

Short Tailed River Stingray (*Potamotrygon brachyura*) Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, August 2014

Revised, January 2018

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Organism Type: Fish

Overall Risk Assessment Category: Uncertain



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<http://www.fishbase.se/photos/UploadedBy.php?autoctr=13512&win=uploaded>. (January 4, 2018).

1 Native Range and Status in the United States

Native Range

Potamotrygon brachyura is found in the Paraná, de La Plata, Uruguay, and Paraguay Basins in Argentina, Brazil, Paraguay, and Uruguay (Araújo et al. 2004).

Status in the United States

This species has not been reported in the United States. No information on trade of this species in the United States was found.

The Florida Fish and Wildlife Conservation Commission has listed the freshwater stingray *Potamotrygon brachyura* as a conditional species. Conditional nonnative species (FFWCC 2018), “are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed, although exceptions are made by permit from the Executive Director for research, commercial use (with security measures to prevent escape or release) or public exhibition purposes.”

Means of Introductions in the United States

This species has not been reported in the United States

Remarks

Classified as data deficient in the IUCN red list of threatened species (Charvet-Almeida et al. 2009).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Eschmeyer et al. (2017):

“**Current status:** Valid as *Potamotrygon brachyura* (Günther 1880).”

From ITIS (2017):

Kingdom Animalia

Subkingdom Bilateria

Infrakingdom Deuterostomia

Phylum Chordata

Subphylum Vertebrata

Infraphylum Gnathostomata

Superclass Chondrichthyes

Class Chondrichthyes

Subclass Elasmobranchii

Superorder Euselachii

Order Myliobatiformes

Family Potamotrygonidae Garman, 1877

Genus *Potamotrygon* Garman, 1877

Species *Potamotrygon brachyura* (Günther, 1880)

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 95.0 cm WD male/unsexed; [Carvalho et al. 2003]; max. published weight: 208.0 kg [Machacek 2007]”

Environment

From Froese and Pauly (2017):

“Freshwater; demersal.”

Climate

From Froese and Pauly (2017):

“Temperate”

Distribution Outside the United States

Native

Potamotrygon brachyura is found in the Paraná, de La Plata, Uruguay, and Paraguay Basins in Argentina, Brazil, Paraguay, and Uruguay (Araújo et al. 2004).

Introduced

No known introductions outside of its native range.

Means of Introduction Outside the United States

There are no records of *Potamotrygon brachyura* being introduced into the wild outside of its native range.

Short Description

From Charvet-Almeida et al. (2009):

“The Giant Freshwater Stingray (*Potamotrygon brachyura*) is the largest species of the *Potamotrygon* genus”

Biology

From Charvet-Almeida et al. (2009):

“Little is known about the habitat and ecology of this species but relative to information available on other potamotrygonid species the information on *P. brachyura* is significant. Castex and Maciel (1965) observed this species in very shallow waters and obtained most specimens from quiet waters of lagoons, brooks and streams in the region of Santa Fe, Argentina, during August and September 1962, when the Paraná River was at its lowest level, and during March and April in 1963 when water levels started to increase. They also mentioned that by early

autumn, when water temperatures started to fall, this was the only species of river ray still found. The reproductive period of this species was indicated as commencing later in the year than *P. motoro* (pregnant individuals observed in January).

Achenbach and Achenbach (1976) found *P. brachyura* in all river systems in the mid Paraná River and this was the second most abundant potamotrygonid in their study. Captures took place mainly between mid-October and the beginning of November. During floods, specimens could be observed resting over vegetation, and fishermen took advantage of this behaviour to harpoon them.

An ovoviviparous species with gravid females usually over 40 cm DW. The highest number of births was observed during November and December, and the maximum litter size observed was 19 pups. Only the left ovary seems functional (Achenbach and Achenbach 1976).

According to Achenbach and Achenbach (1976), pups feed on plankton after birth. Juveniles complement their diet with small mollusks (Lamellibranches and Gastropods), crustaceans, larvae of aquatic insects, and fish (Loricariidae, *Astyanax spp.* and *Pimelodella gracilis* were recorded from adults)."

