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Report on the smallfin catshark *Apristurus parvipinnis* Springer & Heemstra (Chondrichthyes, Scyliorhinidae) in Western South Atlantic with notes on its taxonomy

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Abstract. This note presents data on the smallfin catshark *Apristurus parvipinnis* in the Western South Atlantic, with taxonomic comments on this species. The smallfin catshark was previously reported, usually from Western North Atlantic, but few recorded specimens are known from Brazilian Western South Atlantic. This species occurs on the upper and middle continental slopes, usually near the bottom. This report is based in one 588 mm total length mature male, collected off Rio de Janeiro between depths of 650-720 meters. Comments on its taxonomy are presented, comparing this species with other Atlantic *Apristurus* species.

Keywords: Elasmobranchii, Carcharhiniformes, distribution, Brazil, morphometrics.

Resumo. **Registro do tubarão-gato-escuro *Apristurus parvipinnis* Springer & Heemstra (Chondrichthyes, Scyliorhinidae) no Atlântico Sul Ocidental, com notas sobre sua taxonomia**. Este trabalho apresenta dados sobre o tubarão-gato-escuro *Apristurus parvipinnis* no Atlântico Sul Ocidental, com comentários taxonômicos sobre a espécie, que foi previamente registrada principalmente no Atlântico Norte Ocidental, mas poucos registros são conhecidos em águas do Brasil, no Atlântico Sul Ocidental. Esta espécie vive nos taludes superior e médio, normalmente próxima ao fundo. Os dados aqui apresentados são baseados em um exemplar macho maduro de 588 mm de comprimento total, coletado em frente ao Rio de Janeiro, entre 650 e 720 m de profundidade. São apresentados comentários sobre sua taxonomia, comparando a espécie com outros tubarões do gênero *Apristurus* do Atlântico.

Palavras-chave: Elasmobranchii, Carcharhiniformes, distribuição, Brasil, morfometria.

The catsharks of genus *Apristurus* Garman, 1913, are deepwater species from continental slopes, usually inhabiting at depths up to 2000 m (Nakaya *et al.* 1999). The genus is characterized by a fully and mostly uniformly dark slender body with an elongated anal fin ending in front of the beginning of the lower caudal fin, possessing a flatted and spatulated snout, and presenting upper and lower labial furrows. The genus is comprised of thirty two recognized species and at least seven undescribed species (Compagno 1984, Meng *et al.* 1985, Nakaya 1975, 1988a, b, 1989, 1991, Nakaya & Séret 1989, 1992, Nakaya & Stehmann 1998, Nakaya & Sato 1998, 1999, Nakaya *et al.* 1999).

Apristurus parvipinnis Springer & Heemstra, 1979, has been reported from Gulf of Mexico, off Pensacola (Florida), Gulf of Campeche (Mexico), off the Caribbean coast of Panama and Colombia, and off French Guiana (Uyeno & Sasaki 1983, Compagno 1984). Springer (1966), studying the Western Atlantic scyliorhinids had erroneously termed this species as *Apristurus indicus* Garman, 1913 (recorded for the Western Indian Ocean). This species occurs near the bottom on the upper and

middle continental slopes. The holotype was captured in the depth of 1115 m and the twelve paratypes were collected between 676 and 1097 m. According to Springer (1979) and Compagno (1984), it is a small shark reaching from 268 up to 521 mm of total length (TL).

A few previous reports on the occurrence of *Apristurus parvipinnis* in the Western South Atlantic are presented by Gadig & Gomes (2003), for Bahia (central Brazil) and Rincon & Vooren (2006), for Santa Catarina coast, southern Brazil. Both studies do not present any aditional data on this species.

The present study reports the occurrence and taxonomic data of the smallfin catshark, *Apristurus parvipinnis*, in the Brazilian Western South Atlantic, with taxonomic comments on this species, comparing it with other catsharks genus *Apristurus* from Atlantic.

