

Case Report

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Occurrence of Mature Female of *Etmopterus Spinax* (Chondrichthyes: Etmopteridae) in the Syrian Coast (Eastern Mediterranean)

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Abstract

Velvet Belly Lantern shark, *Etmopterus spinax* (Linnaeus, 1758) is recorded for second time in the Syrian coast. A mature female of *E. spinax* measured 354mm total length, and weighed 208.3g, caught at depth about 300m. the specimen was in stage 3, had two ovaries; contained 9 oocytes measured between 10-5mm in diameter. The width of left and right oviducal gland measured; 8mm and 7mm, respectively. It had left and right functional uterus, white color measured; 77mm and 75mm in length; 11mm and 10 mm in width, respectively.

Keywords: Velvet belly lantern shark; Second record; Maturing, Syrian coast

Introduction

The velvet belly *Etmopterus spinax* (Linnaeus, 1758) is a small-sized deep-water squaliform. Although *E. spinax* is known to be more commonly caught in the western Mediterranean Basin [1,2]; mainly off the Tunisian and Sicilian coasts [3,4], the species is reported in both Mediterranean Basins in waters ranging between 150-200 m and 400 m, and probably deeper [5]. It has been recorded at depths as low as 2,200 m in the Ionian Sea [6]. The species is reported in the Aegean Sea [7], in Turkish waters [8], off the Egyptian coast [9], and in the Levant Basin [10,11]. Conversely, the species is not recorded off the Lebanese coast [12]. This paper is reporting second occurrence of *E. spinax* from Syrian marine waters and providing for the first time the principal biometric and meristic characters, and some remarks on biology of this species in the eastern Mediterranean.

Materials and methods

On 19 October 2017, mature female of *E. spinax* (Linnaeus, 1758) was caught in Syrian marine waters by trawl as far as the city of Jableh (between 35° 26' N, 35° 43' E) at a depth of about 300 m, on sandy and muddy bottoms (Figure 1). All measurements were recorded to the nearest 1 mm and weighted to the nearest 0.1 gram. The description of the specimens in the present paper follows Bello et al. [13] and Capapé & Ali [11]. Stage of maturity was determined

following the scales for viviparous Elasmobranchs proposed by Anonymous [12].

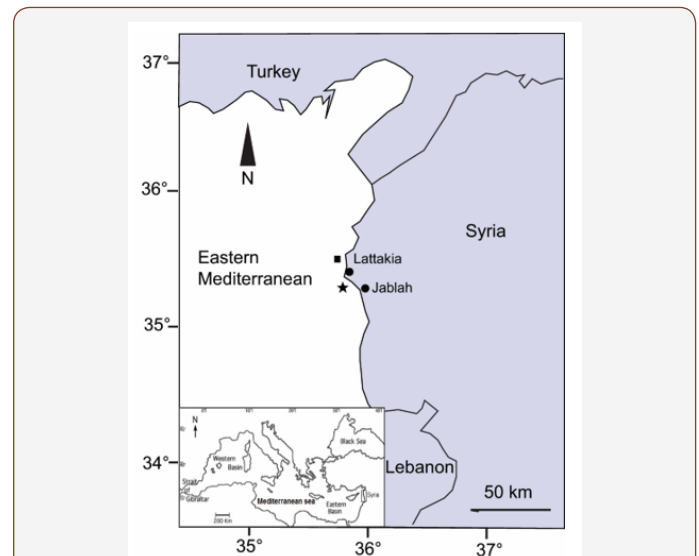


Figure 1: Map of the mediterranean and Syrian coast (Eastern Mediterranean) pointing out the specimens collecting locality of *Etmopterus spinax*; previous record (black square), present record (black star). Lattakia and Jableh cities (black circles).

Results

The female of *E. spinax* (Figure 2) measuring 354 mm and weighing 208.3 g total weight. Body robust with a fairly long tail, snout moderately long, broad and flattened, both dorsal fins bearing stout, grooved spines at the front, with the second fin much longer than the first and curved; mouth with thin, smooth lips; upper teeth small with a narrow central cusp and two pairs of lateral cusp lets; lower teeth larger with a strongly slanted, bladelike cusp at the top and interlocking bases; five pairs of tiny gill slits, comparable in size to spiracles; first dorsal fin originating behind short and rounded pectoral fins; second dorsal fin larger than the first and originating behind the pelvic fins; anal fin absent; tail slender, leading to a long caudal fin with a small lower lobe and a low upper lobe with a prominent ventral notch near the tip; coloration brown above, abruptly transitioning to black below; black markings on flanks above and behind the pelvic fins, and along the caudal fin.



