

Pearl Danio (*Danio albolineatus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011

Revised, July 2019

Web Version, 11/13/2019



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https://commons.wikimedia.org/wiki/File:Danio_albolineatus_2.jpg. (June 2019).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

“Asia: Myanmar to Laos and the island of Sumatra, Indonesia [Kottelat et al. 1993]. Reported from Irrawaddy, Salween, Mekong, Mae Khlong drainages [Fang and Kottelat 1999].”

From Vidthayanon (2012):

“The species is known from the Tenasserim River, the Salween and the upper Chao Phraya basins in Myanmar, Thailand, and Yunnan (Southern China). There are also records (as *Danio*

pulcher) from the eastern slopes of the Gulf of Thailand drainages and from Pliew, Chantabun Province, southeastern Thailand and into western Cambodia.”

Status in the United States

This species has not been found in the wild in the United States, however it is in trade.

Thepetplace.com (2019) offers “Pearl Danio- *Danio albolineatus* for \$1.99”

Means of Introductions in the United States

No records of *Danio albolineatus* in the wild in the United States were found.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current Status:** Valid as *Danio albolineatus* (Blyth 1860).”

From ITIS (2019):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Danio* Hamilton, 1822
Species *Danio albolineatus* (Blyth, 1860)”

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 6.5 cm SL male/unsexed; [Talwar and Jhingran 1991]; common length : 3.4 cm SL male/unsexed; [Talwar and Jhingran 1991]”

Environment

From Froese and Pauly (2019):

“Freshwater; benthopelagic; pH range: 6.0 - 8.0; dH range: 5 - 19. [...] 20°C - 25°C [Riehl and Baensch 1991; assumed to be recommended aquarium temperature]”

Climate/Range

From Froese and Pauly (2019):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2019):

“Asia: Myanmar to Laos and the island of Sumatra, Indonesia [Kottelat et al. 1993]. Reported from Irrawaddy, Salween, Mekong, Mae Khlong drainages [Fang and Kottelat 1999].”

From Vidthayanon (2012):

“The species is known from the Tenasserim River, the Salween and the upper Chao Phraya basins in Myanmar, Thailand, and Yunnan (Southern China). There are also records (as *Danio pulcher*) from the eastern slopes of the Gulf of Thailand drainages and from Pliew, Chantabun Province, southeastern Thailand and into western Cambodia.”

Introduced

NIES (2019) lists *Danio albolineatus* as introduced into a reservoir pond in N Okinawajima Island [Japan].

Mito and Uesugi (2004) list *Danio albolineatus* as established in Japan.

Means of Introduction Outside the United States

NIES (2019) lists the deliberate release of pet animals as the means of introduction in Japan.

Short Description

From Froese and Pauly (2019):

“Dorsal soft rays (total): 7; Anal soft rays: 12 - 13. Incomplete lateral line, without infraorbital process; with 6-7 branched dorsal fin rays and 13-14 branched anal fin rays. Two pairs of long barbels. Rostral barbels reaching to or slightly anterior to vertical through the middle of the orbit; maxillary barbels exceed the origin of pectoral fin. Vertical scale rows 30-31, predorsal scale rows 16. Pharyngeal teeth in three rows, 5, 4, 2; 2, 4, 5 [Fang 2000]. Body pink with two light yellow-white (iridescent in life) stripes from below dorsal origin to caudal base [Kottelat 2001].”

Biology

From Froese and Pauly (2019):

“Lives in hill streams [Talwar and Jhingran 1991]. Found in running waters of lower Mekong [Pantulu 1986]. Occurs at the surface of small, clear streams [Rainboth 1996]. Feeds on exogenous insects and some zooplankton [Rainboth 1996].”

From Vidthayanon (2012):

“Found in submontane streams to hillstreams with leaf litter and dense riparian vegetations, living in large schools.”

Human Uses

From Froese and Pauly (2019):

“Fisheries: minor commercial; aquarium: highly commercial”

Thepetplace.com (2019) offers “Pearl Danio- *Danio albolineatus* for \$1.99”

Diseases

No records of OIE-reportable diseases (OIE 2019) were found for *Danio albolineatus*.

