

African Scat (*Scatophagus tetracanthus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2014

Revised, December 2017

Web Version, 11/4/2019

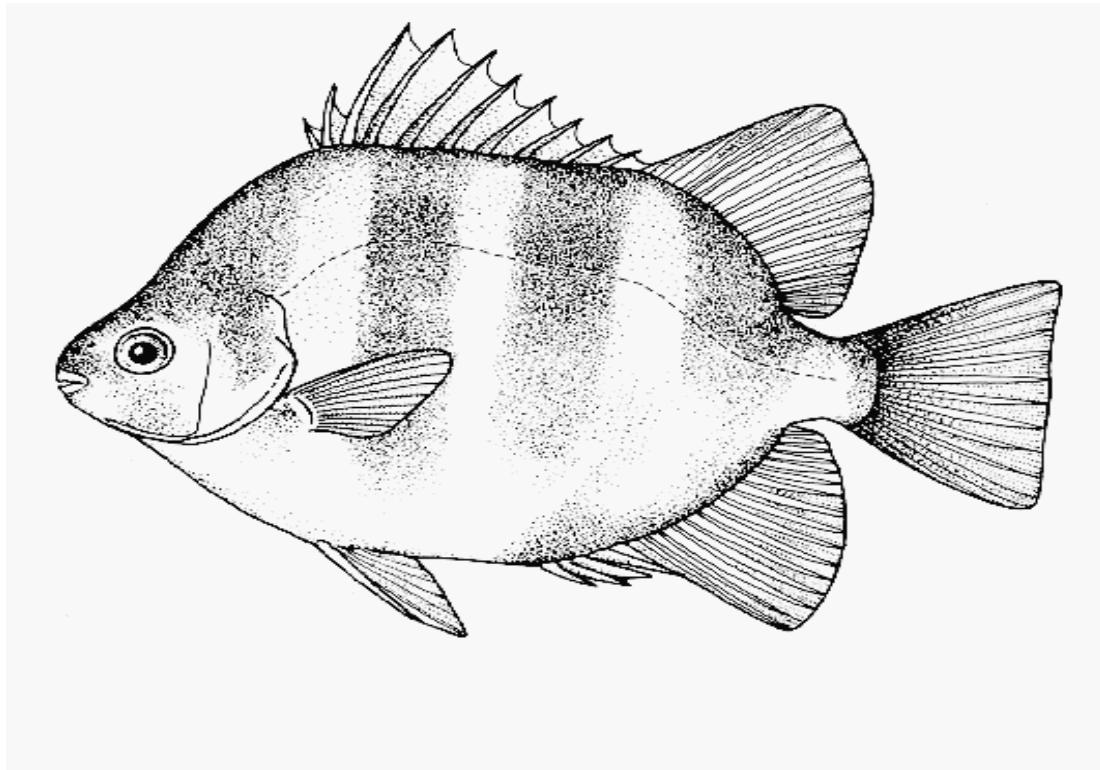


Image: D. H. Eccles (1992). Creative Commons (CC BY-NC 3.0). Available: <http://www.fishbase.org/photos/PicturesSummary.php?StartRow=0&ID=7915&what=species&TotalRec=3>. (December 2017).

1 Native Range, and Status in the United States

Native Range

From Froese and Pauly (2017):

“Indo-West Pacific: Somalia [Sommer et al. 1996] and Kenya to South Africa, Australia and Papua New Guinea. Also found in the rivers and lagoons of East Africa.”

According to Froese and Pauly (2019), *S. tetracanthus* is native to Kenya, Madagascar, Mozambique, Somalia, South Africa, Tanzania, Australia, and Papua New Guinea. Ganaden and Lavapie-Gonzales (1999) include *S. tetracanthus* in their list of marine fishes of the Philippines.

Status in the United States

This species has not been reported as introduced or established in the wild in the United States. It is in trade in the United States:

From Aqua-Imports (2019):

“AFRICAN TIGER SCAT (SCATOPHAGUS TETRACANTHUS)
\$224.99”

“A true rarity for collectors and serious hobbyists, these fish are only rarely imported and availability is extremely seasonal.”

