

Sailfin Glassfish (*Ambassis agrammus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2022
Revised, February 2022
Web Version, 4/13/2023

Organism Type: Fish
Overall Risk Assessment Category: Uncertain

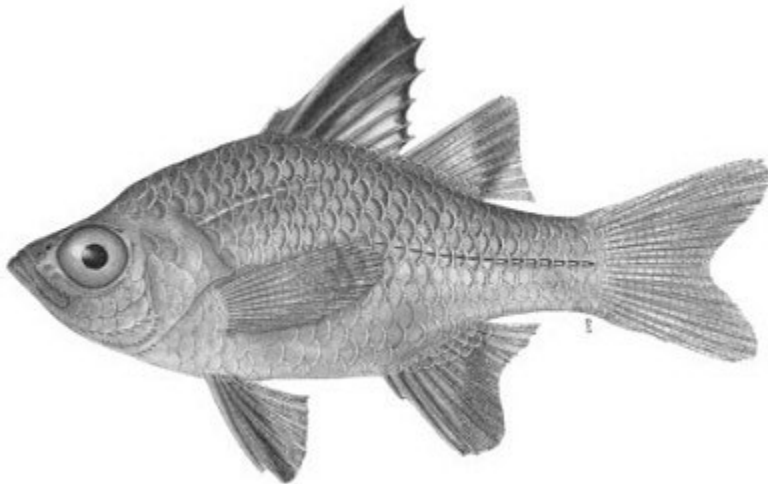


Illustration: Dorteia B. Schultz. Conditional use provided by Smithsonian Museum of Natural History. Available: <http://n2t.net/ark:/65665/m342a1e71c-d677-4f8f-8859-1521773df7ce> (February 2022).

1 Native Range and Status in the United States

Native Range

From Thompson and Bray (2017):

“Two isolated populations occur: in coastal streams of the Northern Territory from the Victoria River to the McArthur River, and the second population from Cape York, Queensland, to about Lake Hiawatha, northern New South Wales; also in New Guinea. Historically, the species occurred in the Murray Darling Basin, but is now thought to be regionally extinct in Victoria and South Australia.”

Status in the United States

No records of *Ambassis agrammus* in the wild or in trade in the United States were found.

From Hawaii Department of Agriculture (2019):

“The introduction into Hawaii of live animals or live non-domestic animals as defined in this chapter is only allowed:

- (1) For those animals on the list designated as conditionally approved and dated November 28, 2006, or on the list designated as restricted entry, dated September 25, 2018, pursuant to section 150A-6.2, HRS, both of which lists are located at the end of this chapter and made a part of this section;
- (2) By permit approved by the board, chairperson, or chief, as appropriate, pursuant to sections 4-71-3 and 4-71-4; and
- (3) After securing appropriate bond for certain animals pursuant to sections 4-71-7, 4-71-8, and 4-71-9.”

Ambassis agrammus is on the Conditional Animal List provided in section 4-71-6.5 of the preceding regulations (Hawaii Department of Agriculture 2019).

Means of Introductions in the United States

No records of *Ambassis agrammus* introduction in the United States were found.

Remarks

From Pusey et al. (2017):

“The systematics and nomenclature of the northern Australian ambassids is in urgent need of clarification as phylogenetic structure determined by molecular methods (P. Unmack, *unpubl. data*) is not in accord with currently accepted taxonomy (e.g. Allen and Burgess 1990). Thus, there is a great deal of uncertainty as to the specific identity of ambassids recorded in freshwaters of northern Australia. Until fully resolved, we have here included, as valid, all records for *Ambassis agrammus* derived from museum records, the published literature and recent surveys, but in full recognition that the distribution of this species may be more limited than is suggested.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2022):

“Current status: Valid as *Ambassis agrammus* Günther 1867”

From ITIS (2022):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata

Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Acanthopterygii
Order Perciformes
Suborder Percoidei
Family Chandidae
Genus *Ambassis*
Species *Ambassis agrammus*

Size, Weight, and Age Range

From Froese and Pauly (2022):

“Maturity: L_m ?, range 3 - 3.5 cm. Max length : 7.5 cm SL [standard length] male/unsexed; [Allen et al. 2002]; common length : 4.5 cm SL male/unsexed; [Allen 1989]”

From Thompson and Bray (2017):

“[...] the species matures in 12 months at 2.5-3 cm.”