From Froese and Pauly (2019):

“Bacterial Infections (general), Bacterial diseases”

Poelen et al. (2014) lists *Transversotrema patialense* and *Eustrongylides* as parasites of *Danio albolineatus*.

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

No records of introductions of *Danio albolineatus* were found.

4 Global Distribution



Figure 1. Known global distribution of *Danio albolineatus*. Observations are reported from Myanmar, Thailand, Laos, Cambodia, Malaysia, and Indonesia. Map from GBIF Secretariat (2019).

Georeferenced observations were not found for Yunnan, China or in the introduced range in Japan.

5 Distribution Within the United States

There are no records of *Danio albolineatus* in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Danio albolineatus* was low for the majority of the contiguous United States. The only areas with a medium climate match were in southern Florida and southern Texas. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States had low individual Climate 6 scores.

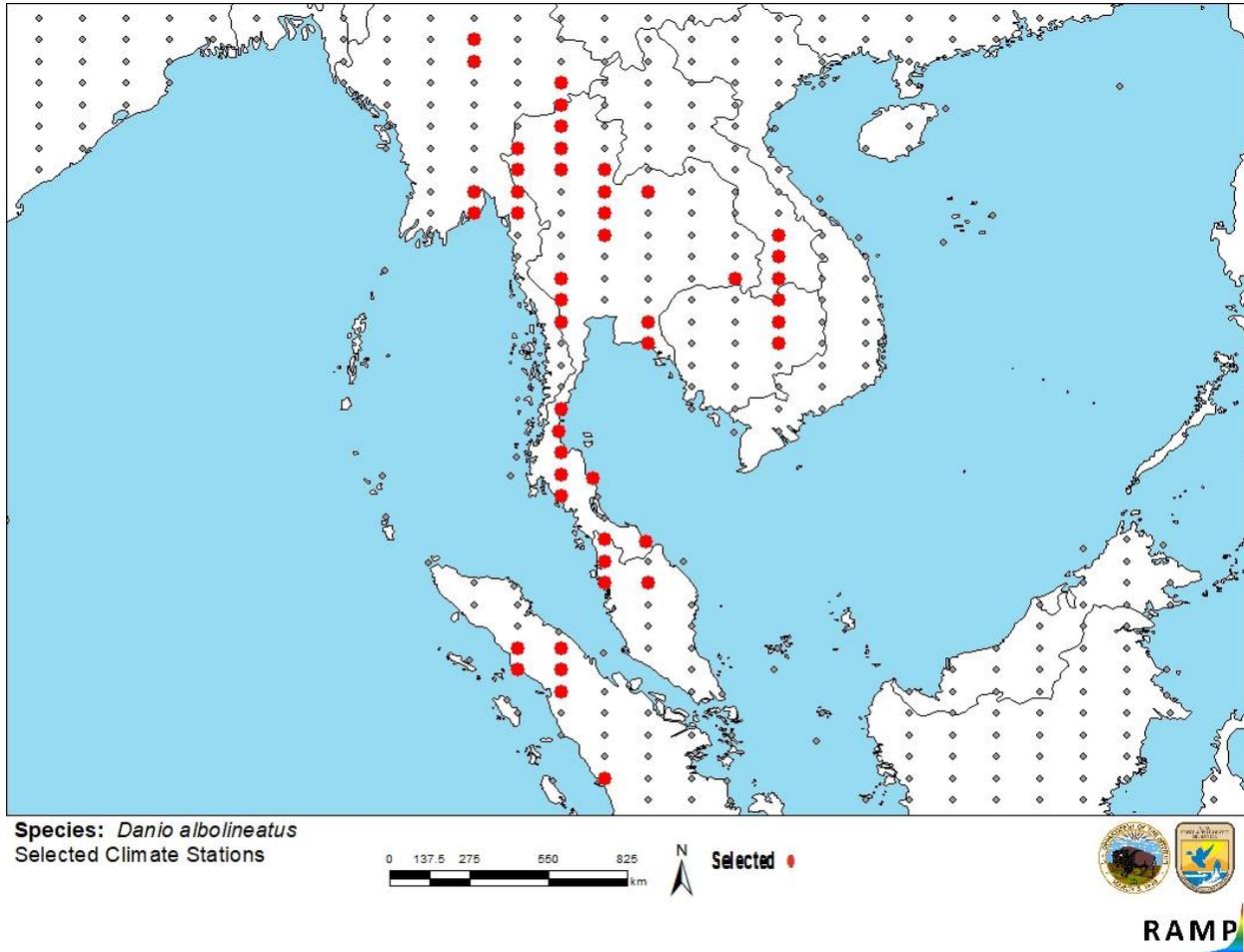


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Thailand, Laos, Indonesia, Cambodia, Myanmar, and Malaysia) and non-source locations (gray) for *Danio albolineatus* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

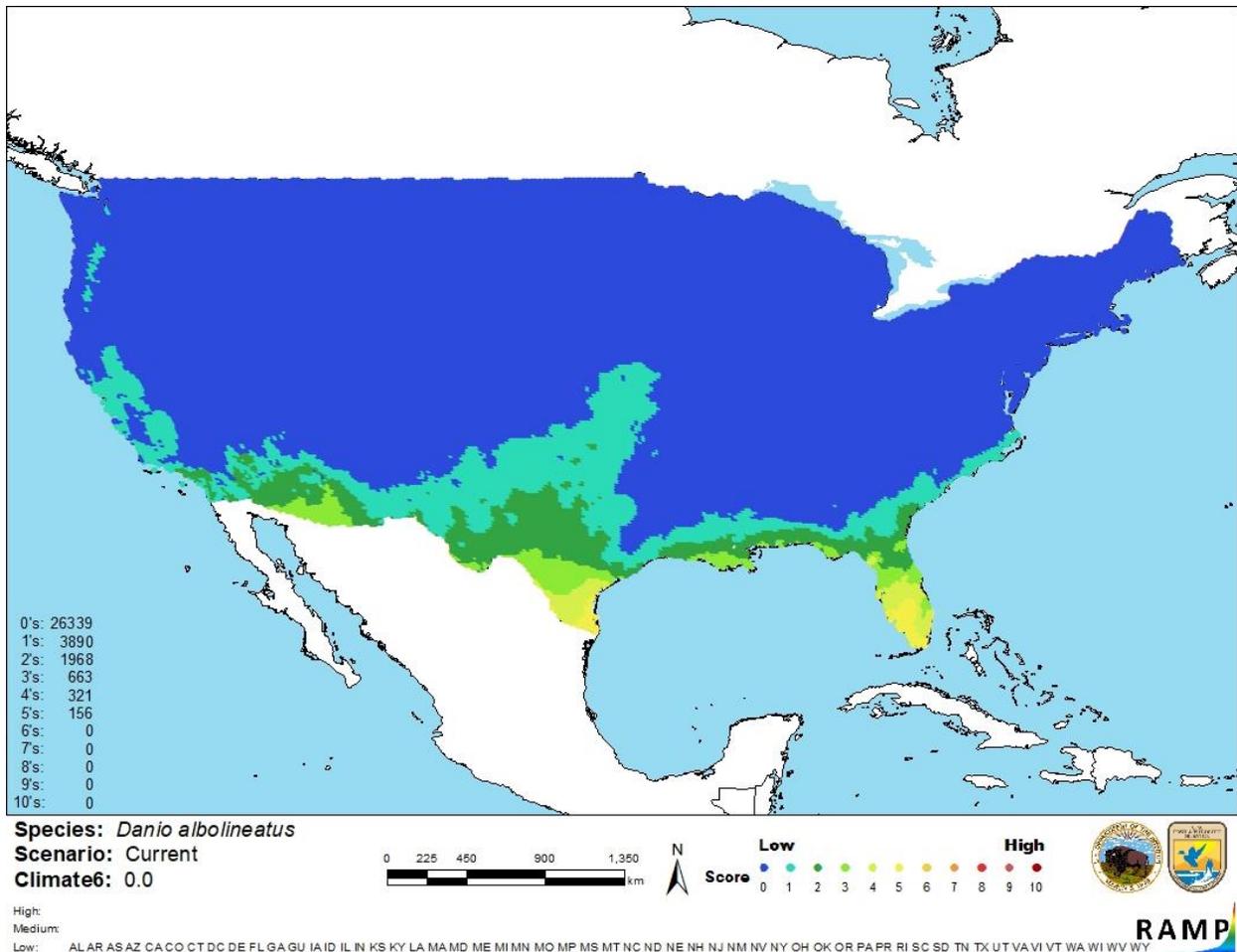


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Danio albolineatus* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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

