

**First morphometric data on a gravid female of the
Southern stingray, *Dasyatis americana*
HILDERBRAND and SCHROEDER, 1928,
(Chondrichthyes: Dasyatidae) in Guadeloupe waters
(French West Indies)**

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*Capture of a southern stingray, *Dasyatis americana* HILDERBRAND and SCHROEDER, 1928 in a mangrove lagoon is the first record from Guadeloupe waters (French West Indies). It expelled three fully developed foetuses when landed on the boat deck. In this paper are given a short description of the four specimens and a brief comment concerning the species occurrence in inshore and brackish waters.*

Key words: Chondrichthyes, Dasyatidae, *Dasyatis americana*, Lagoon, Guadeloupe, French West Indies

INTRODUCTION

The southern stingray, *Dasyatis americana* HILDERBRAND and SCHROEDER, 1928 is reported in tropical and subtropical waters of the western central Atlantic and Antillas (BIGELOW and SCHROEDER, 1953; McEACHRAN and FECHHELM, 1998), extending towards to New Jersey where it is rare and southwards to Brazil (COMPAGNO, 1978). *D.*

americana is common around the Bahamas and off Venezuela, but less common in the Gulf of Mexico and the Antilles (COMPAGNO, 1978). The species entered estuaries and rivers (SCHWARTZ *et al.*, 1981; SCHWARTZ, 1995), and it was rarely found deeper than 36 m (SCHWARTZ, 1984).

Observations conducted in Guadeloupe waters (French West Indies) offered the oppor-

tunity to record for the first time a gravid female of southern stingray in this area. The specimen and his aborted young are described.

MATERIAL AND METHODS

Observations were made between 2000 and 2002 in a mangrove lagoon, the Manche-à-Eau, located in north-eastern Island of Basse-Terre in Guadeloupe (Fig. 1).

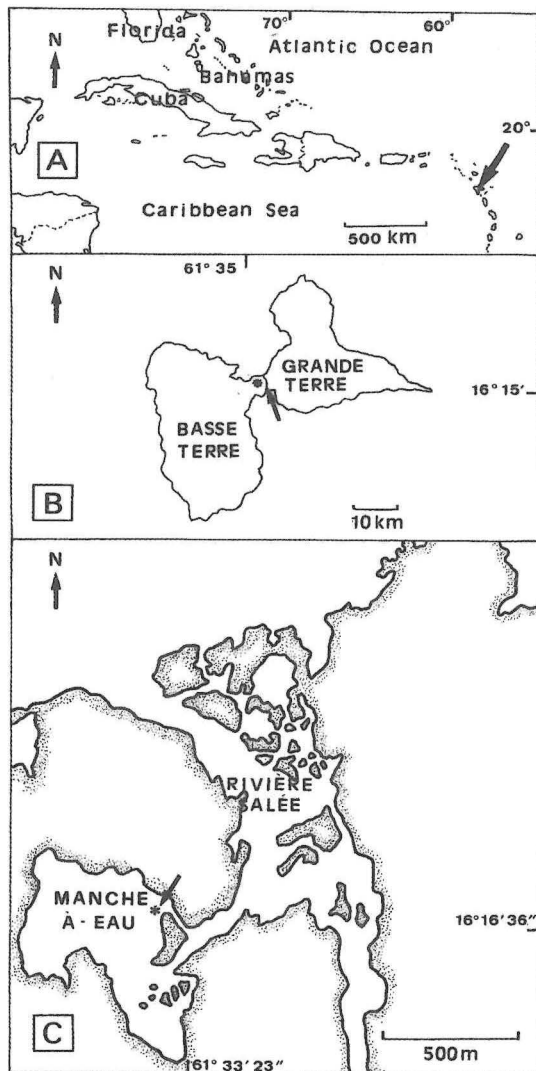


Fig. 1. A. Map of western central Atlantic (fishing area 31, pro parte) showing the Island of Guadeloupe (arrow). B. Map of Island of Guadeloupe showing the Rivière salée (arrow) and the site of the mangrove lagoon of the Manche-à-Eau (asterisk). C. Detail of northeastern area of the Island of Grande-Terre showing the place where the southern stingray, *Dasyatis americana* was captured (arrow + asterisk) in the mangrove lagoon Manche-à-Eau

The Manche-à-Eau lagoon has a surface area of 0.26 km², is 910 m long and 425 m wide, 1.50 to 2.50-2.80 m deep (ASSOR, 1987), substrate is muddy, rocky substrate are rare. The lagoon does not directly communicate with sea and it receives marine waters from a narrow passage, which opens in the Rivière Salée; this latter separates Basse-Terre Island from Grande-Terre Island. The lagoon concomitantly receives continental running freshwaters. Mean salinity is 32.5 psu but the mean surface salinity is slightly higher, 33.2 psu (ASSOR, 1987).

