



## Record of *Pseudobatos horkelii* (Rhinopristiformes: Rhinobatidae) off the state of Sergipe, Brazil, Southwestern Atlantic Ocean

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**Abstract.** The present study reports the occurrence of the Brazilian guitarfish, *Pseudobatos horkelii* (Müller & Henle, 1841), off the state of Sergipe (Northeastern Brazil) for the first time, based on an immature female measuring 467.14 mm of total length and 785.62 g of total weight.

**Key words:** Brazilian guitarfish, occurrence, distribution

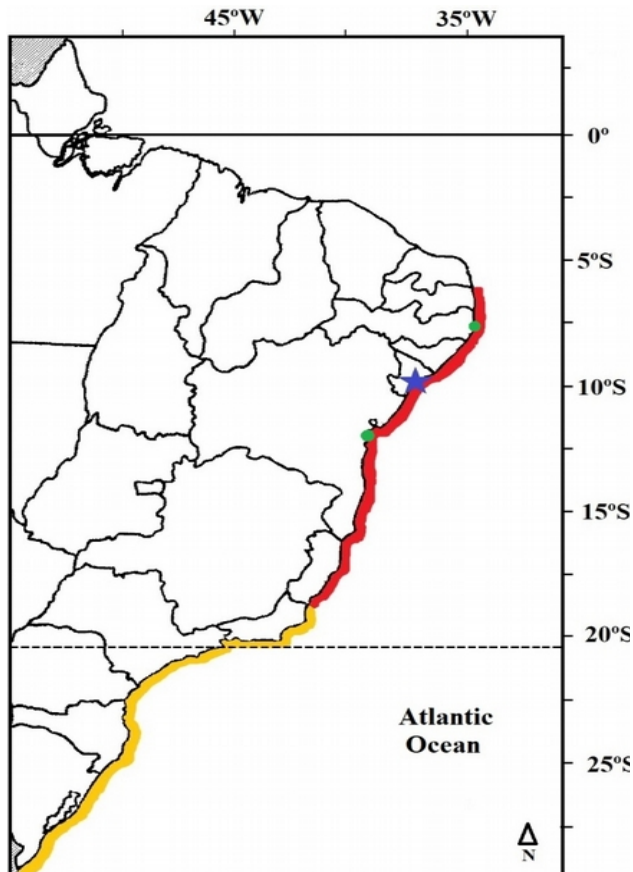
**Resumo: Registro do *Pseudobatos horkelii* (Rhinopristiformes: Rhinobatidae) na costa do Estado de Sergipe, Brasil, Oceano Atlântico Sudoeste.** O presente estudo registra a ocorrência da raia viola de focinho longo, *Pseudobatos horkelii* (Müller & Henle, 1841), no estado de Sergipe (Nordeste do Brasil) pela primeira vez, baseado em uma fêmea imatura com 467.14 mm de comprimento total e 785.62 g de peso total.

**Palavras-chave:** Raia viola de focinho longo, ocorrência, distribuição.

The order Rhinopristiformes is represented by five families with approximately 60 species (Last *et al.* 2016a). This order has a large number of endangered species (42%) around the world (Dulvy *et al.* 2014, D'Alberto *et al.* 2019). According to Last *et al.* (2016a), Rhinopristiformes is represented by three families in Brazilian waters: Rhinobatidae, Pristidae, and Trygonorrhinidae. *Pseudobatos horkelii* (Müller & Henle, 1841) and *P. percellens* (Walbaum, 1792) belong to the family Rhinobatidae and occur sympatrically along the Brazilian coast. *Pseudobatos horkelii*, commonly known as Brazilian guitarfish, occurs from Paraíba (Brazil) to Argentina (Gomes *et al.* 2010). However this species is more

abundant in the Argentinean Zoogeographic Province (from Rio de Janeiro to Valdés Peninsula, 23°S to 42°S) (Menni *et al.* 2010, Caires 2014, Lessa & Vooren 2016). Even though the occurrence of *P. horkelii* off the coast of Sergipe is expected, it had never been reported before.

The specimen was caught on 4th February 2018 in the coastal zone off Sergipe River (10°59'25.41"W - 37°00'15.49"S) (Fig. 1), during a survey conducted using an artisanal shrimp trawler. In laboratory, the specimen was identified according to Gomes *et al.* (2010) and Séret *et al.* (2016), and measurements done according to McEachran & Carvalho (2002). The specimen was measured using



**Figure 1.** Distribution of *Pseudobatos horkelii* along the Brazilian coast. Yellow: limits of the Argentinean Zoogeographic Province in Brazil. Red: Brazilian Zoogeographic Province. Blue star: record documented in this study off the State of Sergipe. Green circles: occurrence in Recife/Pernambuco and Camamu/Bahia (FishNet2, GBIF, and SpeciesLink).

