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Scientific Note

The first record of *Pteroplatytrygon violacea* (Bonaparte, 1832) (Elasmobranchii: Dasyatidae) in the shallow waters of Todos os Santos Bay, northeastern Brazil

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Abstract. The first record of the pelagic stingray *Pteroplatytrygon violacea* in shallow waters of the tropical South Atlantic region is here registered. Earlier records are presented. Hydrodynamic and physiography conditions could explain this occurrence.

Key words: new report, pelagic elasmobranchs, coastal waters, distribution

Resumo. Primeiro registro de *Pteroplatytrygon violacea* (Bonaparte, 1832) (Elasmobranchii: Dasyatidae) em águas rasas na Baía de Todos os Santos, Nordeste do Brasil. O primeiro registro da raia *Pteroplatytrygon violacea* em águas rasas da região tropical do Atlântico Sul é aqui documentado. Registros anteriores são apresentados. Condições hidrográficas e fisiográficas podem explicar essa ocorrência.

Palavras chave: novo registro, elasmobrânquio pelágico, águas costeiras, distribuição

The pelagic stingray *Pteroplatytrygon violacea* (Bonaparte 1832) is known to be of worldwide distribution in temperate, subtropical and tropical seas (Mollet 2002, Domingo *et al*. 2005). Its distribution is likely related to the geographical location and environmental parameters of the region (Véras *et al*. 2009). In the South Atlantic Ocean, the first record was reported by Sadowski & Amorim (1977) for the continental slope and adjacent oceanic area off southern Brazil. In recent years, there has been a southward increase of occurrence reports. That probably was a result either of regional observers programs on board of oceanic fishing vessels, improvements on fishing landing monitoring projects, or to environmental changes.

The aim of this note is to: (1) provide the first published record of *Pteroplatytrygon violacea* in Todos os Santos Bay (TSB) and in shallower waters (at approximately 1.0 m deep), (2) compile information on catches of the species in the Territorial Sea and Economic Exclusive Zone of Brazil, Argentina and Uruguay and (3) discuss the oceanographic factors related to its occurrence. Occurrences previously reported were obtained through researching the specialized literature, on-line databases and sites. Information about stranded specimens was not included.

A single female *P. violacea* (Fig. 1) with 435 mm of disc width (Table I) was captured by the artisanal fisheries in TSB (around 12°43'S - 38°32'W) at about 1.0 m depth, by a trail net (mesh size:10 mm) in September 2012 (austral spring season). As the specimen was gutted on board by the fishermen, thus it was not possible to get any information on food content, reproduction or parasites. The specimen was deposited at the Zoology Museum of the State University of Feira de Santana (LIUEFS 15169), in Bahia. Local fishermen have reported previous catch, in TSB, of two specimens: a female of *P. violacea* of *ca.* 12 kg and a male of *ca.* 13 kg by bottom long line at different sites. No information about their body length, depth of capture, season or year was available.

Unlike the other Dasyatidae species, *P.*

violacea is described as epipelagic and is commonly found in the open ocean pelagic zone (Wilson & Beckett 1970, Domingo *et al*. 2005; Véras *et al.* 2009). However, in the last few years it has also been captured in shallow Brazilian coastal waters at depths of nine meters in São Paulo State (Vaske Jr. & Rotundo 2012) and one meter in TBS (present study). In the Adriatic Sea, Lipej *et al.* (2012) reported specimens caught between 20 and 30 m deep.

The present note shows a comprehensive review of the occurrences of *P. violacea* in Brazilian, Argentinean and Uruguayan waters (Table I). The presence of *Dasyatis* sp. reported in the Southwestern Atlantic Ocean by Marín *et al*. (1998) was included here, due to the high probability of being *P. violacea*. This assumption was also mentioned by Domingo *et al.* (2005). *Pteroplatytrygon violacea* is mostly captured as by-catch in pelagic fisheries and occasionally by demersal gears. The pelagic longline operates between 20 and 250 m deep, over depths from 150 to 5000 m (Table I). The present case is the shallowest fishing record in the world, thus contributing to the knowledge of the spatial distribution of this Dasyatidae species.

Todos os Santos Bay is the second largest (1.086 km^2) coastal bay in Brazil, located on the northeastern Brazilian coast. There is a clear seasonal dynamics pattern of water masses inside the bay influenced by freshwater input. During the rainy season (late fall and winter), the mixture of continental discharge and sea water contributes to the creation of estuarine conditions in some parts of the bay. In the dry season (spring and summer), the prevailing condition is marine, due to the entrance of Tropical Water (TW) with characteristically high temperature and salinity, above 20 ° C and 36, respectively (Lessa *et al*. 2009).