Human Uses

From Froese and Pauly (2017):

“Fisheries: subsistence fisheries”

From Oddone et al. (2012):

“Freshwater stingrays are exported for ornamental purposes from several South American countries and so far, Brazil is the only one having specific regulations for the exportation of these species (Rosa et al. 2010)”

From Araújo et al. (2004):

“Data on fishing practices and conservation efforts of *Potamotrygonidae* for ornamental trade have only recently begun to be collected.”

From Charvet-Almeida et al. (2009):

“It is harpooned for food and also captured for the ornamental fish trade, especially juveniles.”

“There is a small amount of fishing for the more attractively patterned juveniles to supply the ornamental fish trade. This species is illegally exported from Brazil but very limited information is available concerning this international trade.”

From Ramos (2017):

“Its capture for ornamental purposes **is not allowed in Brazil**”

Diseases

No records of OIE-reportable diseases (OIE 2020) were found for *Potamotrygon brachyura*.

Poelen et al. (2014) list *Potamotrygonocotyle chisholmae*, *P. uruguayensis*, and *Rhinebothrium paratrygoni* as parasites of *Potamotrygon brachyura*.

Reyda and Marques (2011) list *Potamotrygon brachyura* as a host of *Rhinebothrium paranaensis*.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

This species does not have any reported introductions. *P. brachyura* is listed as a conditional nonnative species in Florida (FFWCC 2018).

4 History of Invasiveness

Potamotrygon brachyura has not been reported outside its native range. History of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution



Figure 1. Known global distribution of *Potamotrygon brachyura*. Observations are reported from Brazil. Map from GBIF Secretariat (2017).

Additional georeferenced observations of *Potamotrygon brachyura* in Argentina, Brazil, Paraguay and Uruguay were found during the literature search (Oddone et al. 2008; Oddone et al. 2012; Lucifora et al. 2016). These locations were used to select source points for the climate match.

6 Distribution Within the United States

This species has not been reported in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Potamotrygon brachyura* was medium for the interior southern United States from Arizona to the east coast, and extending north to Pennsylvania. There was a high match along the Atlantic and Gulf coasts from North Carolina to Texas, including the Florida coast. There was also a patch of high match in central Texas. Maine and States in the Northwest and the upper Midwest had a very low match. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.105, high (scores of 0.103 or greater are classified as high). The individual state Climate 6 scores were high in Alabama, Delaware, Georgia, Florida, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Texas, and Virginia. Arkansas, New Jersey and Tennessee had medium individual climate scores. All other States had low climate scores.