According to their website, Aqua-Imports is based in Boulder, Colorado, and only ships within the continental United States.

Means of Introductions in the United States

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

Remarks

From Eschmeyer et al. (2017):

“*Chaetodon tetracanthus* [...] Current Status: Valid as *Scatophagus tetracanthus*”

Froese and Pauly (2017) list the following invalid species as synonyms for *Scatophagus tetracanthus*: *Chaetodon tetracanthus*, *Cacodoxus tetracanthus*, *Ephippus tetracanthus*, *Scatophagus fasciatus*. All synonyms were used, along with the valid scientific name, to search for information on this species.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

“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 Acanthuroidei
Family Scatophagidae
Genus *Scatophagus*
Species *Scatophagus tetracanthus* (Lacepède, 1802)”

“Taxonomic Status: Valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 30.0 cm TL male/unsexed [Arnoult 1986]”

Environment

From Eschmeyer et al. (2017):

“Habitat: freshwater, brackish, marine”

From Froese and Pauly (2017):

“22°C - 30°C [Riehl and Baensch 1991; assumed to represent recommended aquarium temperatures]”

Climate/Range

From Froese and Pauly (2017):

“Tropical; [...] 13°N - 29°S, 32°E - 155°E”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“Indo-West Pacific: Somalia [Sommer et al. 1996] and Kenya to South Africa, Australia and Papua New Guinea. Also found in the rivers and lagoons of East Africa.”

According to Froese and Pauly (2019), *S. tetracanthus* is native to Kenya, Madagascar, Mozambique, Somalia, South Africa, Tanzania, Australia, and Papua New Guinea. Ganaden and Lavapie-Gonzales (1999) include *S. tetracanthus* in their list of marine fishes of the Philippines.

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 (2017):

“Dorsal spines (total): 11; Dorsal soft rays (total): 15-18; Anal spines: 4; Anal soft rays: 14 - 15”

From Monks (2007):

“This fish has thick brown stripes against a pale cream-colored body and is marked on the forehead with orange or red patches similar to those seen on redheaded scats.”

“[Scats] are roughly oval in shape, with a relatively compact, pointed head ending in a relatively dainty mouth. The dorsal and anal fins are divided into small spiny regions at the front and large softer regions at the back. The soft parts of the dorsal and anal fins are large and triangular and almost run into the large and approximately triangular caudal fin.”

Biology

From Froese and Pauly (2017):

“Common in harbors and estuaries [Heemstra 1986]; also found in rivers and lagoons. Forms shoals [Heemstra 1986]. Feeds on detritus and benthic invertebrates [Sommer et al. 1996]. Antiolateral glandular groove with venom gland [Smith and Wheeler 2006].”

From Monks (2007):

“The scats (family Scatophagidae) [...] are fast-moving omnivores that will eat pretty much anything they can catch, and they are remarkably tolerant of rapid changes in salinity.”

Human Uses

From Froese and Pauly (2017):

“Fisheries: minor commercial; aquarium: commercial”

This species is in trade in the United States:

From Aqua-Imports (2019):

“AFRICAN TIGER SCAT (SCATOPHAGUS TETRACANTHUS)
\$224.99”

“A true rarity for collectors and serious hobbyists, these fish are only rarely imported and availability is extremely seasonal.”

Diseases

No OIE-reportable diseases (OIE 2019) have been documented in this species. No further information available.

