

RECORDS OF ELASMOBRANCH SPECIES FROM THE KERKENNAH ARCHIPELAGO IN TUNISIA (CENTRAL MEDITERRANEAN)

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ملخص

عملية جرد أنواع الأسماك الغضروفية في جزر قرقنة (جنوب تونس، وسط البحر الأبيض المتوسط): يعد هذا العمل أول مساهمة في دراسة تنوع الأسماك الغضروفية في جزر قرقنة (خليج قابس، جنوب تونس).
نورد هنا تقريراً عن الأنواع المذكورة والتي تم فحصها أثناء مراقبة عمليات إنزال الأسماك التي تم إجراؤها من مارس إلى أوت 2019 في الأرخبيل.

تم تسجيل سبعة عشر نوعاً، بما في ذلك 5 أنواع من سمك القرش و12 نوعاً من الأسماك الخفاشية. يمثل هذا الرقم 41,35% من أنواع الأسماك الغضروفية الموجودة في خليج قابس والمقدرة بـ48 نوعاً. من بين هذه الأنواع، يتم إنزال بعض الأنواع بانتظام في موانئ الأرخبيل بينما نادراً ما يتم إنزال البعض الآخر. الجدير بالذكر هو أن القرش الرمادي *Carcharhinus plumbeus* هو من أكثر الأنواع التي تم إنزالها.
تعد المعلومات المتعلقة بتحديد دقيق لأنواع الأسماك الغضروفية في هذه المنطقة أمر بالغ الأهمية لتوفير ودعم التدابير الإدارية المستقبلية اللازمة لحمايتها.

الكلمات المفتاحية: التنوع البيولوجي، الأسماك الغضروفية، جزر قرقنة، خليج قابس، وسط البحر الأبيض المتوسط

RESUME

Inventaire des espèces d'elasmobranches de l'archipel de Kerkennah en Tunisie (Méditerranée Centrale) :
Ce travail est la première contribution à l'étude de la diversité des elasmobranches des îles Kerkennah (golfe de Gabès, sud tunisien).

Nous rapportons ici les espèces d'elasmobranches examinées lors des suivis de débarquements des poissons menés de mars à août 2019. Des enregistrements de dix-sept espèces de l'archipel, dont 5 requins et 12 batoids, sont présentés. Ce nombre représente 35,41% des espèces d'elasmobranches signalées dans le golfe de Gabès (48 espèces). Parmi ces espèces, certaines sont débarquées régulièrement tandis que d'autres rarement. Le requin gris *Carcharhinus plumbeus* était l'espèce la plus débarquée.

Les informations sur la diversité des elasmobranches de cette région sont préoccupantes et l'identification précise des espèces est cruciale pour fournir des informations sur les mesures de gestion.

Mots clés : biodiversité, elasmobranches, îles Kerkennah, golfe de Gabès, Méditerranée centrale.

ABSTRACT

This work is the first contribution to study the diversity of elasmobranchs in the Kerkennah islands (Gulf of Gabès, Southern Tunisia).

Here we report on elasmobranchs' species examined during fish landing surveys conducted from March to August 2019. Records of seventeen species from the archipelago, including 5 sharks and 12 batoids, are presented. This number represents 35.41% of the species of elasmobranchs reported in the Gulf of Gabès, which is equal to 48 species. Among these species, some are seen regularly while others rarely. In addition, the sandbar shark *Carcharhinus plumbeus* was the most landed species.

Information on elasmobranchs diversity from this region is of concern and accurate species identification is crucial to provide information on management measures.

Keywords: biodiversity, elasmobranchs, Kerkennah islands, Gulf of Gabès, Central Mediterranean Sea.