Environment

From Froese and Pauly (2022):

“Freshwater; brackish; [...] 22°C – 38°C [Allen 1991]”

“[...] demersal.”

“Found in streams, ponds, and swamps [Allen 1991]. Inhabits rivers and creeks flowing through rainforest, sometimes in stagnant pools or slowly flowing rivulets. Also occurs along the margins of swamps and lakes.”

Climate

From Froese and Pauly (2022):

“Tropical; [...] 3°S – 16°S”

Distribution Outside the United States

Native

From Thompson and Bray (2017):

“Two isolated populations occur: in coastal streams of the Northern Territory from the Victoria River to the McArthur River, and the second population from Cape York, Queensland, to about Lake Hiawatha, northern New South Wales; also in New Guinea. Historically, the species

occurred in the Murray Darling Basin, but is now thought to be regionally extinct in Victoria and South Australia.”

Introduced

No records of introductions were found for *Ambassis agrammus*.

Means of Introduction Outside the United States

No records of introductions were found for *Ambassis agrammus*.

Short Description

From Thompson and Bray (2017):

“A pale silvery yellow to semi-transparent glassfish with a darker olive hue above, often with dark-edged scales forming a network pattern, and often broad dusky margins on the dorsal, anal and pelvic fins.”

“Body laterally compressed, elongate-oval shaped; greatest body depth 39.5-51.1% of SL [standard length]; lateral line incomplete or in two sections, first dorsally to below spinous portion of dorsal with 0-11 tubed scales, second midlaterally on caudal peduncle with 0-10 pored scales; head length 36.0 to 41.7 % SL; snout length 7.0 to 9.3 % SL; eye diameter 11.6 to 14.0 % HL [head length].”

“Scales are cycloid and large, present on head; horizontal scale rows 12-14; vertical scale rows 28-34; cheek with 2 transverse scale rows.”

“Dorsal fin deeply notched; first dorsal spine small, projecting forward; anal fin opposite soft rays of dorsal; height of first dorsal fin 18.4 to 27.6 % SL; second dorsal spine longer than third dorsal spine; third anal spine longer than second anal spine; anal and dorsal fins with scaly basal sheath. Pectoral fins of moderate size, originating forward of pelvic fins. Pelvic fins large. Caudal fin forked with rounded tips.”

From Froese and Pauly (2022):

“Dorsal spines (total): 8; Dorsal soft rays (total): 7-10; Anal spines: 3; Anal soft rays: 7 – 10”

Biology

From Froese and Pauly (2022):

“Usually forms large aggregations that shelter among aquatic vegetation. The breeding season coincides with the onset of monsoonal spring rains [Allen et al. 2002]. Feeds on micro-crustaceans, insects, small arachnids, fish and algae [Allen 1991].”

From Thompson and Bray (2017):

“The entire life cycle is completed in freshwater and the species matures in 12 months at 2.5-3 cm. Females spawn amongst aquatic vegetation from September to December, usually producing over 1000 eggs. The eggs are spherical, adhesive and small. Larvae school at the surface.”

Human Uses

From Kerezsy et al. (2019):

“It is occasionally collected for the aquarium trade in small numbers.”

Ambassis agrammus is found in the aquarium trade within Australia (e.g., Livefish.com 2022).

Diseases

No records of OIE-reportable diseases (OIE 2021) were found for *Ambassis agrammus*. No information was found on diseases associated with *Ambassis agrammus*.

Threat to Humans

From Froese and Pauly (2022):

“Harmless”

3 Impacts of Introductions

No records of introductions were found for *Ambassis agrammus*; therefore, there is no information on impacts of introduction.

Ambassis agrammus is designated as a conditionally approved species by the State of Hawaii (Hawaii Department of Agriculture 2019).