The southern stingray was caught in a passive fishing device, the "capèchade", derivative of a hoop net (QUIGNARD and FARRUGIO, 1981; BOUCHEREAU *et al.*, 1989). The identification of the specimen was based on BIGELOW and SCHROEDER (1953), COMPAGNO (1978), SCHWARTZ (1984) and MICHAEL (1993) and weighed to the nearest kilogram using a calibrated spring balance. Main morphometric and meristic characters follow CAPAPÉ (1977) and COMPAGNO and TYSON (1982). The clasper length was measured according to COLLENOT (1969). All the measurements were made to the nearest millimetre.

RESULTS AND DESCRIPTION

The southern stingray was caught on 21st June 2001 (Fig. 2).

It was a mature female, 1500 mm DW, which expelled its foetuses as soon as it was landed on the boat deck. They were two males and a single female (Fig. 3). The adult female was 21 kg in total weight, its eviscerated weight reached 18.5 kg.

The rhomboid disk was about 1.2 times as broad as long. The anterior margins were slightly convex at level of eyes while the posterior margins straight anteriorly and convex posteriorly. Pelvic fins were quadrangular and had rounded outer corner. The tail was slender and slightly depressed dorso-ventrally. The dorsal surface of the tail had a long longitudinal ridge that extended posteriorly from the stinger to the end of the tail while the ventral surface of the



Fig. 2. Female *Dasyatis americana* captured in the mangrove lagoon Manche-à-Eau



Fig. 3. Fully developed fetuses *Dasyatis americana* captured in the mangrove lagoon Manche-à-Eau