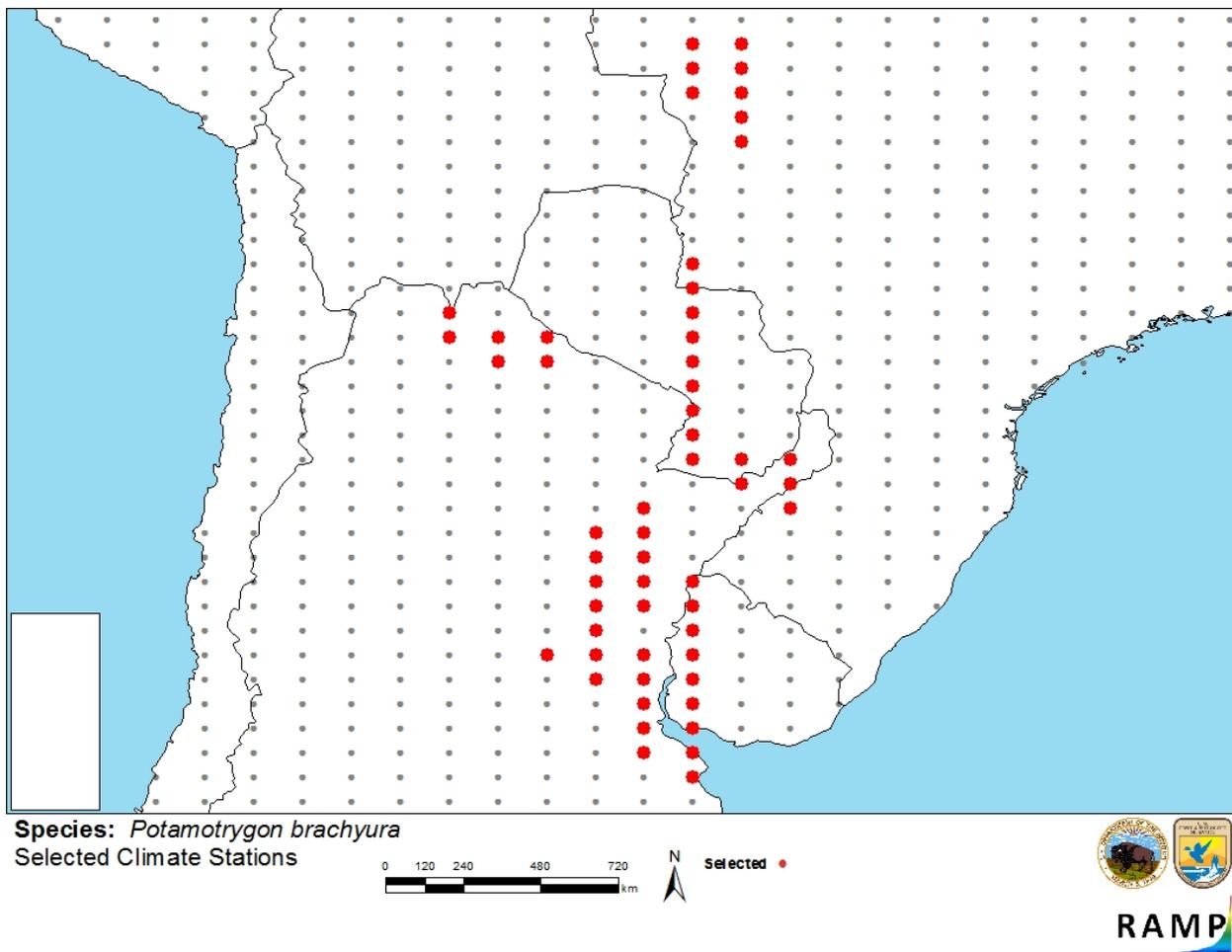


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Argentina, Brazil, Paraguay, Uruguay) and non-source locations (gray) for *Potamotrygon brachyura* climate matching. Source locations from Oddone et al. (2008), Oddone et al. (2012), Lucifora et al. (2016), and GBIF Secretariat (2017). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

