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Captures of the giant Devil ray, *Mobula mobular* BONNATERRE, 1788 (Chondrichthyes: Mobulidae) off the Algerian coast (southern Mediterranean)

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The authors report captures of the giant devil ray, Mobula mobular *BONNATERRE, 1788 off the Algerian coast (southern Mediterranean). They comment on the distribution of the species off the Maghrebin coast and in the Mediterranean.*

Key words : Chondrichthyes, Mobulidae, *Mobula mobular*, Mediterranean, Maghrebin Coast Algerian Coast, distribution

INTRODUCTION

The devil ray, *Mobula mobular* is defined as an Atlantico-Mediterranean species (FISCHER *et al.*, 1981, 1987; McEACHRAN and CAPAPÉ, 1984). However, its occurrence in eastern Atlantic waters remains hypothetical according to NOTARBARTOLO di SCIARRA and BIANCHI (1998); misidentifications with the close related species *M. japonica* could not be occulted.

In this paper, are reported recent captures of *M. mobular* from off the Algerian coast where it was formerly considered as a rare species (DIEUZEIDE *et al.*, 1953). These captures allow the opportunity to give new data on the species and to comment its distribution along the Maghrebine shore and in the Mediterranean Sea.

MATERIAL AND DESCRIPTION

Twenty-one specimens were collected at Algiers fish market between 1996 and 2001. They were captured by trawling off the Algerian coast, which is divided in western, central and eastern areas (Fig. 1).

Seven specimens were caught off the central area and 14 off the eastern area (Table 1).

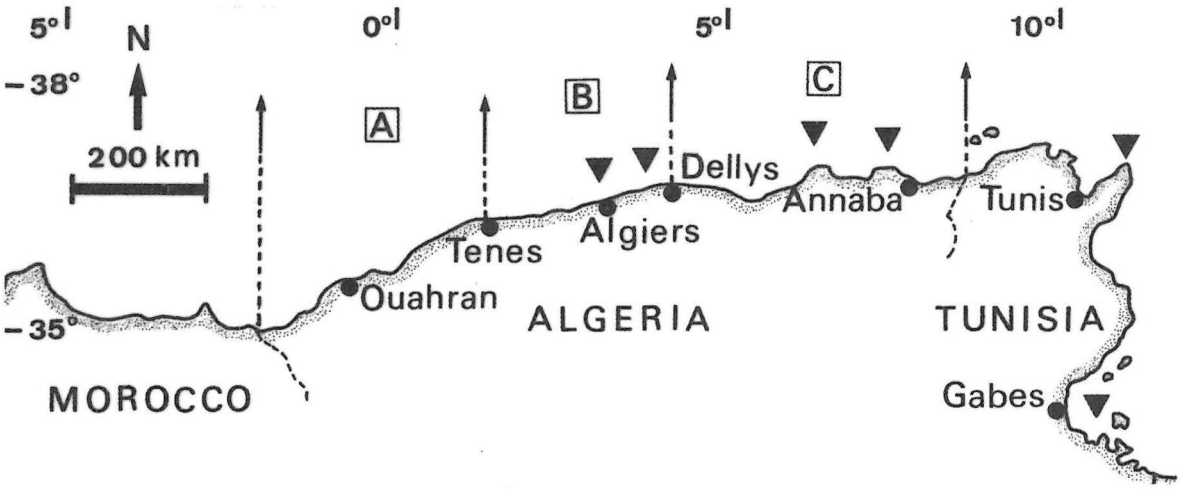

Fig.1. Map of the Maghrebin coast showing the three fishing areas of the Algerian coast A: western area, B: central area, C: eastern area. Fishing locations of one or more Mobula mobular *captures (black triangles)*

Table 1. Mobula mobular *captured off the Algerian coast and observed at Algiers fishmarket*

Captures dates	Captures areas	Capture engin	Number of observed specimens	Weight range (kg)
10/12/1996	Eastern	Trawling	4	100-210
19/12/1996	Central (between Dellys and Zemmouri)	Trawling	4	50-200
28/11/1999	Eastern	Trawling	2	65-70
03/12/1999	Eastern	Seine	2	214-230
05/12/1999	Central (off Algiers)	Seine	1	70
05/12/1999	Central (off Algiers)	Trawling	2	50-59
05/12/1999	Eastern	Trawling	2	100-336
23/12/2001	Eastern	Trawling	4	220-250

All the specimens were eviscerated by fishermen as soon as they were landed on boat deck. They were weighed to the nearest kilogramme. When possible, some measurements were made. They included disk-width following CLARK (1926) for skates, disk-length and cephalic fins length (Table 2).

