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IN RELATION TO THE CAPTURES OF A GREAT WHITE SHARK,
CARCHARODON CARCHARIAS (LINNAEUS, 1758),
AND A SHORTFIN MAKU, *ISURUS OXYRINCHUS* RAFINESQUE, 1809,
IN THE MESSINA STRAIT

Antonio CELONA

Aquastudio Research Institute, IT-98121 Messina, Via Trapani 6

Nicola DONATO

Dipartimento di Biologia Animale ed Ecologia Marina, Università di Messina, IT-98166 Messina, Via Sperone 31

Alessandro DE MADDALENA

Italian Great White Shark Data Bank (Banca Dati Italiana Squalo Bianco), IT-20144 Milano, Via V. Foppa 25

E-mail: ademaddalena@tiscalinet.it

ABSTRACT

We developed a critical revision of some incorrect data recently reported by Fergusson et al. (2000) in relation to the two captures of sharks in the waters near Ganzirri (Messina Strait, Italy) and their stomach contents. A specimen caught in 1963, reported by Fergusson et al. (2000) as a white shark *Carcharodon carcharias* having in its stomach a marine turtle *Caretta caretta*, was in fact a shortfin mako *Isurus oxyrinchus* having in the stomach a bow-net and some buttons. The other, a white shark caught in 1965, had in its stomach remains of marine turtle *Caretta caretta*, and not an ocean sunfish *Mola mola* as erroneously reported by Fergusson et al. (2000).

Key words: *Carcharodon carcharias*, *Isurus oxyrinchus*, *Caretta caretta*, *Mola mola*, Mediterranean Sea

IN RELAZIONE ALLE CATTURE DI UNO SQUALO BIANCO, *CARCHARODON*
CARCHARIAS (LINNAEUS, 1758), E DI UNO SQUALO MAKU DALLE PINNE CORTE,
ISURUS OXYRINCHUS RAFINESQUE, 1809 NELLO STRETTO DI MESSINA

SINTESI

Viene svolta la revisione critica di alcuni dati erronei recentemente riportati da Fergusson et al. (2000) in relazione a due catture di squali nelle acque di Ganzirri (Stretto di Messina, Italia) ed ai loro contenuti stomacali. Un esemplare catturato nel 1963, riportato da Fergusson et al. (2000) come uno squalo bianco *Carcharodon carcharias* avente nello stomaco una tartaruga marina *Caretta caretta*, era in realtà uno squalo mako dalle pinne corte *Isurus oxyrinchus* avente nello stomaco una nassa e dei bottoni. L'altro, uno squalo bianco preso nel 1965, aveva nello stomaco resti di tartaruga marina *Caretta caretta*, e non un pesce luna *Mola mola* come erroneamente riportato da Fergusson et al. (2000).

Parole chiave: *Carcharodon carcharias*, *Isurus oxyrinchus*, *Caretta caretta*, *Mola mola*, Mare Mediterraneo

INTRODUCTION

Fergusson *et al.* (2000) recently presented an analysis of some cases of predation by white sharks, *Carcharodon carcharias* (Linnaeus, 1758), upon marine turtles in the Mediterranean Sea, including the case reported as the first record of predation (or scavenging) by white shark upon ocean sunfish, *Mola mola* (Linnaeus, 1758). Since in this work we noticed remarkable inexactness regarding the two captures of sharks in 1963 and 1965 in the Messina Strait, we decided to present herewith the direct report by Nicola Donato, who was the author of both these captures.

RESULTS AND DISCUSSION

In relation to a shortfin mako, *Isurus oxyrinchus* Rafinesque, 1809, caught in June 1963

In Fergusson *et al.* (2000) there is a detailed report of the capture of a shark indicated to be a 350 cm TL white shark, harpooned ca. 3 km offshore from Ganzirri in June 1963. Fergusson *et al.* (2000) wrote that in its stomach remains of a marine turtle, *Caretta caretta* (Linnaeus, 1758), were found and they furnished precise details of the damage sustained by the carapace as a consequence of the shark's bite. Strangely, Fergusson *et al.* (2000) specify several times to have collected this testimony directly from the author of the shark capture, Nicola Donato (that is also a co-author of the present work), as personal communication to Ian K. Fergusson and Mark A. Marks. This statement is not true, and the report about the species of shark and its stomach contents is inexact. It is curious to note that Mojetta *et al.* (1997) mentioning the same specimen wrote that it had a dolphin in its stomach, indicating a personal communication of Ian K. Fergusson as the source of this data.

