Anal spines: 3; Anal soft rays: 7 - 8. Diagnosis: lower pharyngeal jaw robust, with a large, heart-shaped dentigerous plate, covered with numerous fine, regularly arrayed teeth; mouth squared and obtuse [Stiassny et al. 2008]. Lips broad and fleshy; ventral margin of lower lip folded and fringed [Stiassny et al. 1992, 2008]. Fine buccal dentition of slender, movably implanted, spatulate teeth, 25-45 in outer premaxillary row [Stiassny et al. 1992]."

## 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
No introductions of this species have been reported.

# 4 Global Distribution


**Figure 1.** Distribution of *T. bemini*. 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.

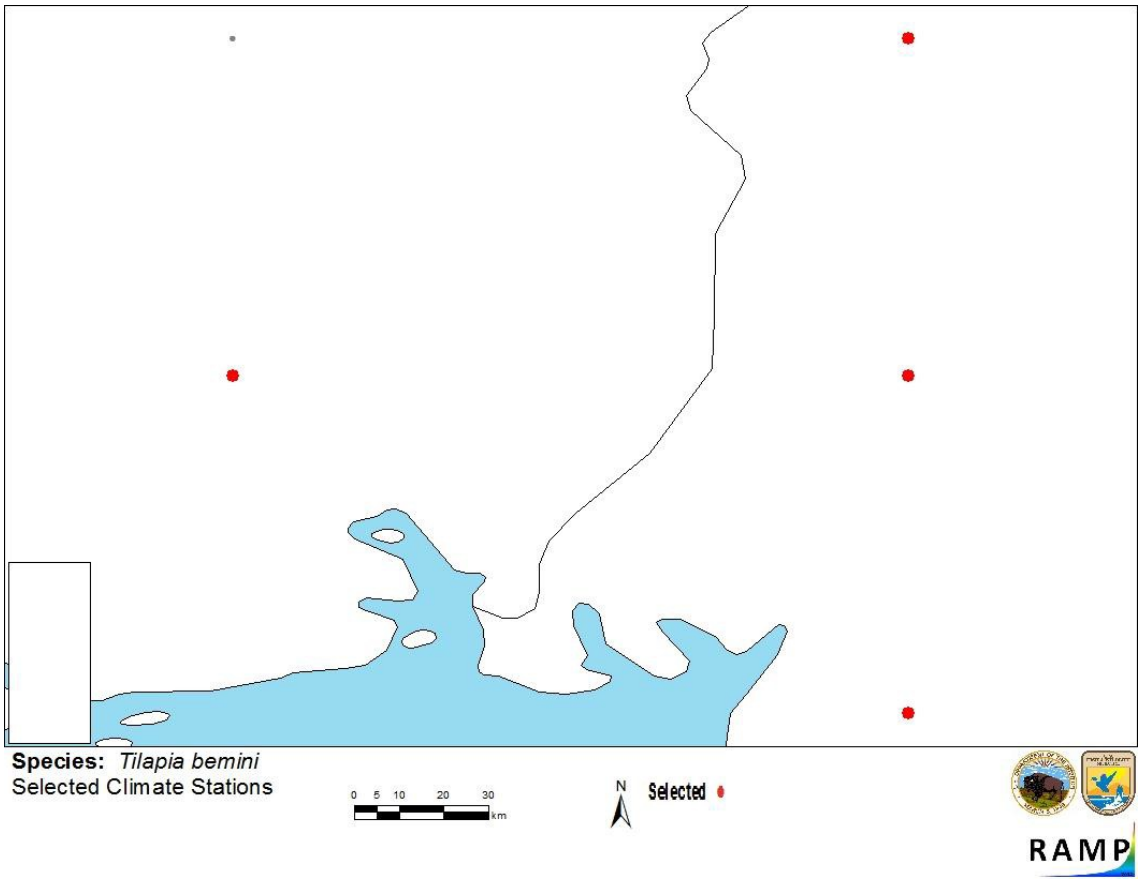


**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *T. bemini* climate matching. Source locations from GBIF (2015). All source locations are in Cameroon.

