ISSN: 0001-5113 AADRAY	ACTA ADRIAT., 47 (1): 73 - 78, 2006	UDC: 597.35(447Languedoc)(262) Short communication

An unusual nine-ocellated common torpedo, *Torpedo torpedo* (Linnaeus, 1758) (Chondrichthyes: Torpedinidae), from southern France

Christian CAPAPÉ*, Olivier GUÉLORGET, Yvan VERGNE and Jean-Pierre QUIGNARD

Laboratoire d'Ichtyologie, Case 104, Université Montpellier II, Sciences et Techniques du Languedoc, 34095 Montpellier Cedex 05, France

**** Corresponding author, e-mail: capape@univ-montp2.fr***

A nine-ocellated Torpedo torpedo*, caught off the Languedoc coast in southern France (northern Mediterranean) is described in this paper. This is the greatest number of ocellae recorded to date in this species.*

Key words: Chondrichthyes, Torpedinidae, *Torpedo torpedo*, Languedoc, northern Mediterranean

INTRODUCTION

Three torpedinid species are recorded off the coast of Languedoc (southern France, northern Mediterranean; QUIGNARD *et al*., 1962): the marbled torpedo, *Torpedo marmorata* (Risso 1810), the black torpedo, *T. nobiliana* (Bonaparte 1835), and the common torpedo, *T. torpedo* (Linnaeus 1758). The first species is abundantly and frequently landed. In contrast, the other two are rarely observed.

Torpedo torpedo is generally distinguished from *T. marmorata* and *T. nobiliana* by the occurrence of five characteristic large eye-spots or ocellae on the dorsal surface. Different numbers of ocellae were described by CAPAPÉ & DESOUTTER (1981) in specimens caught in Tunisian waters. They counted none to eight ocellae, but mostly five. Recent records of common torpedos off the coast of Languedoc report on a specimen having nine ocellae. This specimen is herein described and compared with specimens having five and six ocellae, that were caught in the same area.

DESCRIPTION OF THE SPECIMENS

The three specimens were caught by gill-net on sandy bottoms at depths of 10-20 m off the coast of Languedoc between Sète and Palavas (Fig. 1). They are preserved in the Ichthyological Collection of the Laboratoire d'Ichtyologie of the Université Montpellier II, Sciences et Techniques du Languedoc. One was an adult male caught on 21 February 2004 (catalogue no. Torp torp. 1; Fig. 2). Another specimen was a pregnant female at the beginning of gestation, carrying fertilized eggs in uteri, caught on 11

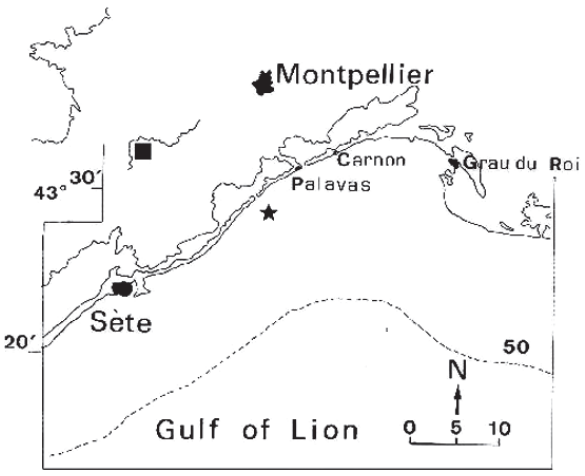

Fig. 1. Map of French Mediterranean coast showing capture site (black star) of three Torpedo torpedo *specimens*

April 2004 (Torp. torp 2; Fig. 3). The third was an adult male caught on 23 May 2005 (Torp. torp. 3; Fig. 4). Total lengths were 368, 383, and 267 mm, respectively, and weights were 690, 960, and 329 g, respectively.