4 History of Invasiveness

Ambassis agrammus is in trade in Australia as an ornamental fish. However, no records quantifying the duration or number individuals traded were found; nor were any records of introductions found. The history of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution



Figure 1. Known global distribution of *Ambassis agrammus*. Observations are in Australia, Papua New Guinea, and Indonesia. Map from GBIF Secretariat (2022). The locations in East Nusa Tenggara, Indonesia and on the western coast of Australia were not used to select source points for the climate matching analysis because no information was found confirming these points as representative of established populations.

6 Distribution Within the United States

No records of *Ambassis agrammus* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Ambassis agrammus* in the contiguous United States was mostly medium to low locally. High matches were found in peninsular Florida and in Southwest from southern Texas through Arizona. There were a few small patches of high match in southern California and Nevada. Medium matches were found elsewhere in portions of the Southwest and Intermountain

West, throughout much of the interior portion of the contiguous United States from Texas north to southern South Dakota and Michigan. Areas of medium match were also found along the Atlantic Coast from Florida to southern New Jersey. The climate match was low in the Northeast, northern Midwest, interior Southeast from eastern Texas to western North Carolina, and generally in patches from Colorado to the Pacific Coast. The Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.169, High (scores greater than or equal to 0.103, are classified as High). The following States had High individual climate scores: Arizona, Florida, Georgia, Kansas, New Mexico, Oklahoma, and Texas. California, Colorado, Nevada, South Carolina, and Utah had Medium individual scores; all other States had Low individual scores.