INTRODUCTION

The Mediterranean region is known to be an important habitat for elasmobranchs which are represented by 1330 species grouped into 12 orders and 53 families (Eschmeyer & Fong, 2014). The chondrichthyan fauna is relatively diverse with at least 48 species of sharks, 40 batoids and two chimeras; although some have to be confirmed and despite their evolutionary success, many species are critically endangered around the Mediterranean due

to human activities (fishing mortality, habitat degradation or destruction) (Rohr *et al.*, 2014). At least 53% of sharks and batoids in the Mediterranean Sea are at risk of extinction, thus urgent measures to conserve their populations and habitats are required (Dulvy *et al.*, 2016).

Concerning the Tunisian waters and according to the latest update of the list of Tunisian fishes, 63 species of elasmobranchs are reported on Tunisian coasts including 34 sharks and 29 batoids representing about 19% of the Tunisian fish fauna. Among this group of

fish, 26 species of sharks (Saidi, 2008) and 21 species of batoids (Ennajar, 2009) have been inventoried in the region of the Gulf of Gabès. To those species, a new shark species *Squalus megalops* which was reported in the same area by Marouani *et al.* (2012) was added. Furthermore, according to the IUCN classification of Mediterranean cartilaginous fishes (Cavanagh & Gibson, 2007; Abdul Malak *et al.*, 2011), among the species meeting in the Gulf of Gabès region 8 are in critical extinction, 5 endangered and 9 vulnerable.

Catching about 3000 tones of elasmobranchs in 2019 (DGPA, 2019), Tunisia is ranked the second leader country after Libya in terms of elasmobranch production in the Mediterranean Sea by the World Wildlife Fund: WWF (WWF, 2019). Over 70% of the national elasmobranchs' production is from the Gulf of Gabès (DGPA, 2019). In this area, some species are directly targeted and find their place on the local market. Most other are part of by-catch of fisheries targeting other commercial species like groupers and swordfish (Echwikhi *et al.*, 2013; 2014) or thrown back into the sea where they have little chance of survival.

The Kerkennah Archipelago (Gulf of Gabès, southeastern Tunisia) has an outstanding environmental potential, which in 2012 helped the islands to earn the status of natural reserve. The northeastern part of the archipelago, considered an area with a fragile ecosystem, is classified at national scale as a sensitive coastal zone, according to a decree dated 28/10/1998 (SPA/RAC - PNUE-PAM, 2019).

Around the archipelago, large gaps remain in our understanding of elasmobranch resources with little

research focused on species diversity across this zone, biology, stock structure and their socio-economic value.

Owing to the bio-geographical location of these islands, species diversity around the archipelago is unique. Accurate species identification is crucial to provide information on management measures. The limited information on elasmobranchs' diversity from this region is of concern. Thus the aim of this work is to inventory elasmobranchs' species occurred in the Kerkennah islands.

METHODS

Study Area

The Kerkennah archipelago is located on the eastern coast of Tunisia, north of the Gulf of Gabes, about 18 km east of the city of Sfax (Fig.1). It is lying 35 km from north-east to south-west with a variable width reaching a maximum of 14 Km making an area of about 150 Km². The coastline has been defined at 174 km, including 171.5 km of stable linear (DGEQV, 2012). The archipelago consists of two main islands, Charguia Island, the Big Island and Gharbi Island or Mellita Island to the southwest of the island. In addition, it contains about 12 islets (Gremdi, Roumadia, Rakadia, Sefnou, Charmadia, Ch'hima, Kebliha, Jebliha, El Frukha, Firkik, Belgharsa and El Haj Hmida) uninhabited concentrated in its northern part which can be mention Gremdi, Roumadia, Rakadia, Sefnou and Charmandia (Figure 1). It should be noted that these are classified by APAL as coastal sensitive areas (APAL, 2001).

