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FIRST RECORD OF THE PIGEYE SHARK, *CARCHARHINUS AMBOINENSIS* (MÜLLER & HENLE, 1839), IN THE MEDITERRANEAN SEA

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ABSTRACT

*The authors report herewith on the first Mediterranean record of the pigeye or Java shark, *Carcharhinus amboinensis* (Müller & Henle, 1839). The specimen, estimated to be about 3 m long, was captured by a commercial fisherman in summer 2003, off Crotone, Italy, in the North-West Ionian Sea (Central Mediterranean). A description and morphometric measurements of its jaws are given. This record brings the number of shark species so far recorded in the Mediterranean Sea to 51.*

Key words: pigeye shark, Java shark, *Carcharhinus amboinensis*, Italy, Mediterranean Sea, Ionian Sea

PRIMA REGISTRAZIONE DI SQUALO OCCHIO DI PORCO, *CARCHARHINUS* *AMBOINENSIS* (MÜLLER & HENLE, 1839), NEL MARE MEDITERRANEO

SINTESI

*Viene riportata la prima cattura in acque Mediterranee di squalo occhio di porco o squalo di Giava, *Carcharhinus amboinensis* (Müller & Henle, 1839). L'esemplare, di lunghezza stimata intorno a 3 m, è stato pescato durante operazioni di pesca commerciale nell'estate 2003, al largo di Crotone, Italia, nel Mare Ionio Nord-Occidentale (Mediterraneo Centrale). Vengono presentate descrizione e misure morfometriche delle mascelle. Questo caso porta a 51 il numero delle specie di squali registrate sino ad oggi nel Mare Mediterraneo.*

Parole chiave: squalo dall'occhio di porco, squalo di Giava, *Carcharhinus amboinensis*, Italia, Mare Mediterraneo, Mar Ionio

INTRODUCTION

To date, 50 shark species have been recorded in the Mediterranean Sea. Of these 50 species, the following 11 are requiem sharks belonging to the genus *Carcharhinus* Blainville, 1816: strait shark, *Carcharhinus acarenatus* Moreno & Hoyos, 1983, bignose shark, *C. altimus* (Springer, 1950), copper shark, *C. brachyurus* (Günther, 1870), spinner shark, *C. brevipinna* (Müller & Henle, 1839), silky shark, *C. falciformis* (Bibron, 1839), blacktip shark, *C. limbatus* (Valenciennes, 1839), oceanic whitetip shark, *C. longimanus* (Poey, 1861), blacktip reef shark, *C. melanopterus* (Quoy & Gaimard, 1824), dusky shark, *C. obscurus* (Le Sueur, 1818), sandbar shark, *C. plumbeus* (Nardo, 1827), night shark, *C. signatus* (Poey, 1868) (Lo Bianco, 1909; Tortonese, 1938, 1956, 1987; Bigelow & Schroeder, 1948; Ben-Tuvia, 1953, 1971; George *et al.*, 1964; Capapé, 1974, 1989; Mouneimne, 1977; Capapé *et al.*, 1979; Cadenat & Blache, 1981; Garrick, 1982; Cigala Fulgosi, 1983; Moreno & Hoyos, 1983a, 1983b; Compagno, 1984; Muñoz-Chapulí, 1984; Bauchot, 1987; Moreno, 1987, 1995; Pastore & Prato, 1989; Golani, 1996; Vacchi *et al.*, 1996; Kovačić, 1998; Orsi Relini, 1998; Fergusson & Compagno, 2000; Lipej *et al.*, 2000, 2004; Barrull & Mate, 2002; Hemida *et al.*, 2002; Lipej *et al.*, 2004; Morey & Massuttí, 2004; De Maddalena & Bänsch, 2005). We report here on the first Mediterranean record of another species of the genus *Carcharhinus*, the pigeye shark or Java shark, *C. amboinensis* (Müller & Henle, 1839).

MATERIAL AND METHODS

In summer 2003, a large requiem shark was captured as by-catch during commercial fishery operations, off Crotona, Italy, (39°5'9" N, 17°7'6" E), in the North-West Ionian Sea (Central Mediterranean Sea). The total length of the specimen was not accurately measured, but it was estimated to be about 3 m long. Analysis of its stomach content was not performed. Its jaws were preserved by the fisherman that caught it and later acquired by one of the authors.

The jaws of the requiem shark were examined and the species was identified on the basis of Cadenat & Blache (1981), Compagno (1984), Last & Stevens (1994), Heim (2001), Šanda & De Maddalena (2004). Additional confirmation of the proper species identification has been kindly provided by Dr. Jeremy Cliff and Dr. Bill Heim through examination of the shark jaw collections at their disposal.

Morphometric measurements were made of the jaws and teeth following methods of Mollet *et al.* (1996) and Compagno (1984).