In all three specimens, the disk was rather rounded and subcircular, with an enlarged pectoral confluent on the sides of the head. The snout was short and subtroncate, the pelvic was quite separate from the pectoral fins, subtriangular, and acute at the distal end. The tail was distinct with two dorsal fins and a well-developed caudal fin, the latter with a low careen on each side. The posterior tip of the pelvic fin was located before the origin of the second dorsal fin. Spiracles had eight short tentacles or knobs. Measurements and counts are summarized in Table 1. Disk width was 61.1-62.5%, disk length 43.1-47.0%, pre-oral length 9.7-9.9%, span of pelvic fins 26.6-28.5%, pelvic anterior margin 12.0-13.1%, and caudal careen 16.3-17.2% of the total length. Pre-orbital length was 2.3-2.4 times the width between the first gill-slits. Interorbital length was 2.1-2.6 the width between the fifth gill-slits. Spiracles were 0.8-1.0 times the eye-ball length. Tail length was 38.0-39.7% of the total length, 1.1-1.2 times the disk length, and 1.6 times the disk width. Total number of teeth in upper and lower jaws were 22-24 and 20-22, respectively. Dorsal and ventral surfaces were entirely smooth. Dorsal surface was brownish with whitish notches, belly was beige and dark on margins. Ocellae were dark blue in the center, encircled, dark, and yellowish.

Table 1. Measurements and counts carried out in three Torpedo torpedo *caught off the coast of Languedoc*

References	Torp. torp. 1	Torp. torp. 2	Torp. torp. 3
Sex	Male	Female	Male
Total mass (grammes)	690	732	329
Total length (millimetres)	368	383	267
Disc length	169	180	115
Disc width	225	240	167
Disc depth	5	6	4
Eyeball length	9	12	6
Cornea	8	9	6
Pre-orbital length	23	25	17
Inter-orbital length	19	22	13
Spiracle diameter	8	9	6
Interspiracular width	23	24	17
Space between eye and spiracle	4	5	3
Pre-oral length	36	38	26
Mouth width	25	28	18
First gill-slit	8	11	7
Second gill-slit	8	10	7
Third gill-slit	9	10	7
Fourth gill-slit	9	10	7

Table 1. Cont' d

Fifth gill-slit	8	9	6
Width between first gill-slit	53	56	40
Width between fifthgill-slit	43	46	33
Snout tip to eye	27	30	22
Snout tip to mouth	40	43	29
Snout tip to first gill-slit	80	84	63
Snout tip to fifth gill-slit	122	128	91
Snout tip to pelvic fin	180	184	128
Snout tip to vent	195	203	150
Pectoral fin anterior margin	113	118	83
Pectoral fin posterior margin	160	166	117
Pectoral fin inner margin	33	36	26
Pelvic fin anterior margin	44	47	35
Pelvic fin posterior margin	46	49	38
Pelvic fin inner margin	24	27	17
Span of pelvic fins	98	106	76
Clasper length	42	-	36
Tail base width	30	32	23
Tail base depth	25	27	17
Tail length	140	150	106
Snout tip to first dorsal	200	206	165
Snout tip to second dorsal	240	271	193
Snout tip to birth of caudal dorsal	275	312	225
Snout tip to birth of caudal ventral	272	310	220
Caudal superior	61	65	47
Caudal inferior	46	49	36
Caudal posterior	58	62	45
First dorsal anterior edge	47	49	36
First dorsal posterior edge	31	33	24
First dorsal inner edge	9	11	7
Second dorsal anterior edge	34	38	27
Second dorsal posterior edge	23	27	18
Second dorsal inner edge	9	12	7
Interdorsal distance	24	27	18
Second dorsal-caudal birth	29	33	22
Caudal careen length	60	66	46
Number of ocellae	5	6	9
Number of tooth rows in upper jaw	24	24	22
Number of tooth rows in lower jaw	22	22	20

Torp. torp. 1 had five ocellae classically arranged in two lines, i.e., an anterior line with three ocellae, the middle one being slightly more anterior than the other two, and a posterior line with two ocellae (Fig. 2). The five ocellae were similar in diameter. Torp. torp. 2 had six ocellae, five arranged in two lines as in Torp. torp. 1, and a sixth in the center (Fig. 3). The six ocellae were similar in diameter. Torp. torp. 2 had four fertilized eggs in the left uterus and six in the right. The eggs weighed 11.4-12 g (mean 11.8±0.3). Torp. torp. 3 had nine ocellae, six ocellae arranged as in Torp. torp. 2, and three smaller ocellae on the anterior part of the disk (Fig. 4). Of the three anterior ocellae, the two smallest were near the outer margins of the spiracles and the slightly larger one was on the left side of the disk.