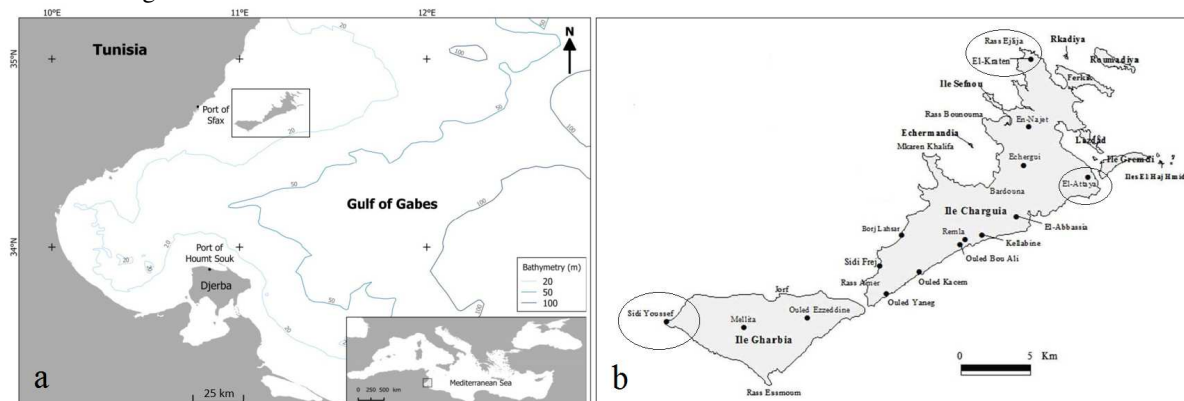


Fig.1 Kerkennah Island: (a) location in the Gulf of Gabès; (b) location of the three main fishing ports of the region.

Fish landing surveys

Investigations were conducted during 6 months (from March until August 2019) to study the diversity of elasmobranchs in the region and their interaction with fishing in the frame of a master's work.

Data collection was carried out based on daily observations of fish landings at the main harbors of

the region (Sidi Youssef, El Kraten and El Ataya) (Fig.1). Besides surveys concerning the characteristics of the gear used as well as the data on the species caught were carried out among fishermen. Species were Photo-documented to support identification using available literature (Jabado & Ebert 2015; Compagno *et al.*, 2005; Ebert *et al.*,

2015). Data were collected on sex, size and weight whenever possible. Sex was determined by the presence or absence of claspers; the presence of gravid individuals was noted; stretched total length (TL) and disc width (DW) (measured to the nearest centimeter using a measuring tape along the stretched body of the specimen) and weight (kg) (for small individuals using a hand-held circular weighing balance or when weights were provided by the fishermen using a circular weighing balance) were recorded whenever possible.

The vernacular names of each species are given in English, French and Arabic. The latter language is represented by the Tunisian dialect. It is phonetically transcribed in Latin characters.

Additionally, through informal discussions with the captains and crew members of the vessels that landed sharks, approximate fishing grounds were recorded whenever possible.

Results and discussion

Elasmobranchs species were captured by 8 different fishing gears in the Kerkennah archipelago. A total of 152 surveys were carried out based in those gears (Table I).

Table I: Surveys carried out based on fishing gears used in the Kerkennah archipelago

Fishing gears	Gillnet « Kalabia »	Gillnet « Guatata »	Benthic trawl	Bottom longlines	Surface longlines	Cuttlefish trammel net	Shrimp Trammel net	Charfia	Total
Number of surveys	96	7	25	7	8	3	1	5	152

A total of 1273 specimens were recorded over six month of sampling. Six hundred ninety-seven specimens among this total were captured by Gillnet (Kalabia) (Fig.2). Most of those specimens (N= 283) are *C. plumbeus*. This "Kalabia" is made up of a rectangular net with large mesh (14 to 16 cm per

side). These nets have been used on the Kerkennah Islands since 2017 and are mainly designed for the capture of large individuals. The locally name "Kalabia" is taken from the dialectal name of the shark (Kalb bhar)

