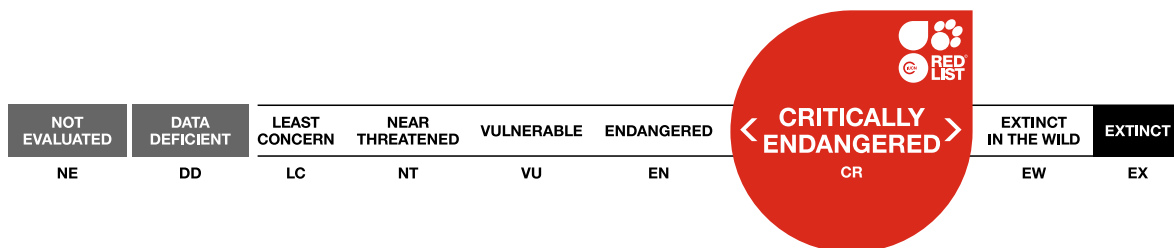


Pseudobatos horkelii, Brazilian Guitarfish

Assessment by: Pollom, R. *et al.*



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Chondrichthyes	Rhinopristiformes	Rhinobatidae

Scientific Name: *Pseudobatos horkelii* (Müller & Henle, 1841)

Synonym(s):

- *Rhinobatos horkeli* Müller & Henle, 1841 [orth. error]
- *Rhinobatos horkelii* Müller & Henle, 1841

Common Name(s):

- English: Brazilian Guitarfish

Taxonomic Source(s):

Eschmeyer, W.N., Fricke, R. and Van der Laan, R. (eds). 2016. Catalog of Fishes: genera, species, references. Updated 29 September 2016. Available at: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (Accessed: 29 September 2016).

Taxonomic Notes:

Last *et al.* (2016) revised the genus *Rhinobatos*, transferring *glaucostigma*, *horkelii*, *lentiginosus*, *leucorhynchus*, *percellens*, *planiceps*, *prahli*, and *productus* to the new genus *Pseudobatos*.

Assessment Information

Red List Category & Criteria: Critically Endangered A2bd [ver 3.1](#)

Year Published: 2020

Date Assessed: July 1, 2019

Justification:

The Brazilian Guitarfish (*Pseudobatos horkelii*) is a small (to 138 cm total length) shark-like ray that occurs in the Southwest Atlantic from Rio de Janeiro, Brazil, to northern Argentina. It is demersal on soft substrates of the continental shelf inshore to 150 m depth. It is captured in intense and largely unmanaged commercial and artisanal demersal trawl, gillnet, longline, and beach seine fisheries throughout its geographic range. There are three estimates of population reduction. First, in Rio Grande do Sul, total landings increased from 842 t in 1975 to 1,804 t in 1984 and then declined continuously to 157 t in 2001, the equivalent of a >99% reduction over three generations (55.5 years). Second, the average research trawl catch-per-unit-effort of Brazilian Guitarfish in southern Brazil over the years 1993 to 1999 was 17% of that observed during 1975 to 1986, also the equivalent of a >99% reduction over three generations. Fisheries remain intense and unmanaged there. Third, in Uruguay, this guitarfish is captured frequently in gillnets and longlines, is landed, and is sometimes targeted, and it is also captured in artisanal trawl fisheries. Catches from research trawls there in the 1980s and early 1990s were on average around 1,400 kg/hr, and between 2013 and 2017 were only 480 kg/hr, the equivalent of a >92% reduction over three generations. In Argentina, it is suspected that intense and inadequately

managed gillnet fishing pressure has led to declines in abundance there as well. Overall, due to intense and inadequately managed fishing pressure throughout its range, and steep population declines, it is inferred that the Brazilian Guitarfish has undergone a population reduction of >80% over the past three generations (55.5 years), and it is assessed as Critically Endangered A2bd.

Previously Published Red List Assessments

2016 – Critically Endangered (CR)

<https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T41064A103933918.en>

2007 – Critically Endangered (CR)

<https://dx.doi.org/10.2305/IUCN.UK.2007.RLTS.T41064A10396152.en>

2000 – Critically Endangered (CR)

Geographic Range

Range Description:

The Brazilian Guitarfish occurs in the Southwest Atlantic from Rio de Janeiro, Brazil, to northern Argentina (Menni and Stehmann 2000, Last *et al.* 2016b).

