

SHORT COMMUNICATION

On the capture of a large pregnant *Bathytoshia lata* (Chondrichthyes: Myliobatiformes: Dasyatidae) from the coast of Çeşme, Izmir (Aegean Sea, Turkey)

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Abstract

The authors report in this paper the capture of a large female of *Bathytoshia lata* (Garman 1880) measuring 2220 mm in disc width and weighing approximately 350 kg. It was a pregnant female at the end of the gestation which carried six near-term embryos. The specimen and its capture are described, indicating that the species is probably threatened but not totally extinct.

Keywords: Size, measurements, pregnancy, distribution, Mediterranean Sea

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Of the seven dasyatid species found in Turkish waters, common stingray *Dasyatis pastinaca* (Linnaeus 1758) is the single one commonly caught in the area (Bilecenoglu *et al.* 2014). The other six species are only occasionally captured. One of them is roughtail stingray, *Bathytoshia lata* (Garman 1880), previously identified as *D. centroura* (Mitchill 1815) by Capapé (1977), Mc Eachran and Capapé (1986) and Weigmann (2016). Following Kottelat (2013), Last *et al.* (2016a,b) noted that the genus *Bathytoshia* Whitley 1933 was formerly considered as a junior synonym of the genus *Dasyatis* which includes a small group of very large and widely distributed roughtail stingrays. Molecular data showed that the species *centroura* is now included in the genus *Bathytoshia* which occurs only in the western Atlantic; while its congener *Bathytoshia lata* is widely distributed in the eastern Atlantic, Mediterranean Sea and Indo-Pacific (Last *et al.* 2016a,b).

In the wake of a collaboration with local fishermen aware of fishing grounds, we were informed that a large female carrying embryos was caught in Turkish waters where only four reports on *Bathytoshia lata* have been documented (Figure 1 and Table 1). The specimen is the first pregnant female recorded to date in the area. It is succinctly described in this paper, with its distribution discussed. Additionally, the biological observations carried out are herein presented and compared with similar traits reported from other marine areas, especially the Tunisian coast (Capapé 1993).

Table 1. Comparison of data concerning *Bathytoshia lata* recorded from the Mediterranean Sea. TL = total length, DW = disc width

Authors	Region	Size (mm)	Weight (kg)	Sex	Number of specimens	DW at birth (mm)
Capapé (1993)	Tunisian coast	1470 DW	-	Female	1	137
Jardas (1996)	Adriatic Sea	2100 DW	-	Unsexed	1	-
Basusta and Erdem (2000)	Iskenderun Bay	498 TL	-	Unsexed	1	-
Dulcic <i>et al.</i> (2003)	Adriatic Sea	2600 DW	290	Female	1	-
Basusta and Sulikowski (2012)	Iskenderun Bay	1790 DW	127	Unsexed	1	-
Deval <i>et al.</i> (2014)	Gulf of Antalya	1411-2200 TL	6.68-35.50	Unsexed	4	-
Özbek <i>et al.</i> (2015)	Gulf of Antalya	860-1700 DW	-	Unsexed	5	-
This study	Aegean Sea, off Cesme	2200 DW	350*	Female	1	280-330

* observed by fishermen, remains disputable, see Discussion

On 11 November 2016, a pregnant female roughtail stingray *Bathytoshia lata* measuring 2220 mm in disc width (DW) (Figure 2) was captured by commercial trawl net having 44 mm mesh size in the coastal waters off Çeşme, Izmir, in the Aegean Sea (38°25'N, 26°16'E) at a depth of 70 m. Main measurements were made to the nearest millimetre on the individual, which weighed about 350 kg, according to the fishermen who caught it. Prior to be discarded at sea, the female expelled on board, six embryos; for each of them, the disc width was measured to the nearest millimetre and the weight recorded to the nearest gram.

The specimen was identified following Capapé (1977), Mc Eachran and Capapé (1986), and Last *et al.* (2016b) by combination of morphological characters, as: disc rhomboid, anterior margins more or less straight, posterior margins slightly convex, snout obtuse and produced; nasal curtain broadly skirt shaped, mouth rather broad and depressed, tail with a relatively long membrane below starting at level of spine, no fold or ridge above; dorsal surface with large tubercles or bucklers on snout, around orbits and spiracles; large thorns along top and sides; color olive-brown with reddish areas in the present juvenile specimens.



Figure 1. The capture sites of the specimens of *Bathytoshia lata* in the eastern Mediterranean: (1) Karataş, Iskenderun Bay, caught between December 1994-November 1996 (Başusta and Erdem, 2000), (2) Gulf of Antalya, caught between August 2009 and April 2010 (Özbek *et al.* 2015), (3) Gulf of Antalya, caught between October 2009 and February 2011 (Deval *et al.* 2014), (4) Iskenderun Bay, caught on June 2011 (Başusta and Sulikowski 2012), (5) off Çeşme, İzmir, caught on 11 September 2016 (this study).



