



Scientific Note

First record of the dogfish shark, *Squalus acanthias* Linnaeus 1758 (Elasmobranchii: Squalidae) for Venezuela and the Caribbean Sea

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Abstract. A newborn specimen of the species *Squalus acanthias* (282.83 mm TL) is captured for first time in Venezuelan Caribbean Sea. Aspects of their distribution and morphometry are discussed in this paper.

Key words: Ichthyology, Morphometry, Chondrichthyes, Fishery, Biodiversity

Resumen. Primer registro del tiburón galludo, *Squalus acanthias* Linnaeus 1758 (Elasmobranchii: Squalidae) para Venezuela y el Mar Caribe. Un ejemplar neonato de la especie *Squalus acanthias* (282,83 mm LT) es capturado por primera vez en aguas del Mar Caribe Venezolano. Aspectos de su distribución y morfometría son discutidos en el presente trabajo.

Palabras clave: Ictiología, Morfometría, Condriictios, Pesquería, Biodiversidad.

Squalus acanthias Linnaeus 1758 is a species that inhabits the seas of the temperate and boreal regions around the world (Compagno 1984). In the Western North Atlantic, *S. acanthias* is distributed along the continental shelf from Labrador (Canada) to Florida (USA) (Bigelow & Schroeder 1948, 1957, Compagno 1984, 2002, Stehlik 2007, Froese & Pauly 2009), being also detected the presence on the Atlantic coast of the Bahamas and Cuba, which is rarely captured in some fisheries. Of the fourteen species of the genus *Squalus* (Compagno *et al.* 2005, Last *et al.* 2007), to date only known the presence of *S. cubensis* and *S. mitsukurii* in Venezuelan waters, which are occasionally recorded in the artisanal and industrial fisheries that operate with long lines and gillnets in the coast of Venezuela (Cervigón & Alcalá 1999, Tavares & Arocha 2008).

The present study describes a female of the

species *Squalus acanthias* Linnaeus, 1758, which was captured through the monitoring of the artisanal fishery for snapper-grouper which operates in the northwest region of Venezuela, using traps at a depth of 110 meters, on 10 September 2008, north of Cabo San Román (12 ° 15 '66" N; 70 ° 04' 55" W), Paraguaná Peninsula, Falcón State, Venezuela (Fig. 1) becoming the first record of the species for Venezuelan waters and the Caribbean Sea.

The specimen was identified using the descriptions and morphological characteristics provided by Bigelow & Schroeder 1948, 1957, Compagno 1984, 2002 and Stehlik 2007. The recording of morphometric measures (Table I) was carried out point to point on the fresh specimen, using a measuring board and a vernier, following methodological criteria proposed by Compagno (1984, 2002). Then, we proceeded to the fixation in formaldehyde 5% and then transfer to alcohol

70%. Finally, the specimen was deposited under the catalog number CI-0159 ECAM in the Ichthyologic

Collection of the Escuela de Ciencias Aplicadas del Mar, Universidad de Oriente, Venezuela.

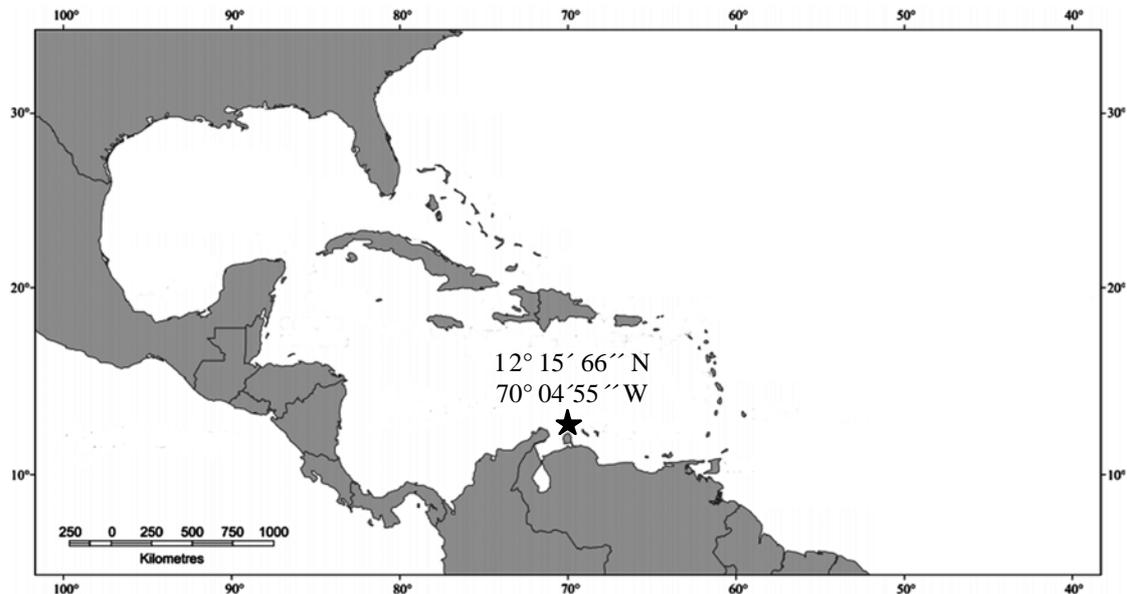


Figure 1. Geographic location of the site of capture of *Squalus acanthias* neonate at Cape San Román, Paraguaná Peninsula, Falcón state, Venezuela.