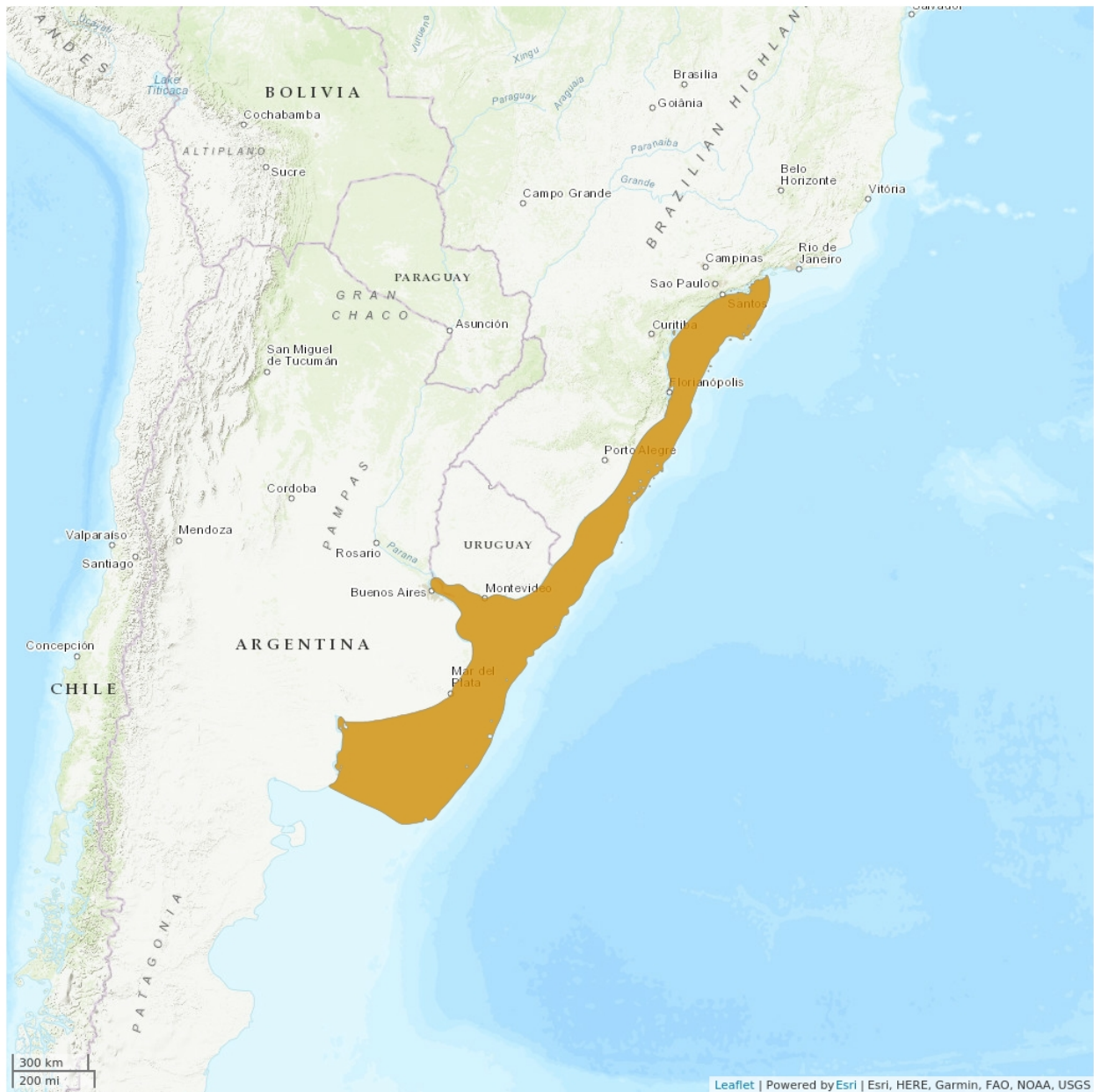
Country Occurrence:

Native, Extant (resident): Argentina; Brazil; Uruguay

FAO Marine Fishing Areas:

Native: Atlantic - southwest

Distribution Map

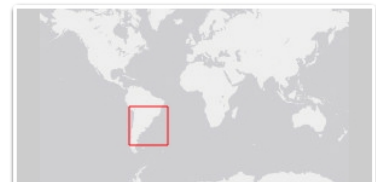
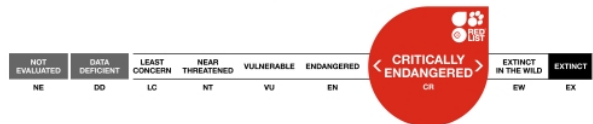


Legend

■ EXTANT (RESIDENT)

Compiled by:

IUCN SSC Shark Specialist Group 2018



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.