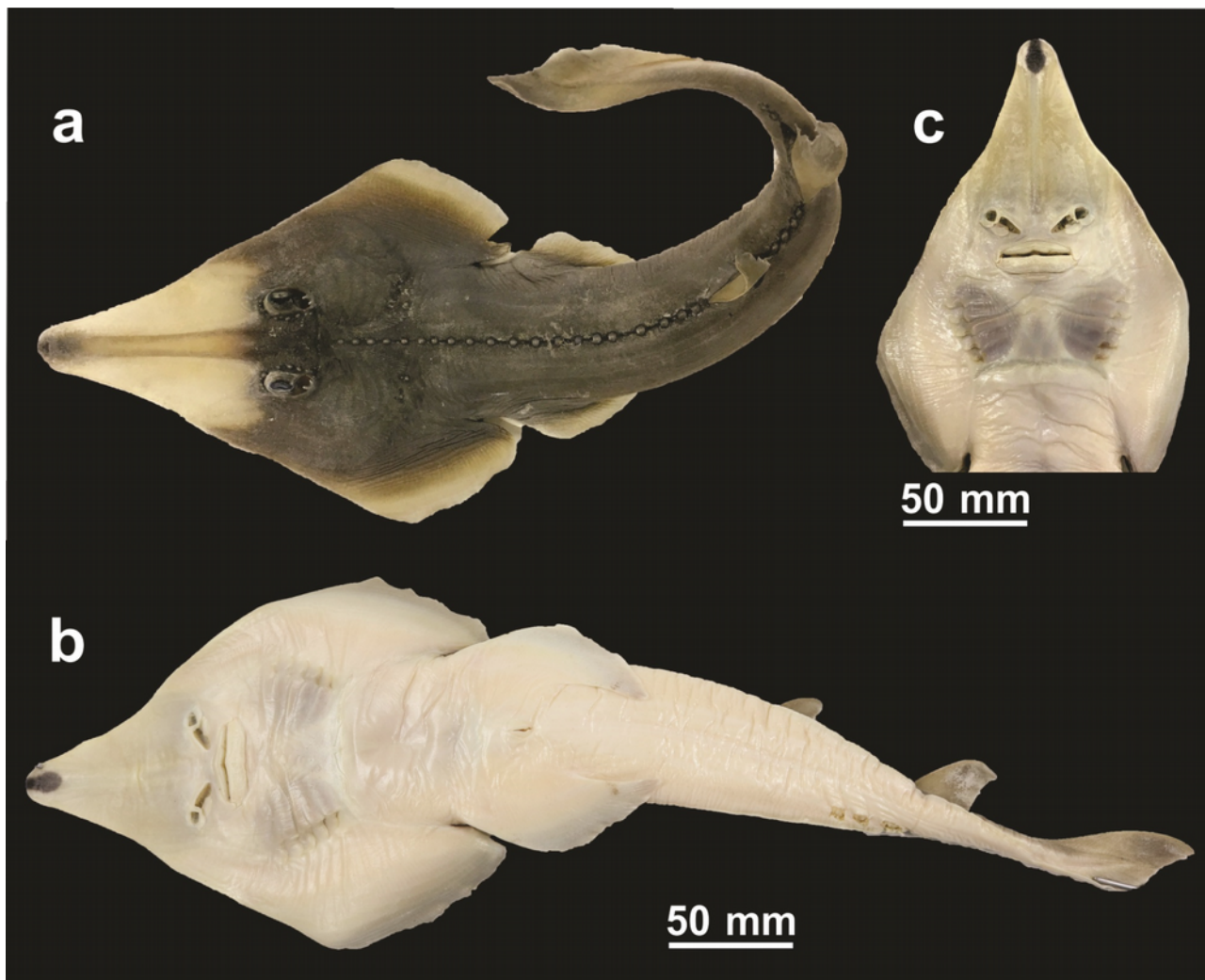
a digital caliper (precision: 0.01 mm) and weighed with the aid of a digital scale (precision: 0.01 g). Later, the individual was deposited at the *Coleção Científica Regional de Peixes da Costa da Mata Atlântica* of the *Acervo Zoológico da Universidade Santa Cecília* (AZUSC5615), in Santos – São Paulo, Brazil.