Table 2. Measures (in mm) made in Mobula mobular *captured off the Algerian coast and observed at Algiers fishmarket. DW: disk-width. DL: disk-length. CFL: cephalic fins length*

Captures dates	Captures areas	Sex	*DW* (mm)	*DL* (mm)	*CFL* (mm)
28/11/1999	Eastern	Female	1300	700	110
28/11/1999	Eastern	Male	1800	950	160
23/12/2001	Eastern	Female	2500	1600	190
23/12/2001	Eastern	Female	3040	1600	390
23/12/2001	Eastern	Female	3080	1640	400
23/12/2001	Eastern	Female	3340	1640	420

Identification of reported *M. mobular* was based on TORTONESE (1956), BINI (1967), FISCHER *et al.* (1987) and NOTARBARTOLO di SCIARRA and BIANCHI (1998).

However, in largest specimens middle part of the disk and dorsal face of the tail exhibited spinulous areas. Ventral surface of body was brownish, blue in some specimens, blackish on the egdes of the fins and with blue and black blotches. Inner edges of cephalic fins was blackish. Ventral surface was rather pale or yellowish (Figs. 2, 3 and 4).

DISCUSSION

GUICHENOT (1850) reported for the first time the occurrence of the species off the Algerian coast. Then, PLAYFAIR (1869, in DIEUZEIDE *et al.*, 1953) recorded a devil ray, having 1.60 m disk-width. PELLEGRIN (1901) described a specimen caught off Ouahran, which was 5.20 m disk-width, 4.15 m total length, its cephalic fins reached 0.50 m and it approximately weighed 900 kg. DIEUZEIDE *et al.* (1953) recorded a specimen caught off Ouahran the 25th June 1927 and stated that the species is very rare in the area. Since this date, any capture of devil ray was reported from the Algerian coast, to our knowledge.

Formerly, off the Algerian coast, the captures of the giant devil ray were accidental and rather considered as ichthyological events (DIEUZEIDE *et al.*, 1953). They generally concerned one or two exemplars. The specimens reported in this paper and information provided by fishermen suggest that the species is commonly caught in the area. Similar observations were made in Tunisian waters. The first specimen, a gravid female containing a fully developed fetuse was previously recorded by CAPAPÉ and ZAOUALI (1976) from the northern coast, off Sidi-Daoud. However, between 1999 and 2000, BRADAÏ and CAPAPÉ (2001) reported the captures of five specimens, in the Gulf of Gabes, southeastern Tunisia. They were large specimens, over 2 m *DW*. So, captures of

Fig. 2. Mobula mobular*: dorsal face of two specimens caught off the Algerian coast*

Fig. 3. Mobula mobular: *ventral face of two specimens caught off the Algerian coast*

Fig. 4. Mobula mobular: *head of a specimen caught off the Algerian coast*

M. mobular were made in a restricted region which extends from the central area of the Algerian coast to the Gulf of Gabes. Tables 1 and 2 show that specimens, different in size and weight, were caught off the Algerian coast. It was also the case for other areas in the western Mediterranean basin (RISSO, 1810; DODERLEIN, 1881; BERTOLINI, 1934 in TORTONESE, 1956; BOUGIS, 1959; GRANIER, 1964; CAPAPÉ and ZAOUALI, 1976; NOTARBARTOLO di SCIARA, 1988; CAPAPÉ *et al.*, 1990). The captures sites are plotted in Figure 5.

In eastern Atlantic, a single capture of *M. mobular* was reported by LOZANO REY (1928) off Cadix. Moreover, south Straits of Gibraltar, *M. mobular* is not reported off Mauritania (MAIGRET and LY, 1986) and off Guinea-Bissau (SANCHÈS, 1991). Off Senegal, several species of genus *Mobula* were abundant and regularly caught in some periods of the year and among them, CADENAT (1960) did not report *M. mobular*. On the contrary, CAPAPÉ *et al.* (1994, 1995) recorded some specimens off Ouakam, fishing site located in Cape Verde Peninsula.

These considerations and recent captures of *M. mobular* in the central and eastern areas of the Maghrebin coast suggest an endimicity of the species in the Mediterranean, which agrees with NOTARBARTOLO di SCIARA and BIANCHI (1998). However, migrations through the Straits of Gibraltar could not be excluded.