Population

Commercial and artisanal fisheries pressure is intense on the southern Brazilian shelf off Rio de Janeiro and São Paulo, and it is suspected that a steep population reduction has occurred there. In Rio Grande do Sul, Brazil, total landings by fishery methods combined increased from 842 t in 1975 to 1,804 t in 1984 and then declined continuously to 157 t in 2001, which is equivalent to a reduction of >99% scaled over three generations (55.5 years). The average trawl catch-per-unit-effort (CPUE) of Brazilian Guitarfish in southern Brazil over the years 1993 to 1999 was 17% of that observed during 1975 to 1986, indicating a decline in abundance of >80% since 1986 in southern Brazil (Miranda and Vooren 2003, Vooren *et al.* 2005), equivalent to a reduction of >99% scaled over three generations. While formerly abundant, monitoring of beach-seine catches and reports from fishers confirmed that this guitarfish was scarce in coastal waters by 2004 (Vooren *et al.* 2005). Fishing pressure has not ceased in Brazil. Despite protection, this species is still landed and traded (Bunholi *et al.* 2018), and a further reduction in population size is suspected since the 2000s.

In Uruguay, the catches from research trawls in the 1980s and early 1990s were on average around 1,400 kg/hr, and between 2013 and 2017 were only just over 480 kg/hr (L. Paesch unpubl. data 2018), equivalent to a 94% reduction over three generations. In a 2014–2018 study of artisanal landings there, this species was captured in small- and large-mesh gillnets and longlines, with a frequency of occurrence of 8.9%, 25.5%, and 7.4%, respectively (Laporta *et al.* 2018).

In Argentina, there are intense commercial, artisanal, and recreational fisheries in the Río de la Plata; this species was caught rarely in gillnets in 2009–2010 (Jaureguizar *et al.* 2015), but there is no baseline. It is suspected that this intense and inadequately managed fishing pressure has led to declines in abundance in Argentina.

Overall, due to its moderately unproductive life history, intense and inadequately managed fishing pressure across its range, and documented declines in landings in several parts of its range, it is inferred that the Brazilian Guitarfish has undergone a population reduction of >80% over the past three generations (55.5 years).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The Brazilian Guitarfish is a demersal shark-like ray that inhabits soft substrates of the continental shelf, from inshore to 150 m depth (Last *et al.* 2016b, Weigmann 2016). It reaches a maximum size of 138 cm total length (TL); females mature at 86–91 cm TL and males at 70 cm TL (Lessa *et al.* 1986, Martins *et al.* 2018). Reproduction is viviparous and females give birth to 4–12 pups (Last *et al.* 2016b). This species has an estimated age-at-maturity of 9 years and a maximum age of 28 years, and thus a generation length of 18.5 years (Lessa *et al.* 1986, Vooren and Klippel 2005). It has a moderate maximum annual intrinsic rate of population increase (r_{\max} , year⁻¹) compared to other guitarfishes, with median estimates of 0.13–0.26 (D'Alberto *et al.* 2019).

Its seasonal migration and breeding cycle in southern Brazil are described below, from data published by Lessa (1982), Lessa *et al.* (1986) and Vooren *et al.* (2005). In southern Brazil, the adults migrate to coastal waters with depths of less than 20 m from November to March. At that time artisanal fisheries

operate from the beaches, and the guitarfish catches are 98% pregnant females. Adult males reach the beach fishing grounds at the end of February. Parturition and mating take place in March. Soon after, the males and females return to deeper waters and disperse to depths of 40–150 m over the continental shelf. Newborn pups and juveniles remain in shallow waters throughout the year.

Systems: Marine

Use and Trade

This guitarfish is utilized bycatch across its range, and in some areas is targeted (e.g. Silveira *et al.* 2018). The meat is consumed or sold locally, and can fetch a high price (P. Charvet unpubl. data 2018).

Threats (see Appendix for additional information)