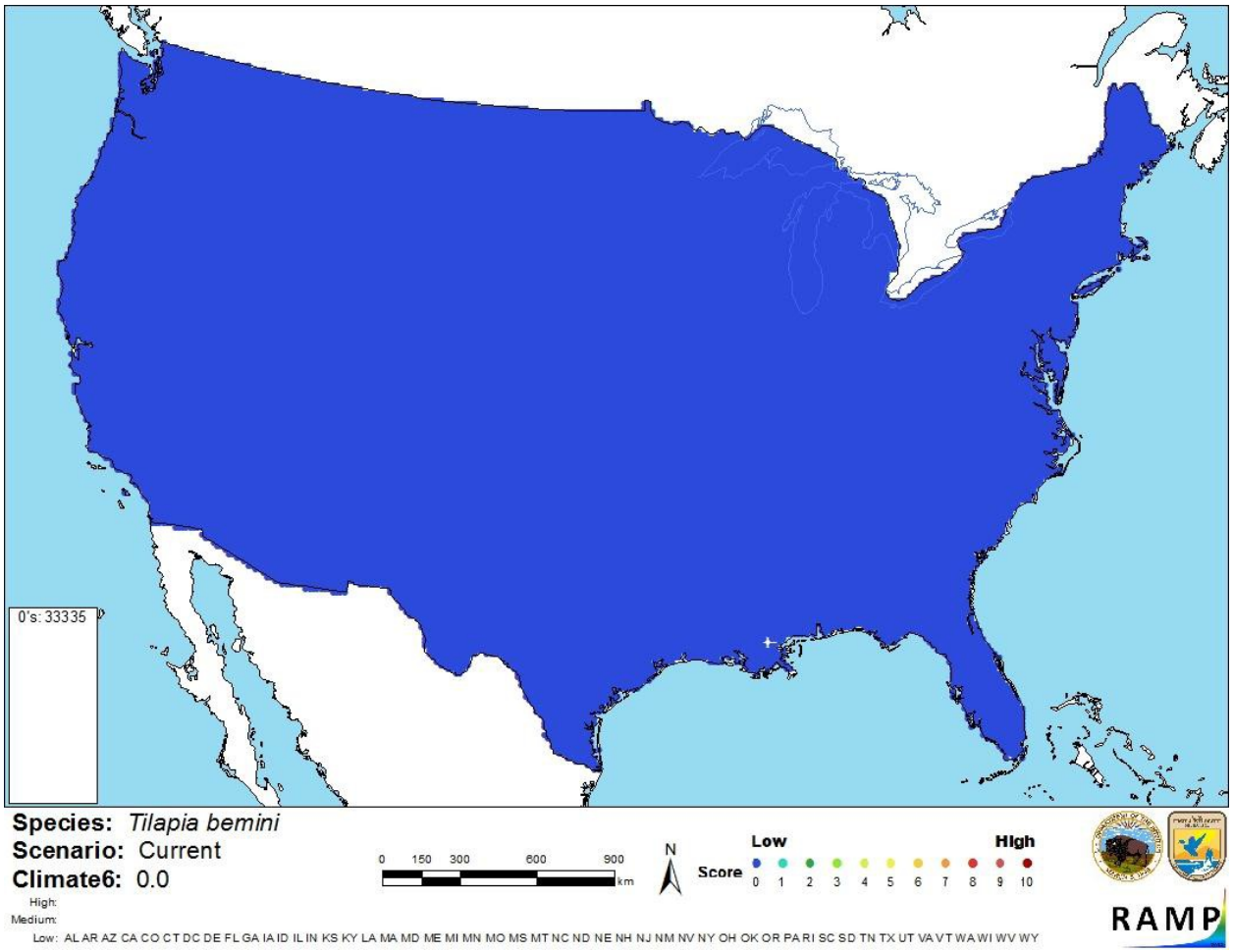


**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *T. bemini* in the continental United States based on source locations reported by GBIF (2015). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

# 7 Certainty of Assessment

Little information is available on the biology of *T. bemini* 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 bemini* is endemic to Lake Bemin 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. bemini* has no history of invasiveness, it is currently impossible to know what impacts *T. bemini* 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

**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 bemini* Thys van den Audenaerde, 1972. FishBase. Available: http://www.fishbase.org/summary/8897. (June 2015).

Global Biodiversity Information Facility (GBIF). 2015. *Tilapia bemini* Thys van den Audenaerde, 1972. Global Biodiversity Information Facility, Copenhagen. Available: http://www.gbif.org/species/2370685. (June 2015).

Integrated Taxonomic Information System (ITIS). 2015. *Tilapia bemini* Thys van den Audenaerde, 1972. Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648952. (June 2015).

Moelants, T. 2010. *Tilapia bemini*. The IUCN Red List of Threatened Species, version 2015.2. Available: http://www.iucnredlist.org/details/21889/0. (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.**


Stiassny, M. L. J., A. Lamboj, D. De Weirdt, 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.

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.