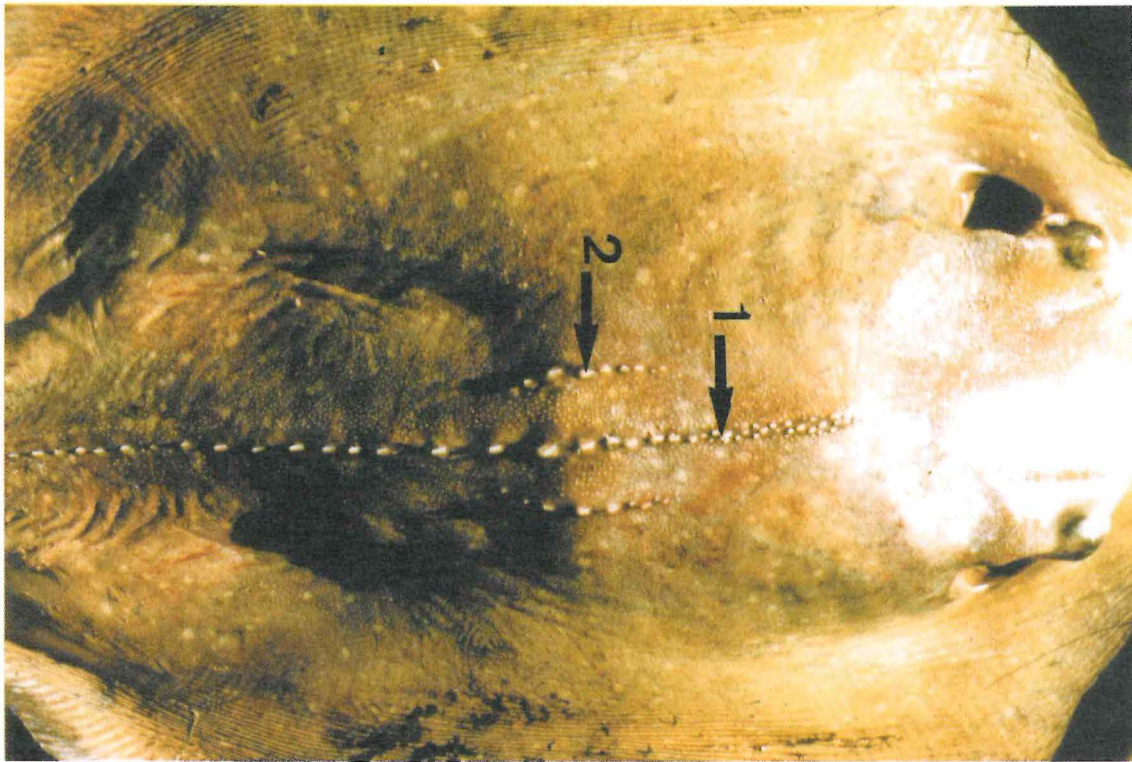


Fig. 4. Oral papillae. Lat. dig.: lateral digitations. Lat. pap.: lateral papillae. Med. pap.: medial papillae

tail had a conspicuous longitudinal fold posterior to stinger that did not extend to the end of the tail (Fig.4).

Interorbital and interspiracular had many spines. A short longitudinal row of medial tubercles extended from the level of the posterior rear of spiracles to base of tail (Fig. 5). Each tubercle consisted of a plate and a cusplet

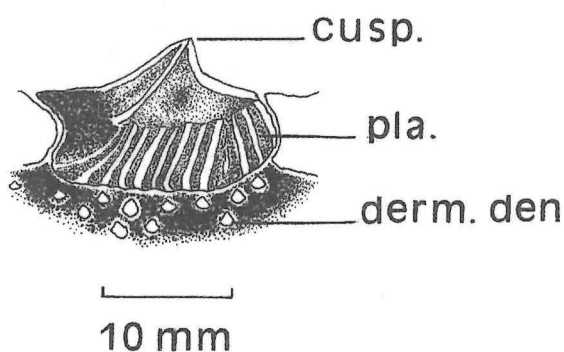


Fig. 5. Detail of medial tubercle surrounded with denticles. Cusp.: cusplet. Derm. dent.: dermal denticle; Pla.: plate

(Fig.6) and was surrounded by minute dermal denticles. The margins of the plate were not stellate but had slight furrows. The cusplet was short, rather pyramidal and carened in each margin. The tail was covered with small dermal denticles but without tubercles. The three fully developed foetuses were entirely smooth. The mouth was arched with a fringed nasal curtain. The floor of mouth had three central stout papillae, and had lateral papillae on both sides with three-minute expansions at their distal end (Fig. 7).

The dorsal disk surface was brown and olivaceous brown to olive green with dark and white blotches in the nuchal area. The ventral surface of the disk was white with brownish or dark margins. The tail was brown and the ventral cutaneous fold was dark. The dorsal disk surface of the foetuses disk was brown with violet reflects, the ventral lower surface was pale.

Morphometric characters and meristic characters, for the four specimens, are included in Tables 1 and 2.

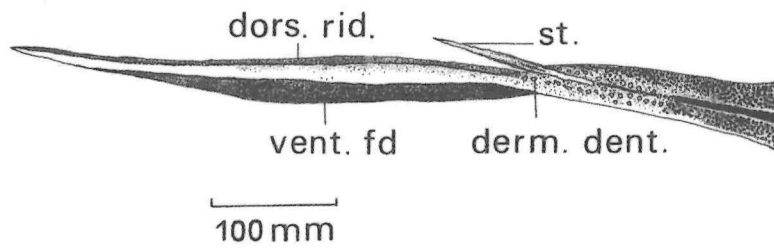


Fig. 6. Oral papillae. Lat. dig.: lateral digitations. Lat. pap.: lateral papillae. Med. pap.: medial papillae

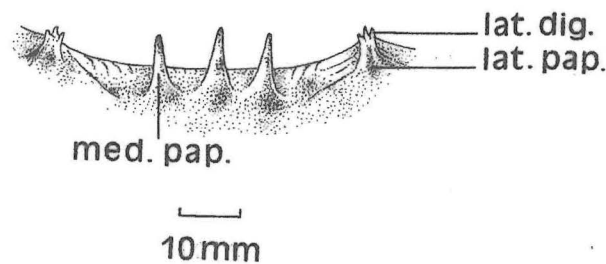


Fig. 7. Detail of medial tubercle surrounded with denticles. Cusp.: cusplet. Derm. dent.: dermal denticle ; Pla.: plate