Threat to Humans

From Froese and Pauly (2017):

“Venomous”

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution

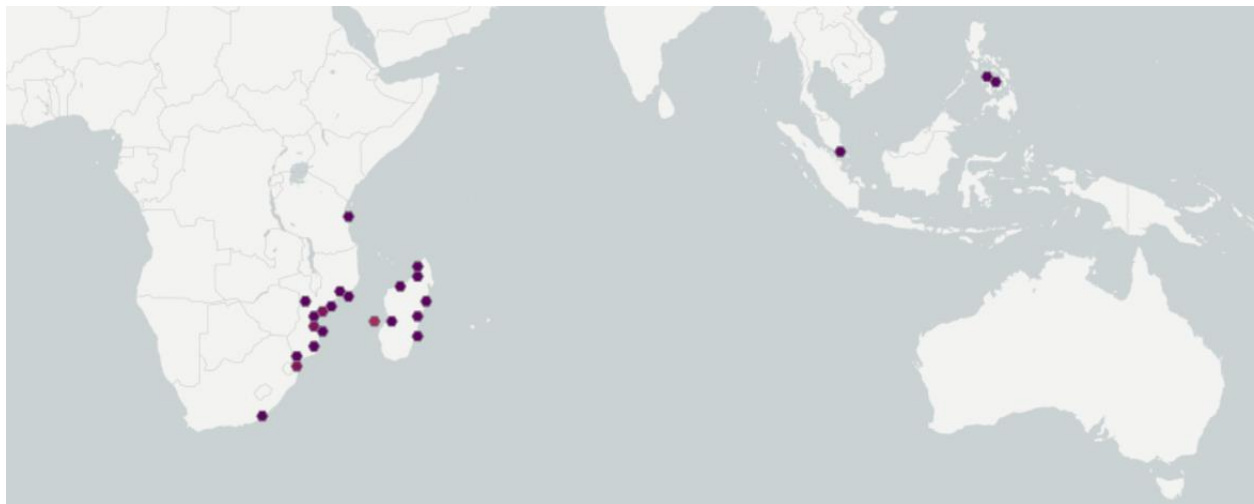


Figure 1. Map of known global distribution of *Scatophagus tetracanthus*. Map from GBIF Secretariat (2019). The occurrence in Singapore had extreme coordinate uncertainty, and was excluded from the climate matching analysis. No georeferenced occurrences were available for the species range in Kenya, Somalia, Australia, or Papua New Guinea.

5 Distribution within the United States

No introductions of this species have been reported.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was high in southern Florida and the southern tip of Texas. A medium match was found in the rest of peninsular Florida, southern Texas, and southeastern Arizona. A low match occurred across the

rest of the contiguous United States. The Climate 6 score for the contiguous United States was 0.013, indicating a medium overall climate match. (Scores between 0.005 and 0.103 are classified as medium.) Florida had a high climate score, and Texas had a medium climate score; all other states had a low climate score.