The Brazilian specimen, a 588 mm TL mature male, was caught by bottom-trawl in 2004, between 650-720 meters deep off eastern Cabo Frio (23º50' S e 41º20' W), Rio de Janeiro State. The specimen was frozen for morphometric and morphological analysis, and placed at the Ichthyological Collection of the Universidade do Estado do Rio de Janeiro - UERJ 2056. Morphometric and meristic data, visceral disposition pattern and cephalic sensory canal terminology followed respectively Springer (1979), Nakaya (1991) and Nakaya & Sato (1999).

The small catshark *Apristurus parvipinnis* (Fig. 1) was identified by the following combination of features: presence of a long upper labial furrows reaching midway to the nostril; lengths of the upper labial furrows are longer than the lower ones; distance between pectoral and pelvic fin bases long, from 10.8 to 14.0% of the total length (14.4% in the Brazilian specimen); anal fin base about 16.0 to 18,0% of the total length (17.3% in the Brazilian specimen); rear end of the base of second dorsal fin in advance of rear end of base of anal fin; distance between dorsal fin bases less than distance from tip of snout to eye; origin of dorsal fin posterior to rear end of pelvic fin base; distance between dorsal fin bases greater than length of base of second dorsal fin; anal fin long, its rear tip separated from origin of lower caudal lobe by a distance less than half the length of the eye. The morphometric description of the Brazilian *A. parvipinnis* specimen is presented in Table 1 in comparison to the holotype.

According to Springer (1979) this species presents more than 50 rows of teeth in each jaw. Brazilian specimen showed 89 rows of small teeth in the upper jaw and 90 rows in lower jaw (89/90) or 44-45/44-46. Symphyseal and commissural teeth of upper jaw with 4 cusps, while symphyseal and commissural teeth of lower jaw presented 5 and 6 or 7 cusps, respectively. The 588 mm TL adult male herein examined represents the greatest total length up to date recorded for this species.

According to Compagno (1984) a crest of enlarged denticles along the dorsal margin of the caudal fin can be variably developed in the following species: *Apristurus canutus* Springer & Heemstra, 1979, *Apristurus investigatoris* (Misra, 1962), *Apristurus manis* (Springer, 1979), *Apristurus microps* (Gilchrist, 1922), *Apristurus parvipinnis*, *Apristurus profundorum* (Goode & Bean, 1896), *Apristurus stenseni* (Springer, 1979) or even absent in the other species of *Apristurus*. Compagno (1984) affirms that *A. parvipinnis* presents enlarged denticles along the dorsal margin of the caudal fin, otherwise, Uyeno & Sakaki (1983) report that there are no modified denticles in the caudal fin of this species. Our specimens presented not a real crest, but enlarged dermal denticles along the dorsal margin of the caudal fin.

There are 11 described *Apristurus* species in the Atlantic Ocean (Compagno *et al.* 2005). *A. parvipinnis* differs from *Apristurus aphyodes* Nakaya & Stehmann, 1998, *A. manis*, *A. microps* and *Apristurus riveri* Bigelow & Schroeder, 1944 in presenting more spiral valves counts (15-22 *versus* 8-12), head sensory canal pores discontinued and upper labial furrow longer than lower. This species is similar to *A. canutus*, *Apristurus laurussonii* (Saemundsson, 1922) e *Apristurus saldanha* (Barnard, 1925) concerning the discontinued head

Figure 1 – *Apristurus parvipinnis*, adult male 588 mm TL, caught off Rio de Janeiro, southern Brazil (UERJ 2056).

Table I – Morphometrics expressed as percentage of total length in *Apristurus parvipinnis*, comparing specimen from the present study with the holotype and range in 12 paratypes.