RESULTS AND DISCUSSION

The specimen was identified as *C. amboinensis* based on the set of jaws (Fig. 1). The upper teeth are large, broad, triangular and strongly serrated, with no cusplets. The lower teeth are large, broad, triangular and serrated, with no cusplets. There are five rows of teeth in each jaw. The teeth exhibit the typical shape of requiem sharks; but the lower wide, conspicuously serrated teeth immediately permit the conclusion that the species is not one of those previously recorded in the Mediterranean. The teeth are very similar to those of the bull shark, *C. leucas* (Valenciennes, 1839), however, *C. leucas* has larger upper teeth and more elongated lower teeth, while *C. amboinensis* lower teeth are more triangular. Tooth count in the pigeye shark caught in the Ionian Sea is 12 – 1 – 12 / 11 – 1 – 11, that is the typical dental formula of *C. amboinensis* (with variability 11 to 13 – 11 to 13 / 10 to 12 – 10 to 12 omitting the small symphyseal teeth) (Compagno, 1984; Randall, 1986; B. Heim, *pers. comm.*). Measurements of the jaws of the pigeye shark are presented in Table 1.

This capture of *C. amboinensis* is the first record of its occurrence in the Mediterranean Sea. The geographical distribution of *C. amboinensis* is as follows: in the Eastern Atlantic it has been recorded in Nigeria; in the Indo-West Pacific it includes South Africa, Madagascar, Gulf of Aden, Pakistan, Sri Lanka, Indonesia and Australia (Compagno, 1984). However, this shark is probably more common throughout the world's oceans than the

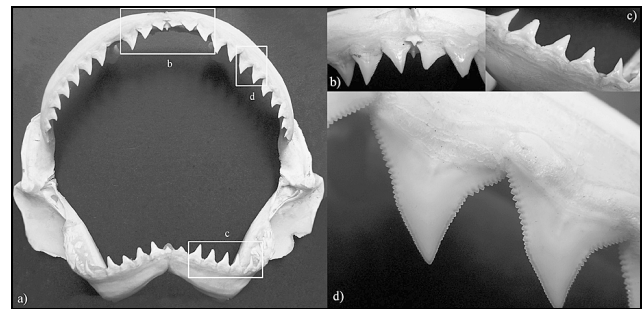


Fig. 1: Jaws of a pigeye shark, *Carcharhinus amboinensis* (Müller & Henle, 1839), caught in summer 2003 off Crotona, Italy, North-West Ionian Sea (Central Mediterranean Sea). (a) complete set of jaws; (b) symphyseal, first and second upper teeth; (c) second to sixth lower teeth; (d) sixth and seventh upper teeth. (Photo: A. De Maddalena)

Sl. 1: Čeljusti javanskega morskega psa *Carcharhinus amboinensis* (Müller & Henle, 1839), ujetega poleti 2003 v severozahodnem Jonskem morju v bližini kalabrijskega mesta Crotona. (a) celotna čeljust; (b) zraščena prvi in drugi gornji zob; (c) drugi do šesti spodnji zobje; (d) šesti in sedmi gornji zob. (Foto: A. De Maddalena)

Tab. 1: Measurements of the jaws of a pigeye shark, *Carcharhinus amboinensis* (Müller & Henle, 1839), caught off Crotona, Italy, North-West Ionian Sea (Central Mediterranean Sea).

Tab. 1: Dimenzije čeljusti javanskega morskega psa *Carcharhinus amboinensis* (Müller & Henle, 1839), ujetega v severozahodnem Jonskem morju nedaleč od italijanskega obalnega mesta Crotona (srednje Sredozemsko morje).

Parameter	Abbreviation	Measures(mm)
dried upper jaw perimeter	DUJP	415
dried lower jaw perimeter	DLJP	385
mouth width	MOW	215
enamel length of the second upper tooth	UA2E1	11
enamel length of the second lower tooth	LA2E1	10.5

few recorded catches would indicate. Many authors have confused this species with *C. leucas*, both being heavy-bodied, short-snouted sharks with similar morphology, colouration and dentition (Randall, 1986). The

recent history of the Mediterranean Sea, its tropicalisation, the change from a warm temperate to a tropical regime connected to global warming we are currently experiencing, has seen a significant increase in the number of tropical species. The opening of the Suez Canal in 1869 has provided a means of ingress for Red Sea and Indo-Pacific sharks. *C. amboinensis* must be considered a lessepsian migrant.

This record brings the number of shark species recorded so far in the Mediterranean Sea to 51, the number of species of the genus *Carcharhinus* frequenting at least occasionally these waters to 12, and the number of shark species recorded in Italian waters to 43.

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PRVI PODATEK O POJAVLJANJU JAVANSKEGA MORSKEGA PSA *CARCHARHINUS AMBOINENSIS* (MÜLLER & HENLE, 1839) V SREDOZEMSKEM MORJU

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SUMMARY

Avtorja pričujočega prispevka poročata o prvem pojavljanju javanskega morskega psa *Carcharhinus amboinensis* (Müller & Henle, 1839) v Sredozemskem morju. Približno 3 m dolgega psa je poleti 2003 ujel poklicni ribič v severozahodnem Jonskem morju nedaleč od kalabrijskega obalnega mesta Crotona. Avtorja podajata opis in dimenzije čeljusti ujetega primerka. S tem podatkom se je število vrst morskih psov, doslej ujetih v Sredozemskem morju, povzpelo na 51.

Ključne besede: javanski morski pes, *Carcharhinus amboinensis*, Italija, Sredozemsko morje, Jonsko morje

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