Description. Body elongate with the face and snout pointed; similar smooth teeth on both jaws, at an angle and the sharp cusp laterally posteriorly; dermal denticles small, low and tricuspid with pronounced central cusp, with sharp thorns present in anterior margins of both dorsal fins; origin of first dorsal fin located behind the rear end of the inner edge of the pectoral fins, second dorsal fin noticeably smaller than the first, curved pectoral fins and the posterior border moderately concave; the midpoint of the base of pelvic fins is located closer to the origin of second dorsal fin to the insertion of the first dorsal fin, caudal peduncle flattened in the lower back, lateral keels present on each side of the peduncle; cleft upper pre-caudal well developed; caudal fin without sub-terminal notch, relatively large eyes, anterior margin of nostril expanded to form a single lobe; brownish gray on the back, light gray on the ventral side, with white spots on each side and in the dorsal portion of the body.

The specimen examined morphological characteristics coincided with those described in the literature for the species *S. acanthias* (Bigelow & Schroeder 1948, 1957, Compagno 1984, 2002, Stehlik 2007, Froese & Pauly 2009), achieving distinguished from other species of the genus *Squalus* identified for the region (*S. cubensis* and *S.*

mitsukurii) because the origin of first dorsal fin is clearly located behind the inner corner of pectoral fins, the outer ends of the pectoral fins are rounded and the presence of whitish spots on the dorsal and lateral portion of the body. The size of the specimen examined (28.2 cm TL) is within the size range of birth reported for this species (18-33 cm TL; Compagno 1984). Howell Rivero (1936), registered the capture of a similar size (27.2 cm) with umbilical scar still visible on the coast of Cuba, specifically in the Jaimanitas Beach, on the north coast of the island into the Gulf of Mexico, which was designated by the investigator as holotype specimen of *Squalus barbouri* and later synonymized with *S. acanthias* by Bigelow & Schroeder (1948). However, this issue did not present the characteristic spots on the body. In this regard, it should be noted that while the presence of dirt is a fairly reliable character in identifying this species, some researchers have suggested that these may be diffuse or be completely absent (Garman 1913, Garrick 1960). The Figure 2b shows the most relevant characteristics of individual captured that served for the identification and description of this species, and Table I shows the morphometric relationships of body measurements. The presence of yolk sac scar confirm that this is a newborn individual, who was probably born in the vicinity of the capture area.

Table I. Morphometric characters of *Squalus acanthias* (CI-ECAM 0159, newborn female, 28.2 cm TL) captured at Cape San Román, Paraguaná Peninsula, Falcón state, Venezuela.

MORPHOMETRIC CHARACTERS	mm	TL %
Total length	282.83	100
Head length	62.6	22.1
Length from the tip of the snout to the anterior edge of eye	18.8	6.7
Width of the mouth	20.4	7.2
Length from the tip of the snout to the origin of the 1st dorsal fin	107.6	38.0
Length from the tip of the snout to the origin of the 2nd dorsal fin	195.8	69.2
Length from tip of snout to pelvic fin origin	170.3	60.2
Length from the tip of the snout to the origin of the pectoral	58.2	20.6
Length between the first and second dorsal fin	87.1	30.8
Base length of the 1st dorsal fin	19.9	7.0
Top edge length of the 1st dorsal fin	26.7	9.5
Height of the 1st dorsal fin	13.2	4.7
Base length of the 2nd dorsal fin	15.3	5.4
Top edge length of the 2nd dorsal fin	20.6	7.3
Height of the 2nd dorsal fin	9.6	3.4
Length outer margin of the pectoral fin	29.2	10.3
Length inner margin of pectoral fin	27.1	9.6
Length of pectoral fin base	12.5	4.4
Length inner margin of pelvic fin	20.6	7.3
Length outer margin of pelvic fin	12.6	4.5
Length upper edge of caudal fin	56.1	19.8
Depth of Caudal peduncle	8.3	2.9
Width of Caudal peduncle	5.7	2.0
Maximum nasal opening	2.1	0.7
Longitudinal eye diameter	11.2	3.9
Diameter maximum spiracle	5.9	2.1
Height of 1st gill opening	4.3	1.5
Height of 5th gill opening	5.6	2.0
Length from the nostrils to the end of the face	11.3	4.0
Length from the outer edge of the snout to the end of the face	22.9	8.1
Length from the outer edge of the mouth to the nostril	12.0	4.2