Figure 2: The specimen of *Etmopterus spinax* (mature female) caught off Syrian marine waters.

Morphometric data of the specimen are summarized in Table 1. The specimen was a mature female, stage 3, has two ovaries; contained 9 oocytes measured between 10-5 mm in diameter and a large number of small oocytes ≤ 2 mm, the oviducal glands were simple and barrel shaped with no lateral extensions, the width of left and right oviducal gland measured; 8mm and 7mm, respectively. In addition, it had left and right functional uterus, white color measured; 77mm and 75mm in length; 11mm and 10mm in width, respectively (Figure 3) The stomach of the specimen was empty.

Table 1: Morphometric characteristics of the specimen of *Etmopterus spinax* (mature female) from the coast of Syria and compared with similar data previously recorded in specimen caught off the Syrian coast. Measurements are given as (mm) and as percentage value of TL (%).

References	This study		Capapé and Ali (2017)	
Sex	Female		Female	
Category	Mature		Immature	
Total weight (g)	208.3		106.6	
Morphometric measurements	mm	TL%	mm	TL%
Total length	354	100	317.1	100
standard length	280	79.1	251.2	79.2
Head length	80	22.6	71.5	22.5
Prespiracular length	44	12.4	38.9	12.3
Spiracle length	5	1.4	5.2	1.6
Preorbital length	29	8.2	25.9	8.2
Eye length	22	6.2	19.2	6.1
Prenarial length	7	2	6.4	2
Preoral length	35	9.9	31.7	10
Nostril width	11	3.1	9.4	3
Mouth width	32	9	28.9	9.1
Pre-first dorsal-fin length	114	32.2	104.3	32.9
First dorsal-fin length	31	8.8	27.7	8.7
First dorsal-fin base	12	3.4	11.2	3.5
First dorsal-fin height	14	4	12.6	4
First dorsal fin spine length	18	5.1	16.1	5.1
Pre-second dorsal-fin length	217	61.3	193.6	61.1
Second dorsal-fin length	41	11.6	36.4	11.5
Second dorsal-fin base	25	7.1	22.4	7.1
Second dorsal-fin height	23	6.5	20.2	6.4
Second dorsal fin spine length	22	6.2	19.4	6.1
Prepectoral-fin length	86	24.3	77.1	24.3
Pectoral-fin base	22	6.2	19.2	6.1
Pectoral-fin length	31	8.8	27.6	8.7
Prepelvic-fin length	185	52.3	166.2	52.4
Pelvic-fin length	41	11.6	37.1	11.7
Pelvic-fin base	28	8	25.5	8

Precaudal-fin length	280	79.1	251.2	79.2
Dorsal caudal-fin margin	74	20.9	66.1	20.8
Preventral caudal-fin margin	33	9.3	29.7	9.4
Upper postventral caudal-fin margin	53	15	47.3	14.9
Tooth rows on upper jaw	25		25	
Tooth rows on lower jaw	25		25	



Figure 3: Ovaries, oviducal glands and uterus of mature female of *Etmopterus spinax* from Syrian coast.

Discussion

The measurements count and colour are in total agreement with previous descriptions of *E. spinax* by Compagno LGV [13], McEachran JD & Branstetter S [16] and Capapé & Ali [11].

From Syrian coast, three immature females were recorded, measured 298.6mm, 306.3mm and 317.1mm in TL, respectively, and weighing 102.3g, 110.4g and 106.6g, respectively. These specimens were first records of the species by Capapé & Ali [11]. Records of immature and mature specimens of the species could suggest that a probable *E. spinax* population is established in the area. However, such a hypothesis needs further confirmation.

E. spinax is an aplacental viviparous species with two uteri and both left and right ovaries are functional. The characters of ovaries, oviducal glands and uterus are in agreement with results of Porcu et al. [4] about mature females' aspect. Females with ripe oocytes ready to be ovulated were observed in August and in October; their uteri were in a resting phase, TL50 = 38 cm for females and ovarian fecundity between 5 and 17 from Tunisian coasts [3]. In addition, Vacchi & Relini Oris [17] noted that spawning season from February-November, TL50 = 34 cm for females, ovarian fecundity from 5 to 14 in Ligurian Sea. Whereas Spawning season was in all year Sardinian waters, TL50 = 36.9 cm for females and fecundity between 6 and 27. Sexual maturity is reached at similar sizes specimens from the previous studies, also number of oocytes is filled into the range of ovarian fecundity of the species. However, a large number of the species individuals are needed to determine the TL50, and the ovarian and uterus fecundity in Syrian marine waters.

This record of *E. spinax* could confirm the occurrence of this species in the Levant Basin, and increase its distribution along the Syrian coast.

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