For this reason we decided to expose the true report of this capture. The shark in question was in fact a shortfin mako, *Isurus oxyrinchus* Rafinesque, 1809, and not a white shark. The specimen was sighted some hundreds of meters offshore from Contrada Principe (Ganzirri), it was approached with a mid-sized boat, and when it was harpooned by Nicola Donato it reacted violently. Once captured, neither a marine turtle as written by Fergusson *et al.* (2000) nor a dolphin as indicated by Mojetta *et al.* (1997) was found in its stomach, but a small bow-net, similar in shape to those used for capturing lobsters, beside some large buttons sewed on pieces of a dark cloth, apparently coming from the kind of coat commonly worn by seamen. The specimen was never measured but it was estimated by Donato to be about 320 cm long and weighing about 250 kg.

In relation to a great white shark, *Carcharodon carcharias* (Linnaeus, 1758), caught on March 9th 1965

Again, Fergusson *et al.* (2000) reported on another case, claimed as the first record of predation (or scavenging) by white shark upon ocean sunfish, *Mola mola*. The authors refer to the capture of a more than 500 cm TL great white shark on March 9th 1965, taken near Ganzirri and again performed by Nicola Donato. Fergusson *et al.* (2000) report that the shark was first observed near the breakwater by Donato with its boat some 100 m offshore and then harpooned. In its stomach was a freshly-ingested adult ocean sunfish, *Mola mola*, measuring about 2 m TL, bitten into three sections (head, mid-trunk and posterior with dorsal fin, anal fin and clavus). As in the previous case, Fergusson *et al.* (2000) in



Fig. 1: Nicola Donato showing the set of jaws of the great white shark, *Carcharodon carcharias* (Linnaeus, 1758), caught by him near Ganzirri (Sicily, Italy) on March 9th 1965. (Photo: A. Celona).

Sl. 1: Nicola Donato med razkazovanjem čeljusti belega morskega volka *Carcharodon carcharias* (Linnaeus, 1758), ujetega 9. marca 1965 v bližini Ganzirrija (Sicilija). (Foto: A. Celona).

dicare the source of the data to be a personal communication of Nicola Donato to Ian K. Fergusson and Mark A. Marks; but this is not true, and this second report, too, is incorrect.

The truth as far as this capture is concerned is the following. The white shark was first observed pursuing a school of mullets, *Mugil* sp., only a few meters from the shore, in very shallow waters, where it almost touched the sea-bottom with the ventral surface of its body, while its dorsal part was out of the water. As the shark moved towards offshore waters, it was followed by the boat. It was quickly caught and Nicola Donato harpooned it about 40 meters from the coast. The harpoon penetrated through the posterior part of the trunk, at about mid-point between the first dorsal fin and the caudal fin. The shark hauled the boat for about four hours, crossing the Messina Strait three times before dying. In its stomach several parts of marine turtle, *Caretta caretta*, were found, as well as remains of bony fishes and other unidentified remains. The measurements on this specimen were taken by Prof. Sebastiano Genovese of the University of Messina, who stated the length at 620 cm and the weight of 1200 kg. This weight is also indicated on a plate fixed on the set of jaws preserved in Ganzirri, in the Istituto di Idrobiologia dell'Università di Messina (Fig. 1).

This capture was reported previously by the following authors: Anonymous (1965), Berdar & Riccobono (1986), Giudici & Fino (1986), Fergusson (1996), Mojette *et al.* (1997) and De Maddalena (1999). Mojette *et al.* (1997) were the first to report correctly that the stomach of this specimen contained remains of marine turtle, but they wrongly indicated that the capture was made on 1st April. About the size of the shark, Anonymous (1965) report a length of 5 m, a weight of 8 q and a first dorsal fin height of 160 cm, while Berdar & Riccobono (1986) reports a length of 620 cm, a pectoral fin length of 120 cm and a first dorsal fin height of 160 cm; the first dorsal fin height reported by both sources is clearly unacceptable, while the weight of 8 q has to be referred to the gutted and beheaded specimen. On the basis of the two photographic evidences examined by the authors (Fig. 2), the total length of the specimen could be something less than the reported one, apparently around 560 cm, and it seems reasonable to infer that the reported 620 cm length was obtained measuring the shark over the curve of the body instead of in a straight line. This could also explain the relatively low weight. Unfortunately it was not possible to gather more information about the shark in question, since Sebastiano Genovese and Adolfo Berdar are no longer with us.