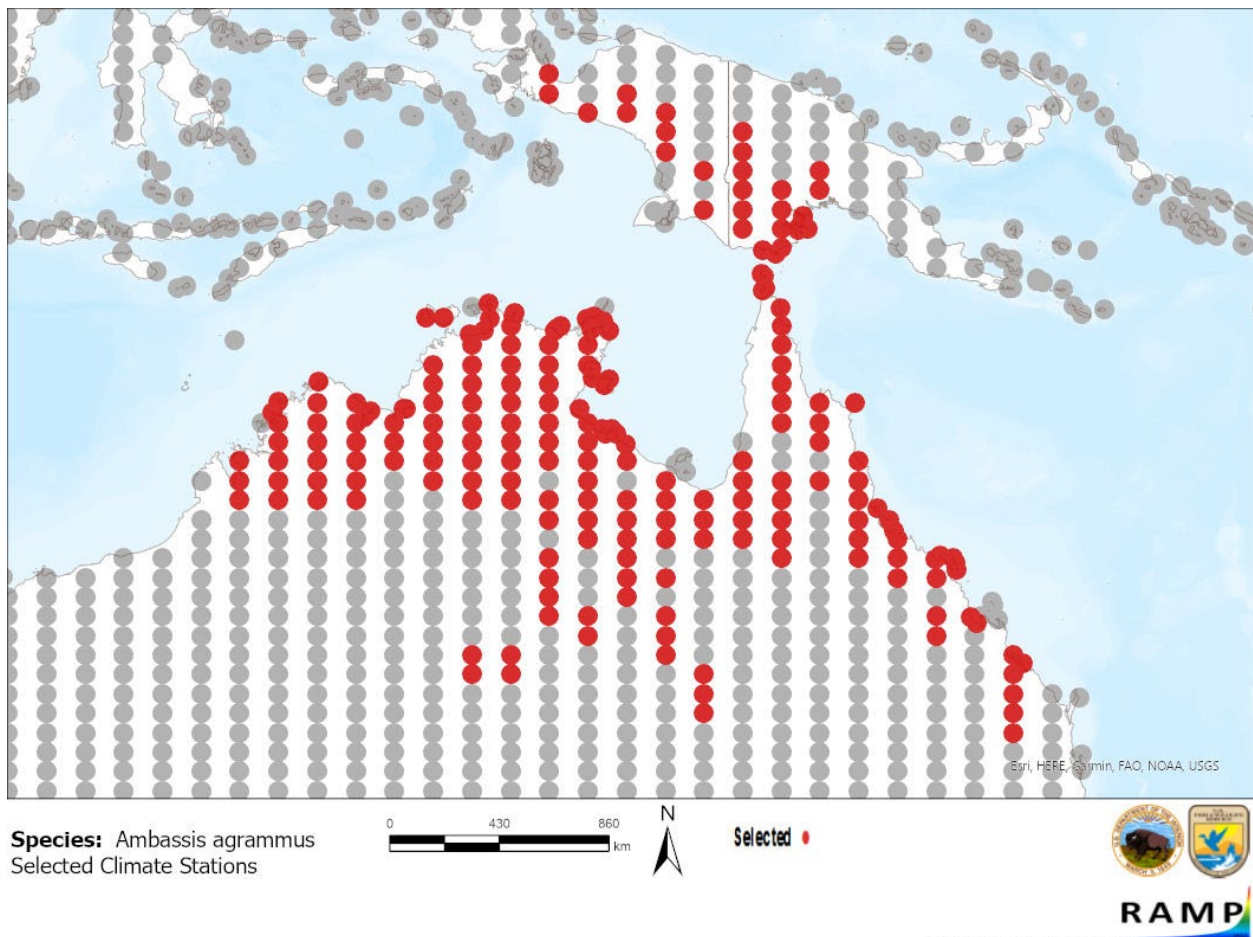


Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in southeastern Asia and Oceania selected as source locations (red; Australia, Indonesia, Papua New Guinea) and non-source locations (gray) for *Ambassiss agrammus* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