7 Certainty of Assessment

The certainty of assessment for *Danio albolineatus* is low. There is little information available on the biology of this species. No information was found on whether there have been impacts from its introduction in Japan, or on volume of trade.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Pearl Danio (*Danio albolineatus*) is a species of freshwater fish native to southern Asia. It is present in the aquarium trade, including being in trade within the United States. This fish has been reported as established in Japan via pet release but there is no information regarding the impacts of introduction. History of invasiveness is classified as None Documented. The climate match for the contiguous United States was low; only southern Florida and southeastern Texas had a medium match. This fish is found in trade but it is uncertain as to what extent. The certainty of assessment is low, and the overall risk category for *Danio albolineatus* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** No additional remarks.
- **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.

Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Eschmeyer's catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (May 2019).

Froese, R. and D. Pauly, editors. 2019. *Danio albolineatus* (Blyth, 1860). FishBase. Available: <https://www.fishbase.se/summary/10824>. (June 2019).

GBIF Secretariat. 2019. GBIF backbone taxonomy: *Danio albolineatus* (Blyth, 1860). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2362695>. (June 2019).

ITIS (Integrated Taxonomic Information System). 2019. *Danio albolineatus* (Blythe, 1860). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=640161#null. (June 2019).

Mito, T., and T. Uesugi. 2004. Invasive alien species in Japan: the status quo and the new regulation for prevention of their adverse effects. *Global Environment Research* 8(2):171–191.

NIES (National Institute for Environmental Studies). 2019. *Danio albolineatus*. In Invasive species of Japan. National Research and Development Agency, National Institute for Environmental Studies, Tsukuba, Japan. Available: <https://www.nies.go.jp/biodiversity/invasive/DB/detail/50040e.html>. (July 2019).

OIE (World Organisation for Animal Health). 2019. OIE-listed diseases, infections and infestations in force in 2019. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>. (July 2019).

Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. *Ecological Informatics* 24:148–159.

Sanders, S., C. Castiglione, and M. H. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

That Pet Place. 2019. Pearl danio – *Danio albolineatus*. Available: <https://www.thatpetplace.com/Danio-albolineatus-pearl-213636>. (June 2019).

Vidthayanon, C. 2012. *Danio albolineatus*. The IUCN Red List of Threatened Species 2012: e.T180844A1669179. Available: <https://www.iucnredlist.org/species/180844/1669179>. (July 2019).

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.

Fang, F., and M. Kottelat. 1999. *Danio* species from northern Laos, with descriptions of three new species (Teleostei: Cyprinidae). *Ichthyological Explorations of Freshwaters* 10:281–295.

Fang, F. 2000. A review of Chinese *Danio* species (Teleostei: Cyprinidae). *Acta Zootaxonomica Sinica* 25:214–227.

Kottelat, M. 2001. *Fishes of Laos*. WHT Publications, Colombo 5, Sri Lanka.

Kottelat, M., A. J. Whitten, S. N. Kartikasari, and S. Wirjoatmodjo. 1993. *Freshwater fishes of Western Indonesia and Sulawesi*. Periplus Editions, Hong Kong.

Pantulu, V. R. 1986. Fish of the lower Mekong basin. Pages 721–741 in B. R. Davies and K. F. Walker, editors. *The ecology of river systems*. Dr. W. Junk Publishers, Dordrecht, Netherlands.

Rainboth, W. J. 1996. Fishes of the Cambodian Mekong. FAO, FAO species identification field guide for fishery purposes, Rome.

Riehl, R., and H. A. Baensch. 1991. Aquarien atlas. Band. 1. Melle: Mergus, Verlag für Natur- und Heimtierkunde, Germany.

Talwar, P. K., and A. G. Jhingran. 1991. Inland fishes of India and adjacent countries, volume 1. A. A. Balkema, Rotterdam, Netherlands.