The jaws were examined by the authors and the measurements on the upper and lower anterior teeth were taken following Mollet *et al.* (1996) (Tab. 1). Teeth rows are 12-12 above and 12-12 below.

Tab. 1: Measurements of the upper and lower anterior teeth of the great white shark, *Carcharodon carcharias* (Linnaeus, 1758), caught near Ganzirri on March 9th 1965.

Tab. 1: Mere zgornjih in spodnjih sprednjih zob belega morskega volka *Carcharodon carcharias* (Linnaeus, 1758), ujetega blizu Ganzirrija 9. Marca 1965.

First upper anterior tooth enameloid height (UA1E1)	31 mm
First upper anterior tooth enameloid width (UA1EW)	40 mm
Second upper anterior tooth enameloid height (UA2E1)	28 mm
Second upper anterior tooth enameloid width (UA2EW)	39 mm
First lower anterior tooth enameloid height (LA1E1)	22 mm
First lower anterior tooth enameloid width (LA1EW)	26 mm
Second lower anterior tooth enameloid height (LA2E1)	33 mm
Second lower anterior tooth enameloid width (LA2EW)	30 mm

CONCLUSIONS

With this work we feel to have definitely clarified the series of mistakes that accompanied the reports of these two captures in the previous literature. Concerning the ocean sunfish, remains of this animal, belonging to small specimen (20-30 kg in weight), have been found on some occasions in the stomachs of blue sharks, *Prionace glauca* (Linnaeus, 1758), caught in the Messina Strait but, to our knowledge, never in specimens of *Carcharodon carcharias*.



Fig. 2: Great white shark, *Carcharodon carcharias* (Linnaeus, 1758), caught by Nicola Donato near Ganzirri (Sicily, Italy) on March 9th 1965. (Photo reproduced by kind permission of Antonino Donato).

Sl. 2: Beli morski volk *Carcharodon carcharias* (Linnaeus, 1758), ki ga je 9. marca 1965 ujel Nicola Donato v bližini Ganzirrija (Sicilija). (Reprodukcija fotografskega posnetka s prijaznim dovoljenjem Antonina Donata).

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V ZVEZI Z UJETJEM BELEGA MORSKEGA VOLKA *CARCHARODON CARCHARIAS* (LINNAEUS, 1758) IN ATLANTSKEGA MAK *ISURUS OXYRINCHUS* RAFINESQUE, 1809 V MESSINSKEM PRELIVU

Antonio CELONA

Aquastudio Research Institute, IT-98121 Messina, Via Trapani 6

Nicola DONATO

Dipartimento di Biologia Animale ed Ecologia Marina, Università di Messina, IT-98166 Messina, Via Sperone 31

Alessandro DE MADDALENA

Italian Great White Shark Data Bank (Banca Dati Italiana Squalo Bianco), IT-20144 Milano, Via V. Foppa 25

E-mail: ademaddalena@tiscalinet.it

POVZETEK

Avtorji pričujočega članka želijo napraviti kritični pregled (napačnih) podatkov v poročilu Fergussona *et al.* (2000) v zvezi z ujetjem dveh morskih psov v vodah blizu Ganzirrija (Messinski preliv, Italija) in vsebino njunih želodcev. V letu 1963 ujeti pes, ki naj bi bil po poročanju Fergussona *et al.* (2000) beli morski volk *Carcharodon carcharias* s kareto *Caretta caretta* v želodcu, je bil v resnici atlantski mako *Isurus oxyrinchus* z majhno vršo in nekaj gumbi v želodcu. Drugi pes - beli morski volk, ujet leta 1965 - je imel v želodcu ostanke karete *Caretta caretta*, ne pa morskega meseca *Mola mola*, kot so napačno poročali Fergusson *et al.* (2000).

Ključne besede: *Carcharodon carcharias*, *Isurus oxyrinchus*, *Caretta caretta*, *Mola mola*, Mediterranean Sea

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