Measurements	***holotype♂ 476 mm***	***paratypes 268-521 mm***	***UERJ 2056♂ 588 mm***
Tip of snout to:			
front of the mouth	8.8	8.6-9.2	8.2
Eye	10.1	9.6-11.2	9.2
origin pectoral fin	21.4	20.0-22.5	20.9
origin 1st dorsal fin	51.5	49.6-52.8	50.7
origin pelvic fins	42.0	39.0-43.0	42.5
origin 2nd dorsal fin	63.0	60.4-65.0	64.1
origin upper caudal lobe	72.2	69.0-73.8	74.6
Orbit:			
horizontal diameter	3.1	2.9-3.5	3.4
vertical diameter	1.2	0.7-1.4	1.4
Mouth:			
Width	7.1	7.0-9.2	9.5
Length	3.6	2.8-3.9	2.9
length upper labial furrow	2.9	2.6-3.4	3.2
length lower labial furrow	1.7	1.7-2.2	2.2
Gill slits:			
1st	1.7	1.3-2.2	1.9
5th	1.5	1.0-1.7	1.4
First dorsal fin:			
length base	3.8	3.6-4.5	4.8
Height	3.4	1.3-3.4	1.5
length anterior margin	6.1	5.5-7.6	7.3
Second dorsal fin:			
length base	5.7	5.3-7.3	5.8
Heigth	2.5	2.0-3.2	2.2
length anterior margin	9.2	8.3-9.7	7.8
Pectoral fin:			
width base	8.0	7.1-9.8	8.2
length anterior margin	11.6	10.1-14.6	11.4
greatest width	8.2	7.2-8.5	9.2
Pelvic fin:			
distance origin to posterior tip	12.6	10.1-12.6	10.0
Caudal fin:			
upper margin	27.3	26.0-30.9	28.7
Distance between fin bases:			
First to second dorsals	8.0	6.7-9.4	8.8
pectoral to pelvic	13.7	11.3-13.7	14.4

sensory canal pores and size but differs in the number of counts of the intestinal spiral valves. However, such data must be carefully considered due to the low number of specimens examined from other species, as follows: *A. canutus* (14–17 valves, 11 specimens examined), *A. laurussoni* (17–20, five specimens) and *A. saldanha* (16 valves, one specimen).

In *A. parvipinnis* and *A. canutus* the first dorsal fin is much smaller than second, and the surface area equal to or less than the half of the surface area of the second dorsal fin (in *A. laurussonii* and *A. saldanha* the first dorsal fin surface is a little smaller than the second dorsal fin surface area, corresponding to two thirds of the second dorsal surface area); *A. parvipinnis* differs from *A. canutus* in having the pectoral-pelvic distance more than half of the anal fin base (less than half of the anal fin base in *A. canutus*).

Springer (1979) and Compagno (1984) affirms that *A. parvipinnis* is one of the commonest *Apristurus* species caught in deep trawls around Gulf

of Mexico-Caribbean area, along with *A. laurussonii*. Previous records of this species are mostly from the Western North Atlantic and Caribbean (Springer 1979, Nakaya & Stehmann 1998, Nakaya & Sato 1999). A few specimens are known from Western South Atlantic (Gadig & Gomes 2003, Rincon & Vooren 2006), but these studies just cited *A. parvipinnis* in this area, with no more additional taxonomic, morphological or biological data. The specimen herein examined represents the greatest total length up to date reported for this species.

Genus *Apristurus*' species are known to occur at deep oceanic waters and its conservative external morphology can lead, in many cases, to mistakes in the species identification (Nakaya & Sato 1999). Just one species was recorded in the Western South Atlantic, but it is possible that more species do occur in Brazilian deep waters, since - besides the factors above mentioned - the Brazilian fishery fleet usually does not operate at the deep waters where this genus usually occurs. Oceanic deep sharks species comprise about 20 % of the total shark species recorded in Brazilian waters, and Scylorhinidae represents about 31 % of these oceanic deep species (Gadig, 2001). Rincon & Vooren (2006) also suggest that the increasing fishing and research efforts in such environment should provide more data on the poorly known fishes. Additionally, taxonomic studies on these Brazilian deep sea elasmobranchs can be considered, aiming for a more consistent knowledgement on the Brazilian elasmobranch fauna.

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