

# Caspian Goby (*Neogobius caspius*)

## Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2012

Revised, August 2018

Web Version, 8/2/2019



Photo: K. Abbasi. Licensed under CC BY-SA 3.0. Available:  
<http://eol.org/pages/207518/overview>. (August 2018).

## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2018):

“Europe and Asia: Caspian Sea.”

From Eschmeyer et al. (2018):

“Distribution: Caspian Sea basin, Eurasia.”

### Status in the United States

There are no known occurrences in the United States. It does not appear that this species is in the trade in the United States based on a search of the literature and online aquarium retailers.

### Means of Introductions in the United States

There are no known occurrences in the United States.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

“Kingdom Animalia  
Subkingdom Bilateria  
Infrakingdom Deuterostomia  
Phylum Chordata  
Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Actinopterygii  
Class Teleostei  
Superorder Acanthopterygii  
Order Perciformes  
Suborder Gobioidi  
Family Gobiidae  
Genus *Neogobius*  
Species *Neogobius caspius* (Eichwald, 1831)”

From Eschmeyer et al. (2018):

“**Current status:** Valid as *Neogobius caspius* (Eichwald 1831). Gobiidae: Gobiinae.”

### Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 34.5 cm TL male/unsexed; [Berg 1965]”

### Environment

From Froese and Pauly (2018):

“Brackish; demersal.”

### Climate/Range

From Froese and Pauly (2018):

“Temperate”

### Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Europe and Asia: Caspian Sea.”

From Eschmeyer et al. (2018):

“Distribution: Caspian Sea basin, Eurasia.”

Introduced

No known introductions.

## **Means of Introduction Outside the United States**

No known introductions.

## **Short Description**

From FEOW (2015):

“It differs from other gobies by its monotonous brown coloration and the most anterior position of both its anterior and posterior nostrils.”

## **Biology**

From Froese and Pauly (2018):

“Is the largest of the Caspian gobies. Does not enter freshwaters [Berg 1965].”

From FEOW (2015):

“Caspian goby (*Neogobius caspius*) is a typical marine species that avoids areas freshened by river discharge.”

## **Human Uses**

No known uses.

## **Diseases**

No OIE-reportable diseases (OIE 2019) have been documented for this species. No information on diseases was found.

## **Threat to Humans**

From Froese and Pauly (2018):

“Harmless”

# **3 Impacts of Introductions**

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There are no known introductions.

## 4 Global Distribution

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**Figure 1.** Known global distribution of *Neogobius caspius*, reported from the southern Caspian Sea bordering Iran. Map from GBIF Secretariat (2018).