Several authors have associated the occurrence of *P. violacea* in shallow waters with the influence of oceanic currents. Forselledo *et al*. (2008) found a direct relationship between CPUE (catch per unit effort) and the increase of mean sea surface temperature, and also associated it with the influence of the Brazilian Current. Domingo *et al.* (2005) also related the capture of *P. violacea* to warmer waters (both in terms of areas and seasons). However, Siqueira & Sant'Anna (2007) and Vaske Jr & Rotundo (2012) related the catches of *P. violacea* to colder water influence (South Atlantic Central Water - SACW). Vaske Jr. & Rotundo (2012) suggested that the unusual occurrence in shallow waters is not only due to higher diversity and availability of preys associated to SACW, but also to the use of shallow water to give birth to their pups.

During the same month (September, 2012), as that of the present occurrence, an unusual incursion of *Ranzania laevis*, also a pelagic oceanic species, into the bay (Oliveira-Silva *et al*. 2013), was reported. The relationship of the occurrence of *R. laevis* and the increase in sea surface temperature is well known (Jawad *et al*. 2011, Castro & Ramos 2002), corroborating the hypothesis of Forselledo *et al.* (2008) and Domingo *et al.* (2005). The occurrence of *P. violacea* could be associated with the oceanographic hydrodynamics of the Brazilian current which carries out warmer waters into the bay.

Figure 1. Dorsal view of *Pteroplatytrygon violacea* female (435mm disc width), captured at Todos os Santos Bay in September 2012.

The narrow continental shelf (5-15 nautical miles) in the study area (Bittencourt *et al*. 2000) and the great depth at the entrance of the bay (around 102 m) (Lessa *et al*. 2009) may also explain this record. We conclude that the unusual occurrence of *P. violacea* in coastal waters may be due to the hydrodynamic conditions associated with the physiography of the ocean bed adjacent to Todos os Santos Bay.

Table I. Pelagic stingray captures in Brazil, Argentina and Uruguay waters. N=number of specimens caught. WD=width disc. W= weight (kg). F=Female. M=Male. I=Intersexual * grouped information.

LOCATION	N	WD (mm)	W(kg)	GENDER	LOCAL DEPTH (m)	GEAR (depth capture - m)	REFERENCE
20°53' to 21°36'S and 37°16' to 46°44'W	2	548 422		F (1) M (1)		pelagic longline	Sadowisk & Amorim (1977)
8º24´S and 31º33´W	1	493		F (1)		pelagic longline (200)	Menni *et al*. (1995)
20° to 44°S and 18° to 48°W						pelagic longline (29 - 80)	Marín *et al*. (1998)
2º30´ to 8º30´S and from 30º30´ to 32º30´W.					4000	pelagic longline (48)	Menni & Stehmann (2000)
22°to 25°S and 26° to -35°W	48	300 - 660 *		Both*		pelagic longline (50)	Mazzoleni & Schwingel (2002)
14°30' - 22°48´S and 37°48' - 39°54'W	12	475 - 480 445 - 490	2.0-4.0 1.2-4.0	F (2) M (9)	200-4000	pelagic longline (15-120)	Olavo *et al*. (2005) includes unpublished biological data
26°to 37°S and 36° to 55° W	525	568 378 - 460		F (1) M (7)	750-5000	pelagic longline (40-60)	Domingo *et al*. (2005)
00°53’ to 00°58’N and 29°16’ to 29°24’W (approx.)						pelagic longline	Vaske Jr *et al*. (2005), Lessa & Vaske Jr. (2009)
22°59’S- 43°05’W and 23°04’S - 43°08’W	8	480 - 655*	3.0 - 8.5	F (5) M (3)	30-45	handline	Siqueira & Sant´Anna (2007)
19°30’ to 32°40’ S and 44°30’ to 28°00’ W	157	365 - 1290 380-560		F (36) M (121)	>200	pelagic longline (<20)	Ribeiro-Prado & Amorim (2008)
20° to 39°S and 20° to 55°W	2740	240 - 820 280 - 840		F (324) M (607)	> 150	pelagic longline	Forselledo *et al.* (2008)
20° to 33°S and 38° to 50°W	223	470	2.44	I (1)	30-80	pelagic longline	Ribeiro-Prado *et al*. (2009)
5°N to 20°S and 40° to 25°W	106	400 - 600 320 - 500		F (26) M (69)	2000-5000	pelagic longline (50-250)	Véras *et al*. (2009)
24° to 30°S and 24° to 36°W (approx)							
35° to 37°S and 50° to 54°W (approx.)	65			Both*		pelagic longline	Domingo *et al*. (2012)
24° to 25°'S- and 45°19' to 47°80' W (approx.)	15	515 - 900 390 - 520	4.5-19.8 2.9-3.4	F (12) M(3)	15-50	pair - trawl (9-48)	Vaske Jr & Rotundo (2012)
22°52’S to 29°59’S and 31° to 51°W	138	340 - 580			200 - 4000	pelagic longline	Ferrari & Kotas (2013)
12°43’S - 38°32’W (approx.)	1	435	3.4 (gutted)	F	1.0	trawl net	Present study

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