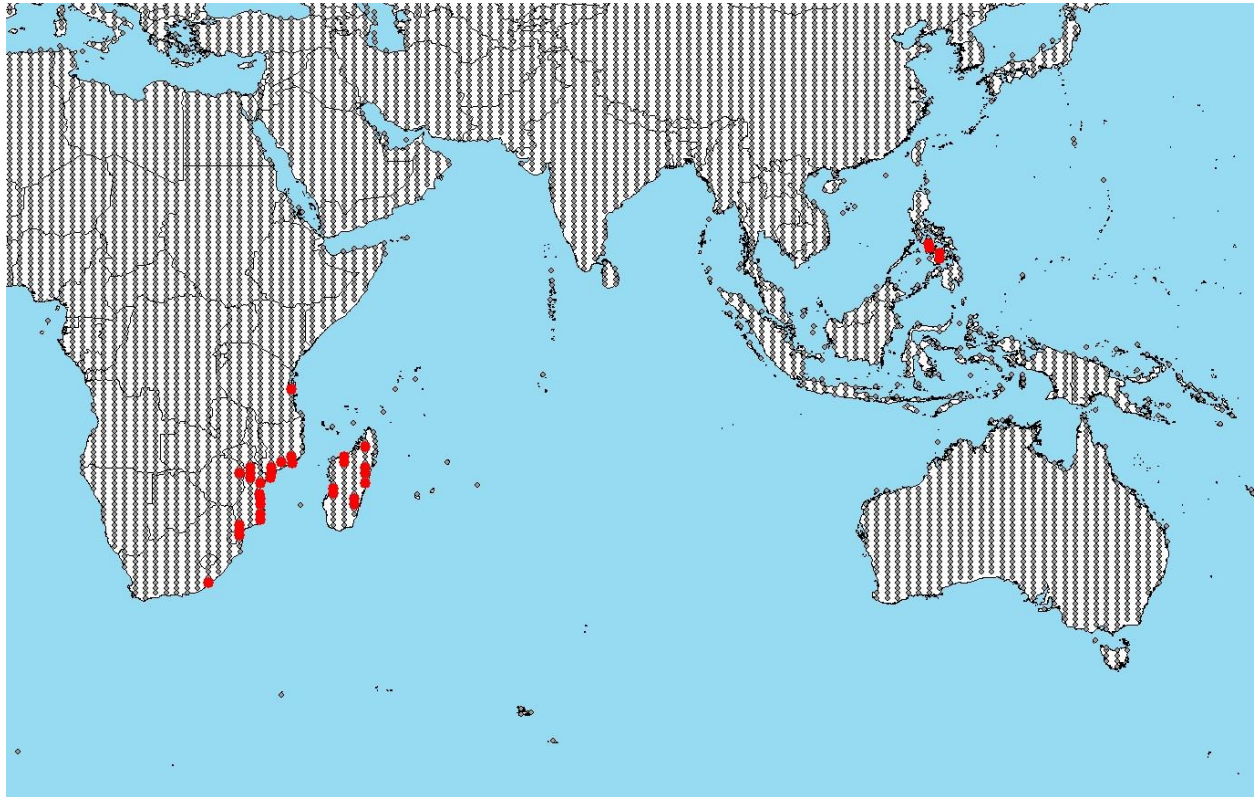


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Tanzania, Mozambique, Zimbabwe, South Africa, Madagascar, the Philippines) and non-source locations (gray) for *Scatophagus tetracanthus* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