## 5 Distribution Within the United States

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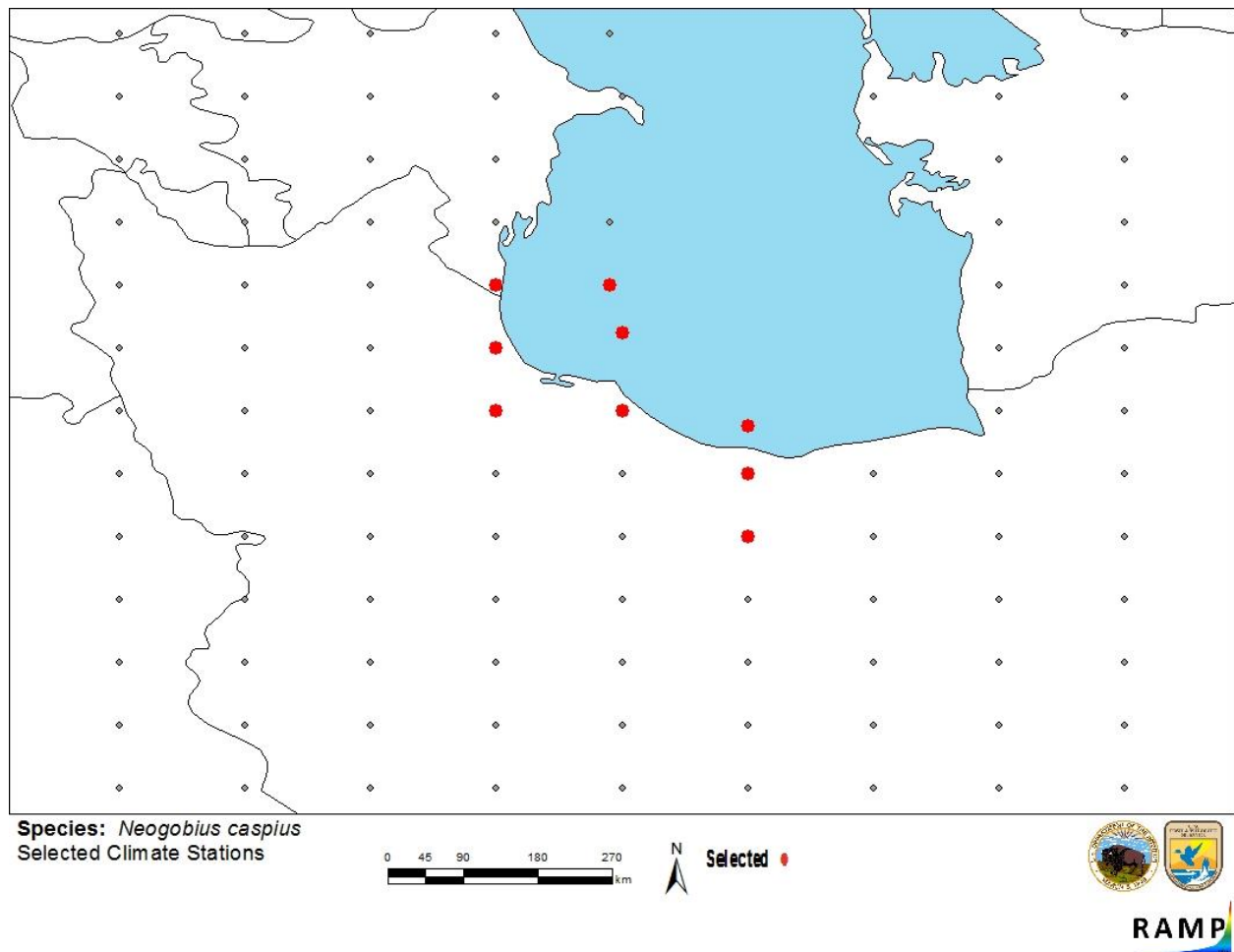
There are no known occurrences in the United States.

## 6 Climate Matching

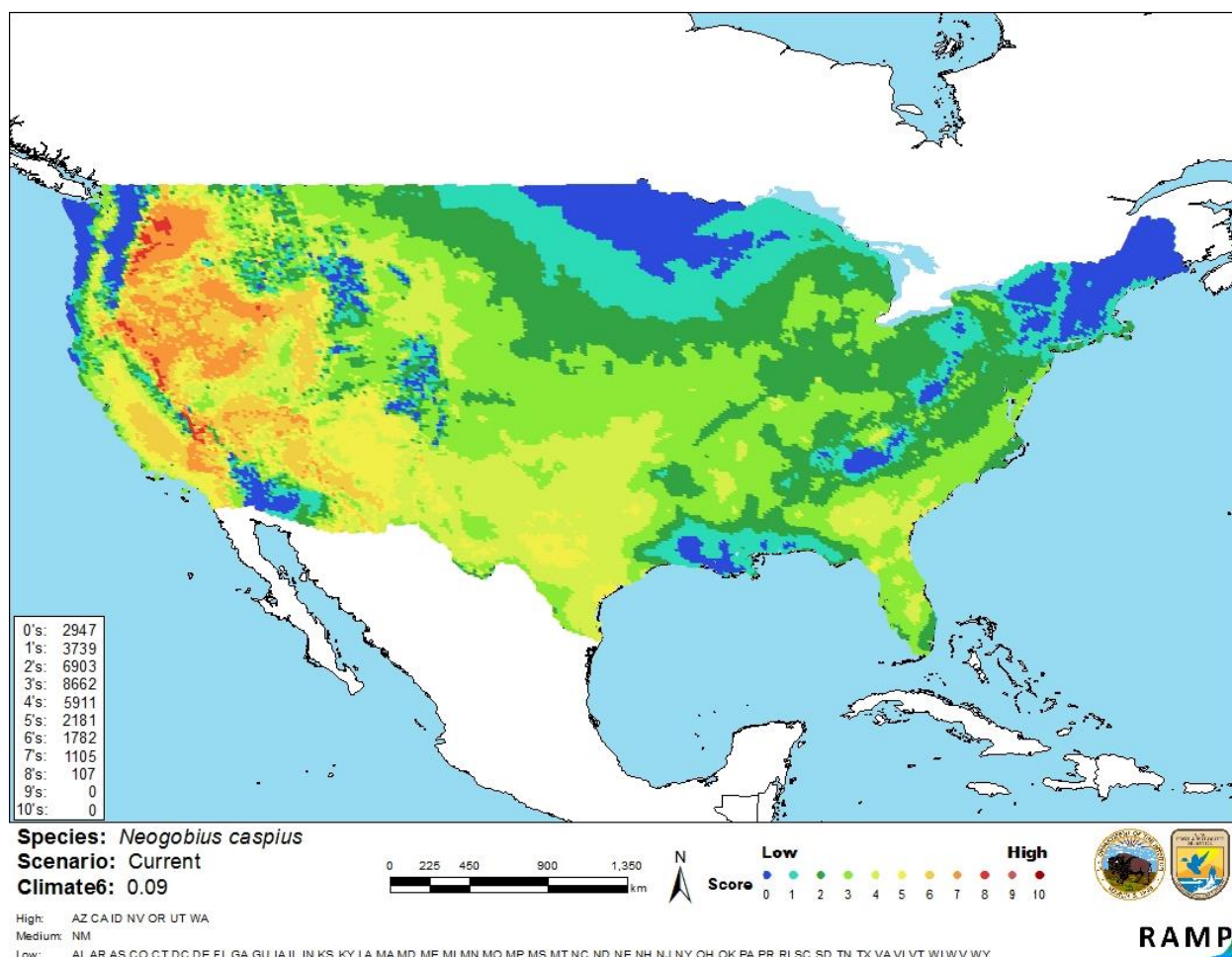
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### Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.09, which is a medium score. (Scores between 0.005 and 0.103 are classified as medium.) The climate match was high in the Interior West, with the highest matches immediately to the east of the Sierra Nevada and Cascade Ranges. Medium matches occurred around areas of high match in the Interior West, as well as in central and southern California, immediately to the west of the Cascades in the Pacific Northwest, and in northeastern Arizona and western New Mexico. The climate match was low across the remainder of the contiguous United States. Seven States (Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington) had high individual Climate 6 scores, while one State (New Mexico) had a medium individual Climate 6 score.