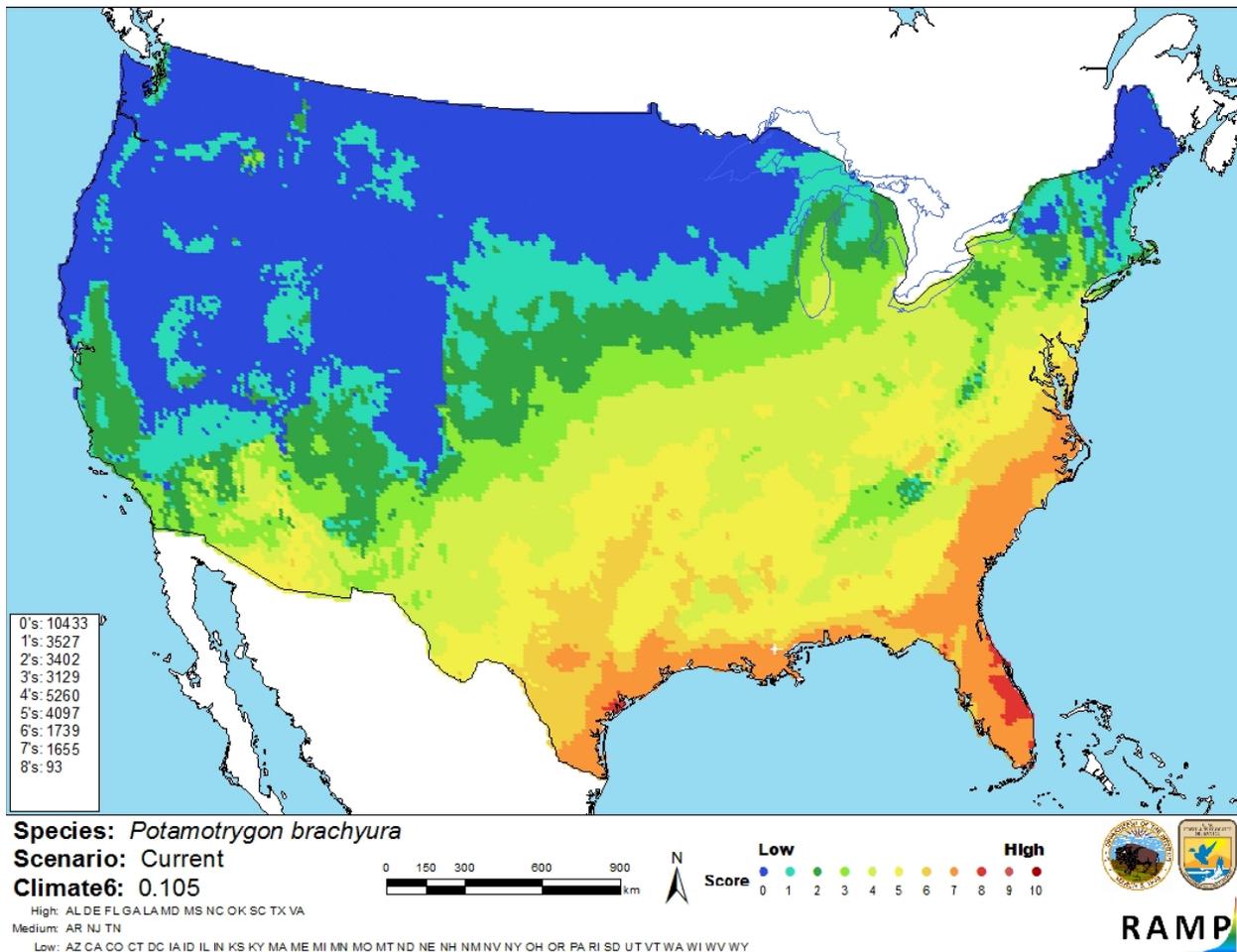


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Potamotrygon brachyura* in the contiguous United States based on source locations reported by Oddone et al. (2008), Oddone et al. (2012), Lucifora et al. (2016), and GBIF Secretariat (2017). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = 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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

The certainty of assessment is low. There was very limited information available regarding the biology and ecology of *Potamotrygon brachyura*. No records of introductions were found. Therefore there is no information available on impacts of introduction.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Short tailed river stingray (*Potamotrygon brachyura*) is a freshwater stingray native to South America. This large stingray is used as a subsistence fishery in its native range and is also present in the ornamental trade. There were no records of trade in the United States found. However Florida does list *P. brachyura* as ‘Conditional’, meaning that possession is prohibited without a special permit. The history of invasiveness is classified as No known nonnative population. There were no documented introductions found. *P. brachyura* is listed as a conditional species in Florida which prohibits possession without a special permit. The climate match within the contiguous United States is high, and highest in the Southeastern United States. The certainty of assessment is low because of the limited amount of data available for the species. Due to a paucity of information, the overall risk assessment category for this species is Uncertain at this time.

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.

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Eschmeyer WN, Fricke R, van der Laan R, editors. 2017. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (December 2017).

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- Froese R, Pauly D, editors. 2017. *Potamotrygon brachyura* (Günther, 1880). FishBase. Available: <http://www.fishbase.se/summary/Potamotrygon-brachyura.html> (December 2017)
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- Oddone MC, Velasco G, Charvet P. 2012. Record of the freshwater stingrays *Potamotrygon brachyura* and *P. motoro* (Chondrichthyes, Potamotrygonidae) in the lower Uruguay River, South America. *Acta Amazonica* 42:299–304.
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- Reyda FB, Marques FPL. 2011. Diversification and species boundaries of *Rhinebothrium* (Cestoda; Rhinebothriidea) in South American freshwater stingrays (Batoidea; Potamotrygonidae). *PLoS One* 6:e22604.

Sanders S, Castiglione C, Hoff M. 2014. Risk Assessment Mapping Program: RAMP. Version 2.81. U.S. Fish and Wildlife Service.

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.

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