The Brazilian Guitarfish is captured in commercial and artisanal demersal trawl, gillnet, longline, and beach seine fisheries, which are intense across its range. In southern Brazil, the trawl fishery began in the 1960s and entered a period of rapid expansion in the 1990s and 2000s, resulting in over 650 vessels fishing at depths of 20–1,000 m (Port *et al.* 2016). Artisanal fisheries there are also intense, and 58% of stocks targeted by artisanal fishers were over-exploited by 2010, half of those being collapsed (Vasconcellos *et al.* 2011). In São Paulo state alone, there are over 300 small-scale trawl vessels in operation (Rodrigues *et al.* 2019). This species is caught in these Brazilian fisheries and is still landed and traded despite legislation to protect it (de-Franco *et al.* 2012, Bunholi *et al.* 2018). Fishers in Brazil sometimes land this species illegally and remove part of its snout to disguise it as the Shortsnout Guitarfish (*Zapteryx brevirostris*), which is legal to land (R. Baretto unpubl. data 2018). The Brazilian Guitarfish is also annually targeted by recreational fisheries in southern Brazil during the summer. Fishers report an average of 10–20 gravid females/fisher/day and the guitarfishes are mostly used for domestic consumption (M. Martins unpubl. data 2020). In Uruguay, the industrial trawl fleet was developed in the late 1970s, and many stocks were over-exploited by the 1990s (Defeo *et al.* 2011, Lorenzo *et al.* 2015). Artisanal vessels fishing in Uruguayan waters increased from 269 vessels in 1975 to 905 vessels in 1996, and after a restructuring in 1997 the number of vessels increased from 393 to 795 in 2010 (Lorenzo *et al.* 2015). This is thought to be an underestimate as many artisanal vessels are not registered. The Brazilian Guitarfish is captured frequently in gillnets and longlines there, is landed, and is sometimes targeted (Laporta *et al.* 2018, Silveira *et al.* 2018). It is also captured in artisanal trawl fisheries there (Segura *et al.* 2008). In Argentina, commercial fishing began in the late 1800s, became industrialized after World War II (Mateo 2006), and increased rapidly in the 1980s (Watson *et al.* 2006). By 1992 there were over 300 coastal trawlers. This number increased to over 400 in 2015, and the annual number of fishing trips undertaken by that fleet nearly doubled from over 7,600 to nearly 14,000 over that time frame. The overall number of fishing vessels in operation in Argentina has grown from under 300 in 1990 to nearly 1,000 in 2015 (Dirección Nacional de Planificación Pesquera 2016). Gillnets are prevalent there and have been known to target elasmobranchs (Chiaramonte 1998, Colautti *et al.* 2010), and do capture this species (Jaureguizar *et al.* 2015). Furthermore, there are substantial recreational fisheries in Argentina. It is a popular pastime along most of the coast there, and large tournaments with up to 4,000 participants began in the 1960s. These fisheries commonly target this species and are still largely unregulated today (Venerus and Cedrola 2017). This guitarfish may survive if discarded from trawls, as one study showed that only relatively minor injuries occur (Rodrigues *et al.* 2019). Furthermore, the species has a moderate maximum annual intrinsic rate of population increase, and shows some promise for recovery if the appropriate protections and management measures are

implemented to keep fishing mortality low (D'Alberto *et al.* 2019). Overall, this guitarfish is subjected to intense and largely unregulated fishing pressure across its range, and there is no refuge at depth.

Conservation Actions (see Appendix for additional information)

The Brazilian Guitarfish is listed as Critically Endangered on the Brazilian National Red List (Vooren *et al.* 2018), and is thus listed in the Brazilian Ordinance of Ministry of the Environment No. 445, which restricts all harvest and trade of species listed as Endangered or Critically Endangered (Feitosa *et al.* 2018). This legislation came into force in December 2014, however, it was suspended for all of 2015 and the first half of 2016 due to pressure from the fishing industry (Begossi *et al.* 2017). The ordinance faces increasing industry pressure, including a court challenge to suspend the legislation again, by the Secretaria Nacional de Aquicultura e Pesca (SAP), who brought forward their contention that the Brazilian National Red List was designed specifically for terrestrial species (Spautz 2019). Regardless of the status of this legislation, this species is still landed and traded in Brazil (Bunholi *et al.* 2018). This guitarfish occurs in Anchieta Island State Park, a relatively well-enforced no-take zone in São Paulo state (Silva de Souza *et al.* 2018). There are no species-specific protections or conservation measures in place in Uruguay or Argentina. To conserve the population and permit recovery, a suite of measures will be required which will need to include species protection, spatial management, bycatch mitigation, and harvest management, all of which will be dependent on effective enforcement. Further research is needed on life history and population size and trends, and species-specific monitoring should be undertaken in commercial and artisanal fisheries.

Credits

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Facilitator(s) and Compiler(s): Kyne, P.M., Pollom, R., Charvet, P. & Dulvy, N.K.

Authority/Authorities: IUCN SSC Shark Specialist Group (sharks and rays)

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External Resources

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Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.4. Marine Neritic - Subtidal Sandy	Resident	Suitable	Yes
9. Marine Neritic -> 9.5. Marine Neritic - Subtidal Sandy-Mud	Resident	Suitable	Yes
9. Marine Neritic -> 9.6. Marine Neritic - Subtidal Muddy	Resident	Suitable	Yes
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	Resident	Suitable	Yes

Use and Trade

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

End Use	Local	National	International
Food - human	Yes	Yes	Yes

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: Yes, over part of range
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Not Applicable
In-place species management
Harvest management plan: Yes
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management / trade controls: No

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
3. Species management -> 3.2. Species recovery
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.2. Population size, distribution & trends

Research Needed
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends

Additional Data Fields

Distribution
Lower depth limit (m): 150
Upper depth limit (m): 0
Habitats and Ecology
Generation Length (years): 18.5

The IUCN Red List Partnership



The IUCN Red List of Threatened Species™ is produced and managed by the [IUCN Global Species Programme](#), the [IUCN Species Survival Commission \(SSC\)](#) and [The IUCN Red List Partnership](#).

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