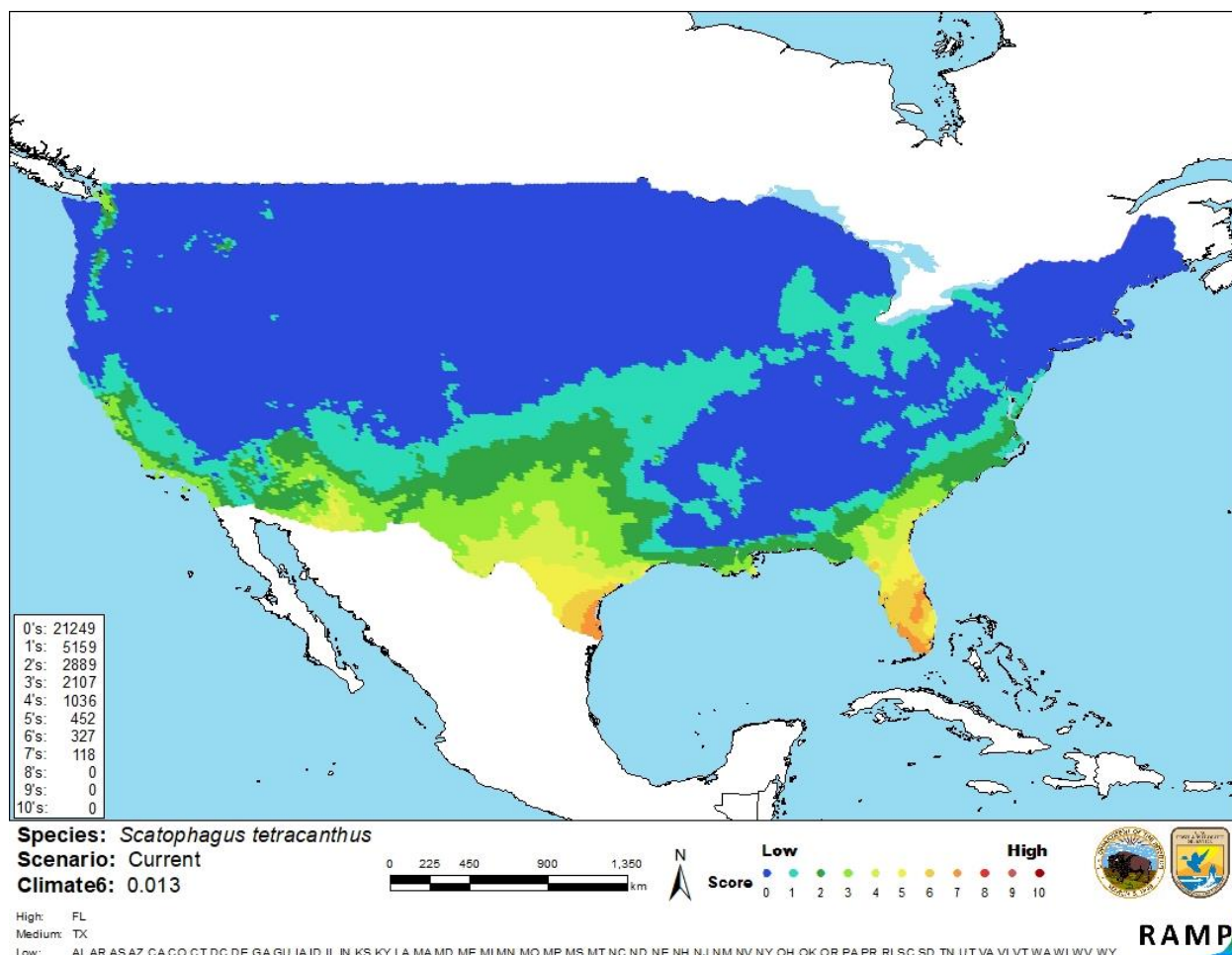


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *S. tetracanthus* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Only a limited amount of information on the biology and distribution of *S. tetracanthus* currently exists. No introductions of this species have been recorded. More information is needed to evaluate the potential impacts it could have beyond its native range. The certainty of assessment for *S. tetracanthus* is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Scatophagus tetracanthus, African scat, is a fish native to the rivers, lagoons, harbors and estuaries of the Indo-West Pacific, including eastern Africa, Australia, and Papua New Guinea. It can reproduce in fresh waters and is venomous. *S. tetracanthus* is present in the aquarium trade in the United States and internationally, and is also a minor target for commercial fishing. However, there have been no reported introductions of *S. tetracanthus* into the wild outside its native range, so the history of invasiveness is uncertain. The climate match with the contiguous United States is medium. Much of the contiguous United States has a low match, except southern Florida, southern Texas, and southeastern Arizona. Certainty of assessment low due to the lack of introduction history. Overall risk posed by this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec.6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information: Venomous**
- **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.

- Aqua-Imports. 2019. African tiger scat (*Scatophagus tetracanthus*). Available: <https://www.aqua-imports.com/shop/product/african-tiger-scat-scatophagus-tetracanthus/>. (November 2019).
- 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/fishcatmain.asp>. (December 2017).
- Froese, R. and D. Pauly, editors. 2017. *Scatophagus tetracanthus* Lacepède, 1802. FishBase. Available: <http://www.fishbase.us/summary/Scatophagus-tetracanthus.html>. (December 2017).
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- Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. U.S. Fish & 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.

- Arnoult, J. 1986. Scatophagidae. In J. Daget, J. P. Gosse, and D. F. E. Thys van den Audenaerde, editors. Check-list of the freshwater fishes of Africa (CLOFFA). ISNB, Brussels, Belgium.
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- Smith, W. L., and W. C. Wheeler. 2006. Venom evolution widespread in fishes: a phylogenetic road map for the bioprospecting of piscine venoms. *Journal of Heredity* 97(3):206-217.
- Sommer, C., W. Schneider, and J. M. Poutiers. 1996. *FAO species identification field guide for fishery purposes. The living marine resources of Somalia*. FAO, Rome, Italy.