Table 1. Morphometric characters (in mm) in the southern stingray from the Guadeloupe waters

Specimen	Adult	Fully developed foetuses		
Sex	Female	Female	Male	Male
Total length	1500	441	444	437
Disk length	825	193	188	185
Disk width	150	25	25	26
Eyeball	42	16	17	16
Cornea	24	12	12	12
Interorbital width	102	39	39	38
Spiracle	54	20	20	19
Nasal curtain	89	23	22	21
Interspiracular width	150	36	36	36
Mouth width	89	23	22	21
First gill slit	25	5	5	5
Fifth gill slit	14	4	4.2	4
Width between first gill slit	161	38	38	38
Width between fifth gill slit	110	25	24	24
Snout tip to eye	178	39	38	39
Snout tip to mouth	169	39	39	40

Table 1. *cont'd*

Specimen	Adult	Fully developed foetuses		
Sex	Female	Female	Male	Male
Snout tip to first gill slit	250	58	59	57
Snout tip to fifth gill slit	362	84	84	83
Snout tip to pelvic fin	662	160	160	158
Snout tip to vent	691	162	162	160
Snout tip to sting	968	235	235	234
Pectoral fin anterior margin	507	126	127	125
Pectoral fin posterior margin	570	125	127	126
Pectoral fin inner margin	94	17	17	20
Pelvic fin anterior margin	158	32	34	33
Pelvic fin base	110	24	24	24
Span of pelvic fins	346	65	67	66
Clasper length	-	-	34	34
Tail base width	80	14	15	15
Tail base depth	45	10	11	11
Tail length	780	287	287	287
Ventral tail fold length	450	104	103	100
Dorsal tail ridge length	168	53	56	54
Sting length	155	32	32	32

Table 2. *Meristic characters (counts) in the southern stingray from the Guadeloupe waters*

Specimen	Adult	Fully developed foetuses		
Sex	Female	Female	Female	Female
Oral papillae	5	5	5	5
Buccal papillae	24	22	22	22
Spiral valve turns	18?	-	-	-
Tooth rows upper jaw	50	38	38	38
Tooth rows lower jaw	50	38	38	38
Total pectoral radials	113	110?	110?	109?
Pelvic radials	26	-	-	-
Medial nuchal spines	48	-	-	-
Left nuchal spines	8	-	-	-
Right nuchal spines	7	-	-	-

The adult female and the three fully developed foetuses were preserved and deposited in the collection of the Laboratoire d'Ichtyologie at the Université Montpellier II, Sciences et Techniques du Languedoc of Montpellier (France) and referenced as: *Das. am.* 1, 2, 3, 4.

DISCUSSION

The capture of *D. americana* in Guadeloupe waters confirms the occurrence of the species in western central Atlantic and in the Caribbean Sea despite an important anthropogenic fishing pressure. The first capture of the southern stingray in the Manche-à-Eau lagoon and moreover a gravid specimen in brackish water is not

a fortuitous event. It suggests that the species researched the best conditions to expel its brood as it was previously observed in other dasyatid species (CAPAPÉ and ZAOUALI, 1995; COMPAGNO and COOK, 1995; SCHWARTZ, 1995). This lagoon is probably a nursery area where some species find sufficient resources to reproduce and develop. However, this opinion requires further observations.

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Prvi morfometrički podaci o gravidnoj ženki raže žutulje, *Dasyatis americana* HILDERBRAND i SCHROEDER, 1928, (Chondrichthyes: Dasyatidae) u vodama Guadeloupe (Francuska Zapadna Indija)

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SAŽETAK

Po prvi put je uhvaćena raža žutulja, *Dasyatis americana* HILDERBRAND i SCHROEDER, 1928 u jednoj laguni mangrova u području, Guadeloupe (Francuska Zapadna Indija). Primjerak je na palubi broda izbacio tri u potpunosti razvijena fetusa. U ovom radu je dat kratak opis četiriju primjeraka zajedno s kratkim tumačenjem nalaza vrste u priobalnim i bočatim vodama.

Ključne riječi: Chondrichthyes, Dasyatidae, *Dasyatis americana*, laguna, Guadeloupe, Francuska Zapadna Indija