**Figure 2.** RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Azerbaijan and Iran) and non-source locations (gray) for *Neogobius caspius* climate matching. Source locations from GBIF Secretariat (2018). 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 *Neogobius caspius* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0 = Lowest match, 10 = Highest match.

The “High”, “Medium”, and “Low” climate match categories are based on the following table:

| Climate 6: Proportion of<br>(Sum of Climate Scores 6-10) / (Sum of total Climate Scores) | Climate Match<br>Category |
|------------------------------------------------------------------------------------------|---------------------------|
| $0.000 \leq X \leq 0.005$                                                                | Low                       |
| $0.005 < X < 0.103$                                                                      | Medium                    |
| $\geq 0.103$                                                                             | High                      |

## 7 Certainty of Assessment

Very little information is known about the biology and ecology of *Neogobius caspius*. This fish has not been reported as introduced. Therefore, there is no information available about impacts of introduction. Due to lack of information, the certainty of assessment is low. More information is needed to increase certainty of the assessment.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Neogobius caspius*, the Caspian Goby, is a fish native to the Caspian Sea. It has not been reported as introduced anywhere. History of invasiveness is uncertain. It does not appear that this species is in trade. The climate match with the contiguous United States is medium overall, with high matches observed in the Interior West. The eastern United States had a low climate match. Due to lack of information, certainty of this assessment is low. 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**
- **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.**

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatget.asp?spid=21098>. (August 2018).

FEOW (Freshwater Ecoregions of the World). 2015. 453: Volga Delta – Northern Caspian Drainages. Available: [http://www.feow.org/ecoregions/details/volga\\_delta\\_northern\\_caspian\\_drainages](http://www.feow.org/ecoregions/details/volga_delta_northern_caspian_drainages). (August 2018).

Froese, R., and D. Pauly, editors. 2018. *Neogobius caspius* (Eichwald, 1831). FishBase. Available: <https://www.fishbase.de/summary/Neogobius-caspium.html>. (August 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Neogobius caspius* (Eichwald, 1831). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2379072>. (August 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Neogobius caspius* (Eichwald, 1831). Integrated Taxonomic Information System, Reston, Virginia. Available: [https://itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=637718#null](https://itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=637718#null). (August 2018).

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

Sanders, S., C. Castiglione, and M. H. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. 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.**

Berg, L. S. 1965. Freshwater fishes of the U.S.S.R. and adjacent countries. volume 3, 4th edition. Israel Program for Scientific Translations Ltd, Jerusalem. (Russian version published 1949).