In the Mediterranean, the recorded captures occured in the western basin. They were made in winter off the southern coast, rather in spring off

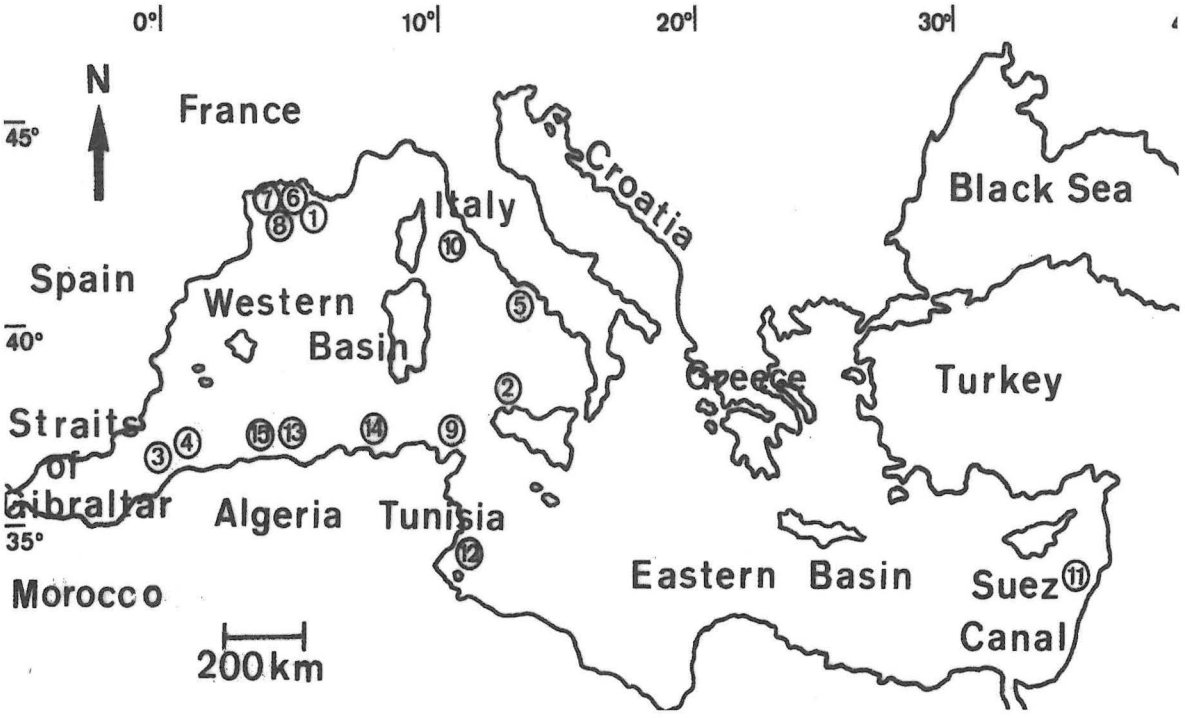

Fig. 5. *Historical and geographical records of* Mobula mobular*: in the Mediterranean. 1: RISSO (1810), off Nice (France). 2: DODERLEIN (1881), probably off Palermo (Sicily, Italy). 3: PELLEGRIN (1901), off Ouahran (Algeria). 4. DIEUZEIDE* et al. *(1953), off Ouahran (Algeria), specimen observed in 1927. 5. BERTOLINI (1934, in TORTONESE, 1956, off Ponza (Italy). 6. BOUGIS (1959), off Marseille (France). 7. GRANIER (1964) and CAPAPÉ* et al. *(1990)), in the Gulf of Aigues-Mortes (France). 8. ECONOMIDIS (1973), off Greece. 9. CAPAPÉ and ZAOUALI (1976), off Sidi-Daoud (Tunisia). 10. NOTARBARTOLO di SCIARA and SERENA (1988), in norther Tyrrhenian Sea. 11. GOLANI (1996), in eastern Levantin Basin. 12. BRADAÏ and CAPAPÉ (2001), in the Gulf of Gabes (Tunisia), specimens observed in 1999 and 2000. 13, 14 and 15. HEMIDA* et al., *this paper, off the Algerian cost, specimens observed between 1996 and 2001*

the northern coasts. Captures of specimens of both sexes and different in sizes suggest trophic migrations through the area but genesic migrations cannot be excluded. Female elasmobranchs approached the coast to lay their brood (CASTRO, 1993), this phenomenon is confirmed by the capture of a pregnant female in Tunisian waters (CAPAPÉ and ZAOUALI, 1976) and Thyrrenian Sea (NOTARBARTOLO di SCIARA and SERENA, 1988).

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Izvješće o ulovu divovske raže, *Mobula mobular* BONNATTERRE, 1788 (Chondrichthyes: Mobulidae) ulovljene u vanjskom dijelu alžirske obale (južni Mediteran)

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SAŽETAK

Autori izvješćuju o ulovu divovske raže, *Mobula mobular* u vanjskom dijelu alžirske obale (južni Mediteran). U radu su izneseni podaci o distibuciji obale Magreba i u Mediteranu općenito.

Ključne riječi: Chondrichthyes, Mobulidae, *Mobula mobular*, Mediteran, obala Magreba, alžirska obala, raspodjela