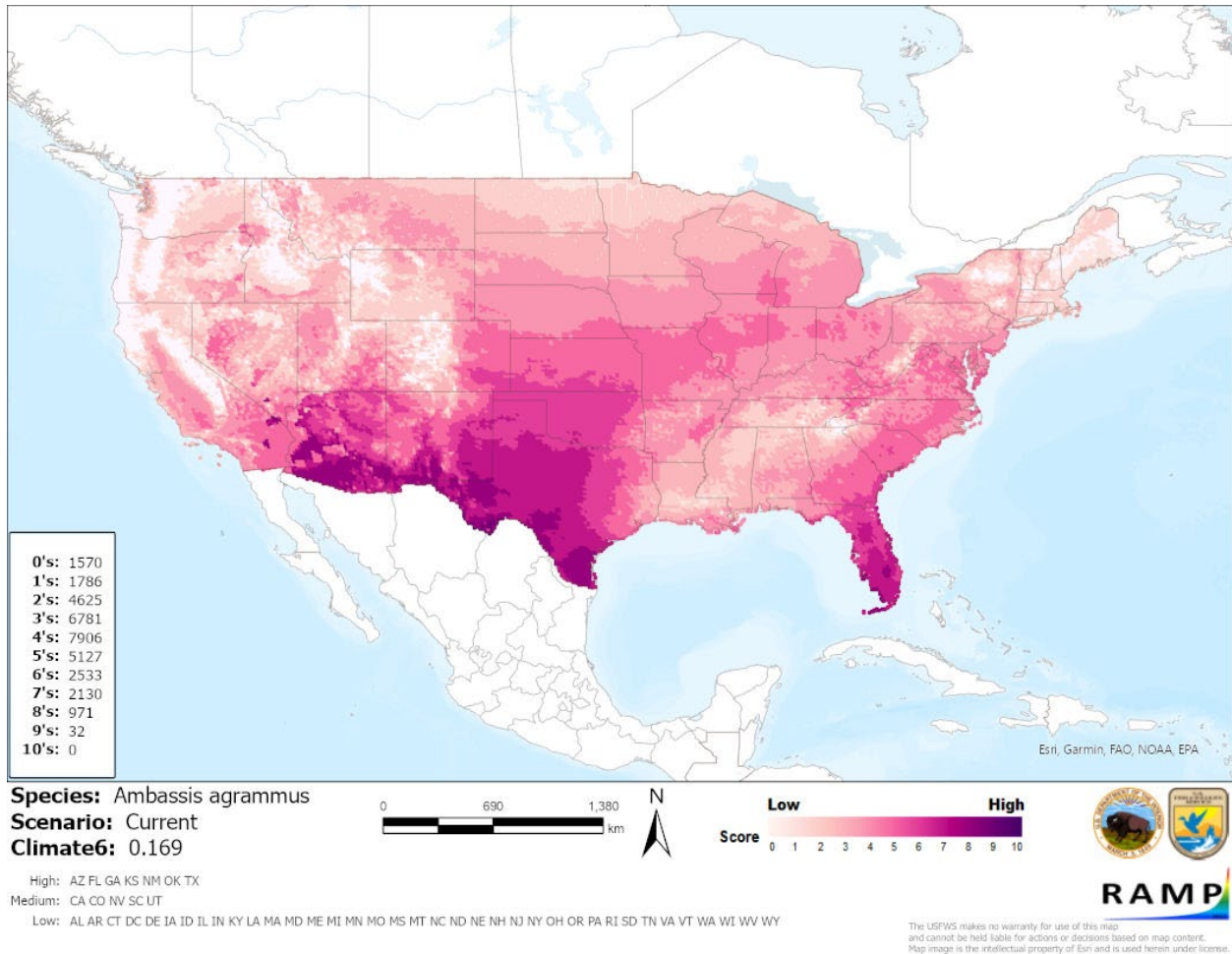


Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Ambassis agrammus* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

The certainty of assessment is Low. Information on the biology and distribution of *Ambassis agrammus* was available. However, this species is in trade internationally as an aquarium fish but no records quantifying the duration or number individuals traded were found. No records of introductions were found, so impacts of introduction are unknown.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Sailfin glassfish (*Ambassis agrammus*) is a fish that is native to Australia, Indonesia, and Papua New Guinea. It is used in the aquarium trade outside of the United States. The history of invasiveness is No Known Nonnative Population as no records of introductions were found. The overall climate match for the contiguous United States was High with high match found in peninsular Florida and portions of the Southwest from Arizona to southern Texas. The certainty of assessment is Low due to a lack of information regarding this species' history of invasiveness. The overall risk assessment category is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: No additional remarks.**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

Fricke R, Eschmeyer WN, van der Laan R, editors. 2022. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (February 2022).

Froese R, Pauly D, editors. 2022. *Ambassis agrammus* Günther, 1867. FishBase. Available: <http://www.fishbase.us/summary/SpeciesSummary.php?genusname=Ambassis&speciesname=agrammus> (January 2022).

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Hawaii Department of Agriculture. 2019. Amendment and compilation of chapter 4-71, Hawaii Administrative Rules. Honolulu: Hawaii Department of Agriculture, Plant Industry Division. Available: <http://hdoa.hawaii.gov/pi/pq/import-program/pq-non-domestic-animal-and-microorganism-lists/> (February 2021).

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Kerezszy A, Brooks S, Kennard M. 2019. *Ambassis agrammus*. The IUCN Red List of Threatened Species 2019: e.T122906114A123382271. Available: <https://www.iucnredlist.org/species/122906114/123382271> (February 2022).

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[OIE] World Organisation for Animal Health. 2021. Animal diseases. Available: <https://www.oie.int/en/what-we-do/animal-health-and-welfare/animal-diseases/> (May 2021).

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Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

Thompson VJ, Bray DJ. 2017. *Ambassis agrammus*. Fishes of Australia. Museums Victoria and OzFishNet. Available: <https://fishesofaustralia.net.au/home/species/1580> (January 2022).

11 Literature Cited in Quoted Material

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.

Allen GR. 1989. Freshwater fishes of Australia. Neptune City, New Jersey: T.F.H. Publications.

Allen GR. 1991. Field guide to the freshwater fishes of New Guinea. Madang, Papua New Guinea: Christensen Research Institute. Publication 9.

Allen GR, Burgess WE. 1990. A review of the glassfishes (Chandidae) of Australia and New Guinea. *Records of the Western Australian Museum Supplement* 34:139–206.

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