Fig. 2. Adult male caught on 21 February 2004

Fig. 3. Adult female caught on 11 April 2004

Fig. 4. Adult male caught on 23 May 2005

DISCUSSION

Morphology, measurements, and counts are in agreement with TORTONESE (1956), BINI (1967), QUIGNARD & CAPAPÉ (1974), CAPAPÉ & DESOUTTER (1981), FISCHER *et al.* (1987), and MEJRI *et al.* (2004).

CAPAPÉ & DESOUTTER (1981) reported that the most recorded specimens had five ocellae and the next frequently reported had 0-4 ocellae. Specimens with more than five ocellae were significantly less abundant. In specimens from Tunisian and Senegalese waters with more than five ocellae, the supernumerary ocellae were arranged outside the five ocellae (CAPAPÉ & DESOUTTER, 1981; CAPAPÉ *et al*., 2000). In contrast, the sixth ocellae in Torp. torp. 2 was located in the center of the five; such an arrangement was recorded for the first time. Nine ocellae is the most ocellae recorded to date, the previous record was eight ocellae in a male caught in Tunisian waters (CAPAPÉ & DESOUTTER, 1981).

The eggs carried by Torp. torp. 2 were heavier than those carried by specimens from Tunisian waters that ranged 2-7 g (QUIGNARD & CAPAPÉ, 1974) and from Senegalese waters that ranged 6.2-8 g (CAPAPÉ *et al*., 2000). These differences should be further investigated to be confirmed.

REFERENCES

BINI, G. 1967. Leptocardi, Ciclostomi, Selaci. In: Atlante dei pesci delle coste Italiane. Mondo Sommerso, Milano, pp. 1-206.

CAPAPÉ, C. & M. DESOUTTER. 1981. Nouvelle description de *Torpedo (Torpedo) torpedo* (Linné, 1758) (Pisces, Torpedinidae). Bull. Mus. Natl. Hist. Nat., Paris, 7A, 4:1205-1217.

CAPAPÉ, C., A.A. SECK. & Y. DIATTA. 2000. Reproductive biology of the common torpedo, *Torpedo torpedo* (Linnaeus, 1758) from the coast of Senegal. Misc. Zool., 23(1):9-21.

FISCHER, W., M.L. BAUCHOT & M. SCHNEIDER. 1987. Fiches FAO d'identification des espèces pour les besoins de la pêche. In: Révision Méditerranée et Mer Noire. Zone de Pêche 37, vol. II. Vertébrés. FAO, Rome, pp. 761-1530.

MEJRI, H., J. BEN SOUISSI, J. ZAOUALI, A. EL ABED, O. GUÉLORGET & C. CAPAPÉ. 2004. On the recent occurrence of elasmobranch species in a perimediterranean lagoon: the Tunis southern lagoon (northern Tunisia). An. Ser. Hist. Nat., 14(2):143-158.

QUIGNARD, J.P. & C. CAPAPÉ. 1974. Recherches sur la biologie d'un Sélacien du golfe de Tunis, *Torpedo torpedo* Linné, 1758 (ecologie, sexualité, reproduction). Bull. Inst. Océanogr. Pêche Salammbô, 3(1-4):99-129.

QUIGNARD, J.P., A. RAIBAUT & J.P. TRILLES. 1962. Contribution à la faune ichtyologique sétoise. Nat. Monspel. Série Zool., 4:61-85.

TORTONESE, E. 1956. Leptocardia, Ciclostoma, Selaci. In: Calderini (Editor). Fauna d'Italia, Bologna, pp. 1-334.

Received: 26 January 2006
Accepted: 22 March 2006

Neuobičanjeni nalaz devetopjegne drhtulje *Torpedo torpedo* (Linnaues, 1758) (Chondrichthyes: Torpedinidae), u vodama južne Francuske

Christian CAPAPÉ*, Olivier GUÉLORGET, Yvan VERGNE i
Jean-Pierre QUIGNARD

Laboratorij za ihtiologiju, P.P. 104, Sveučilište u Montpellier-u II, Znanost i tehnika Languedoc-a, 34095 Montpellier cedex 05, Francuska

**e-mail: capape@univ-montp2.fr*

SAŽETAK

U ovom radu se opisuje primjerak drhtulje, *Torpedo torpedo* iz obalnih voda Laguedoc-a (južna Francuska, sjeverni Mediteran) koja je imala 9 pjega što je do sada za ovu vrstu najveći zabilježeni broj.

Ključne riječi: Chondrichthyes, Torpedinidae, *Torpedo torpedo*, Languedoc, sjeverni Mediteran