The specimen (Fig. 2a) was caught at three nautical miles ( $\approx 5.6$  km) from the mouth of Sergipe River, on muddy bottom, at a local depth of approximately 14.2 m, with bottom temperature of 22°C and salinity of 35 psu.

The individual was a female, with 467.14 mm of total length and 785.62 g of total weight. It was identified as *P. horkelii* due to the presence of a dark oval spot on the snout at the ventral view (Figs. 2b-c), and dorsally, a pair of tubercles on the tip of the snout and 26 thorns on the midline of the trunk and tail. All measurements taken from the specimen are presented at Table I.

**Table I.** Measurements (mm) taken from the specimen of *Pseudobatos horkelii* caught off the coast of Sergipe.

Metric	<i>Pseudobatos horkelii</i> AZUSC5615
Total length	467.14
Distance from snout to anus	193.16
Distance from anus to caudal fin	156.67
Distance from snout to 1 <sup>st</sup> dorsal fin	164.01
Distance from snout to disc width	76.45
Caudal width	57.32
Disc width	150.37
Disc length	191.35
Preorbital length of snout	78.14
Preoral length of snout	87.09
Prenasal length of snout	73.05
Distance between first gill openings	58.58
Distance between last gill openings	42.79
Distance from first to last gill openings	22.85
Interorbital distance	20.88
Eye length	10.28
Distance between spiracles	24.14
Spiracle length	11.31
Spiracle width	8.94
Mouth length	28.80
Nasal curtain length	14.84
Nasal curtain width	14.69
Distance between nostrils	11.77
Pelvic fin length	68.80
Pelvic fin width	27.52
Length of anterior margin of pelvic fin	48.40
Length of posterior margin of pelvic fin	43.30
1 <sup>st</sup> dorsal fin height	28.98
1 <sup>st</sup> dorsal fin length	31.66
2 <sup>nd</sup> dorsal fin height	26.34
2 <sup>nd</sup> dorsal fin length	30.94
Caudal fin upper lobe length	70.37
Caudal fin lower lobe length	50.36
Caudal fin upper lobe height	10.70
Caudal fin lower lobe height	9.69
Caudal fin height	22.17
Interdorsal distance	35.79
Distance between 2 <sup>nd</sup> dorsal and caudal fins	30.09



**Figure 2.** *Pseudobatos horkelii* caught off the coast of Sergipe, Brazil: (a) dorsal view; (b) ventral view; (c) ventral view of the head (preserved specimen).

In Brazil, the area with the greatest abundance of *P. horkelii* is in the Southern Brazilian Shelf and it is scarce off other Brazilian areas (Vooren *et al.* 2005a, Lessa & Vooren 2007, De-Franco *et al.* 2012, Lessa & Vooren 2016). These studies are corroborated by data available online (FishNet2, GBIF, and SpeciesLink). We verified that out of all the 90 records available for this species, only two were caught outside the area of the greatest abundance. Those two records refer to the Thayer Expedition to Brazil (Charles F. Hartt & Edward Copeland) in May 1866 (Camamu-Bahia) and January 1867 (Recife-Pernambuco) (Fig. 1). It is important to emphasize that most records online are still classified before Last *et al.* (2016b) that allocated the species to the genus *Pseudobatos*.

*Pseudobatos horkelii* has larger body size when compared to *P. percellens* (Chola guitarfish) and also differs in color pattern (Bigelow & Schroeder 1953,

Vooren *et al.* 2005a). The specimen caught (467.14 mm) was an immature female with more than a year as the size at first maturity for females is 796 mm (Martins *et al.* 2018) and they reach 400 mm after the first year (Vooren *et al.* 2005a). Thus, our record confirms what was found out by Lessa *et al.* (1986) and Lessa & Vooren (2007, 2016), who considered coastal waters from 10 to 20 m deep and with temperatures from 20° to 25°C during summer as critical zones for reproduction and recruitment of this species.

*Pseudobatos horkelii* was an important fishing resource in the Southern Brazilian Shelf and had a significant population decline (Miranda & Vooren 2003, Vooren *et al.* 2005b, Martins *et al.* 2018). For this reason, the Brazilian guitarfish was categorized as “Critically Endangered” (Lessa & Vooren 2007, 2016), and its capture and marketing in Brazil were banned (BRASIL 2014). Despite the

efforts to preserve this species, catches with different fishing methods are still recorded after the fishing ban (De-Franco *et al.* 2012, Almerón-Souza *et al.* 2018, Bunholi *et al.* 2018). The presence of *P. horkelii* in localities far from its main abundance area indicates a dispersion process and consequently it may change its conservation status.

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