Figure 2. The individual of *Bathytoshia lata* in this study, caught in the coast off Çeşme, İzmir, Aegean Sea (scale bar: 100 mm)

The tail of the specimen was truncated *intra-vitam* just before the first dorsal fin. Similar patterns were observed in skates and rays (Clark 1926; Soto and Mincarone 2001; Mnasri *et al.* 2009; Capapé *et al.* 2015a,b). Some specimens are tailless and the remain of tail is a stump like structure showing in its distal end a healed scar (Orlov 2011; Capapé *et al.* 2015a,b). Total or partial lack of tail is probably a consequence of the competition pressure for food with predators such as shark species (Mnasri *et al.* 2009). Abnormalities were also observed at the distal end of tail, such as lack or a typical characteristic of dorsal fins (Mnasri *et al.* 2010; Capapé *et al.* 2015a,b). These explain why DW is used as reference to measure rajiformes species rather than TL (Clark 1926). The measurements recorded in the present specimen on board were: DW (2220 mm), body height (510 mm), body height (510 mm), eye diameter (30 mm) and interorbital length (370 mm). TL was also measured; it reached 2510 mm, but the tail being truncated, such measurement could not be really taken into consideration.

The present *Bathytoshia* is the largest specimen known in the Turkish waters and the eastern Mediterranean. The largest specimen in the Mediterranean basin, however, was recorded in the Adriatic Sea, measured 2600 mm in DW and weighed 290 kg (Dulcic *et al.* 2003). No larger specimen was recorded to date throughout the world. The present specimen weighed about 350 kg, according to the fishermen who caught it. It is the highest weight recorded to date for the species (Table 1), probably due to the fact the female carried embryos. However, an overestimation of this weight by the fishermen cannot be totally ruled out. The six expelled embryos were fully developed and without remain of yolk sac (Figure 3), and could be considered as near-term (*see* Capapé 1993). They ranged between 280 and 330 mm in diameter and weighed between 370 and 400 g, and are larger than those reported by Capapé (1993) who noted that birth occurred at 137 mm DW, off the Tunisian coast. Litter size of the present specimen reached six; Capapé (1993) noted that uterine fecundity ranged from 5 to 8, higher than litter size, 2-3 maximum. Such differences could be explained by that fact that some yolky oocytes could not be ovulated and became atretic, and abortions could not be avoided. Additionally, in elasmobranch viviparous species, it appears a relationship between size of females and litter size, the latter is higher in large females which give birth to larger free-swimming specimens (Mellinger 1989).

Observations carried out on specimens from the Tunisian coast, showed that female maturation occurred between 660 and 1000 mm DW, all males and females having a DW greater than 800 mm and 1000 mm, respectively were adults, the largest male and the largest female had 1040 mm and 1345 mm DW, respectively. Struhsaker (1969) noted that males and females from the southeastern United States matured at a larger size, 1450 mm DW and 1500 mm DW, respectively, and, consecutively reached a larger maximal size, 2000 mm DW. Together with Tortonese (1956), Zupanovic (1961), Bullis and Struhsaker

(1961) and Struhsaker (1969), Capapé (1993) suggested that size at birth, size at sexual maturity and maximal size allow to admitting the existence of an American form of the species formerly identified as *Dasyatis centroura* different from the Mediterranean form. They noted that the "thorny tail stingray complex" needs additional study, considering that the populations from Atlanto-Mediterranean area and the western Atlantic may represent different species, such hypothesis was corroborated by the recent studies of Last *et al.* (2016a,b).



Figure 3. Parturition scene of *Bathytoshia lata* (a) half near-term embryo, (b) entire near-term embryo, (c) complete litter comprising six near-term embryos on board (scale bars: 50 mm)

The captures of large specimens of *Bathytoshia lata* reported by Dulcic *et al.* (2003) and in the present paper do not confirm such hypothesis despite it cannot be totally ruled out. Decreasing in size observed in Mediterranean specimens could be due to the intense fishing pressure occurring locally since several decades: the larger specimens being more intrinsically vulnerable to depletion than the smaller specimens. Surveys carried out in some Mediterranean regions showed that the percentage presence for this species was one of lowest registered (Rosa *et al.* 2007). Additionally, *Bathytoshia lata* as other elasmobranch species is vulnerable to fishing pressure in the Mediterranean as well as other oceans and seas where the species was reported (Rosa *et al.* 2007), as a consequence of its K-selected characteristics, such as long reproductive cycle, large size at maturity and low fecundity enhancing that it is strongly threatened. Conversely, the finding of a large pregnant female shows that, fortunately the species is not totally extinct in the study area and probably in the

entire Mediterranean, therefore a strong monitoring of *Bathytoshia lata* and its related dasyatid species is needed prior their total collapse.

İzmir Çeşme kıyılarında hamile büyük bir dişi *Bathytoshia lata*'nın (Chondrichthyes: Myliobatiformes: Dasyatidae) yakalanması üzerine

Öz

Bu makalede yazarlar *Bathytoshia lata* (Garman, 1880)'nın 2220 mm DW ve yaklaşık 350 kg ağırlığında ölçülmüş büyük bir dişi bireyinin yakalanışını rapor etmektedir. Bu, altı embriyosunu taşıyan gebelik süresinin sonunda bir hamile dişiydi. Bu tehdit altında fakat tamamen tükenmemiş olan tür tanımlanmış, yakalanışı tartışılmış ve yorumlanmıştır.

Anahtar Kelimeler: Boyut, ölçüm, hamilelik, dağılım, Akdeniz

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