Therefore this finding would indicate that a gravid female of *S. acanthias* entered in the Caribbean Sea. In this regard, it has been pointed out that the population of *S. acanthias* of the Western North Atlantic is highly migratory and individuals are incorporate into migratory routes towards the south during the fall and winter seasons (McRuer & Hurlbut 1996). Mark-recapture studies have shown that this species can cover distances of up to 6400 km (Compagno 1984). The migratory ability of this species and the finding reported in this study demonstrate the possibility of incursion of some individuals in the Caribbean Sea. Moore (1998) suggests that gravid females of this species

tend to address areas of warm water, allowing increased growth rate of the embryos, so the use of warm-water Caribbean regions by females of *S. acanthias* could have positive implications from the standpoint of reproduction. According to the review of existing information in international databases: OBIS (2009), Fishbase (Froese & Pauly 2009) and GBIF (2009) at present there are at least 54,546 reports of *Squalus acanthias* in the world and none of them from the Caribbean Sea. Then, the capture of *S. acanthias* in the study area constitutes the first report of this species in Venezuelan waters, extending its distribution range to the southern Caribbean Sea.

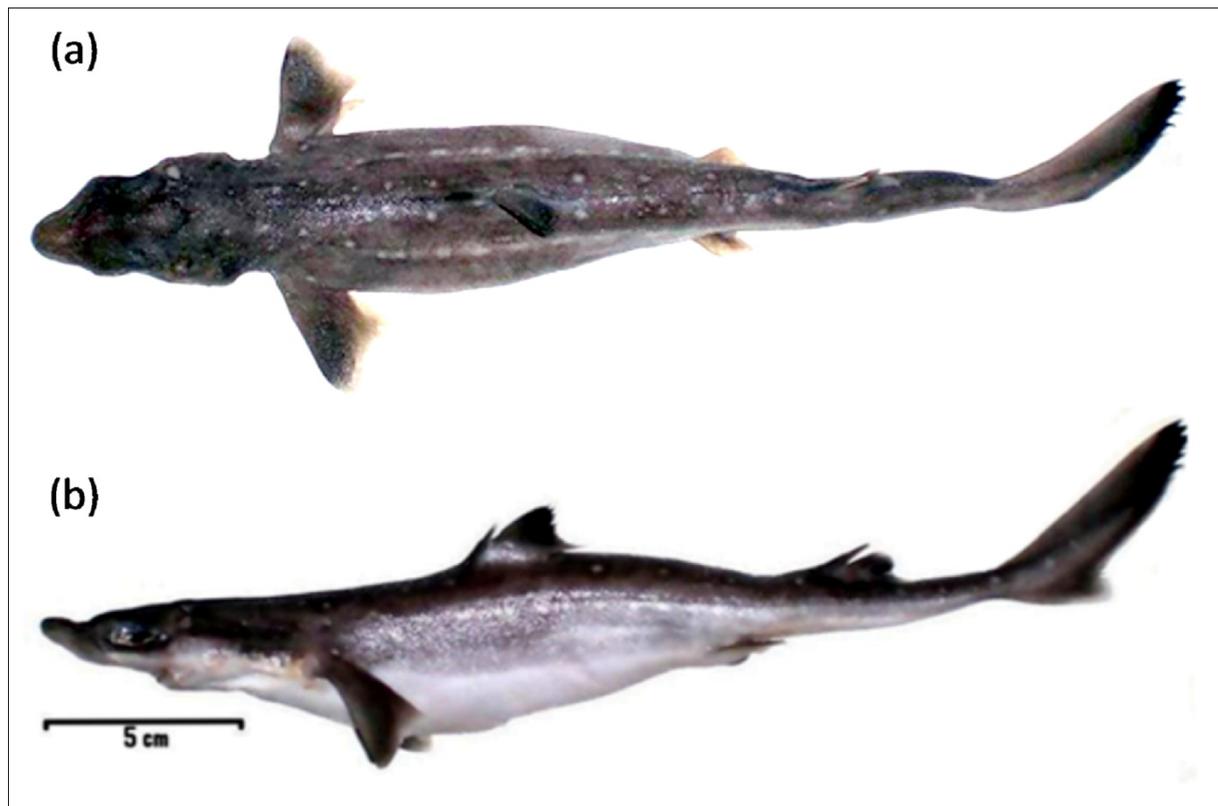


Figure 2. Photograph of *Squalus acanthias* newborn specimen captured at Cape San Román, Paraguaná Peninsula, Falcón state, Venezuela. (a) Dorsal view: Presence of whitish spots on the back and sides of the body (b) Side view: Origin of the 1st dorsal fin behind the inner corner of pectoral fins.

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