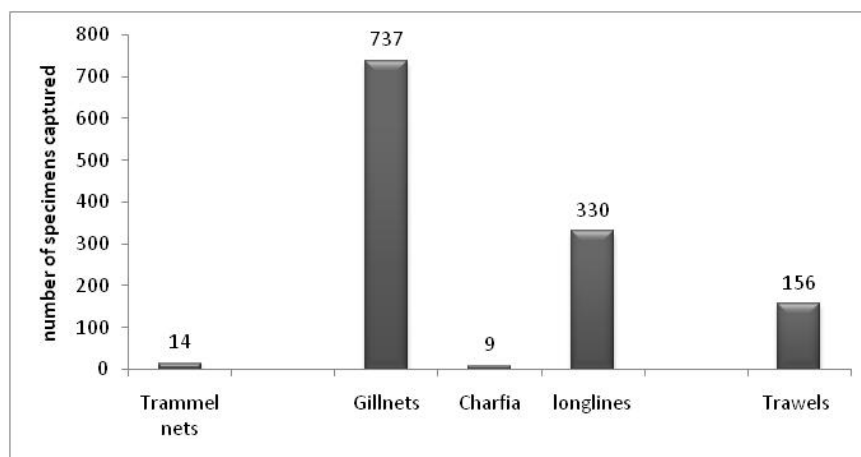


Fig.2: Number of elasmobranchs' specimens caught according to the fishing gear used

The 1273 specimens recorded representing 17 species including 5 sharks and 12 batoids (Plates 1, 2).

Details of each of these seventeen species are provided below.

Sharks (Plate 1)

Plate 1: Sharks landed in the Kerkennah islands

Carcharhinus plumbeus



Mustelus mustelus



Carcharodon carcharias



Mustelus punctulatus



Isurus oxyrinchus



Carcharhinidae

***Carcharhinus plumbeus* (Nardo, 1827)**

Common names: Sandbar shark (En.), Requin gris (Fr.), Kalb bhar (Ar.).

Five hundred sixty-nine specimens (411 females and 158 males) with sizes ranging from 90 to 229 cm TL were examined. They are captured mainly by gillnet (Kallabia) and other gears such as longlines (bottom and surface) and gillnet (Guatatia).

Reported for the first time in the Gulf of Gabès by Pietschman (1906), *C. plumbeus* has been mostly recorded and landed throughout the year in the area, and Ennajjar *et al.* (2015) mentioned that this area might be a nursery for several species including the Sandbar shark. *Carcharhinus plumbeus* was the most landed species in the Kerkennah islands. This result corroborates those of Echwikhi *et al.* (2014) and Enajjar *et al.* (2018) who mentioned that captures in the shark longline fishery in the Gulf of Gabès were mainly composed of sandbar shark, accounting for 93.5% and 82.5 % of the total catch respectively in terms of number. It appears that the warming of the Mediterranean waters encourages the occurrence of species in areas where they were previously unknown or rare. The best instance of this phenomenon is *Carcharhinus plumbeus*, abundantly captured in the Gulf of Gabès (Taktek, 2019; Echwikhi *et al.*, 2014) and at present in northern areas as well (Capapé *et al.*, 2018). Captures of *C. plumbeus* are equally numerous off the Algerian coast (Hemida *et al.*, 2002), the sharks probably migrating along Maghreb shores from west to east.

Triakidae

***Mustelus mustelus* (Linnaeus, 1758)**

Common names: Smoothound shark (En.), Émissole lisse (Fr.), Gatat (Ar.).

We examined 59 individuals of *Mustelus mustelus* (18 females and 41 males) with sizes ranging from 85 to 165 cm TL. Landed in the Kerkennah islands mainly by Gattatia, the Smoothound shark is also captured by gillnet (Kalabia), by mini-trawl, by bottom longline and by cuttlefish trammel net.

The species was reported in the Gulf of Gabès by Postel (1952) where it is incidentally caught by the benthic trawl throughout the year; it is concerned also by targeted fishing by the "Gattatia" net and longline during the hot season of the year (Bradai *et al.*, 2018).

***Mustelus punctulatus* (Risso, 1826)**

Common names: Blackspotteed smooth-hound (En.), Émissole pointillée (Fr.), Gatat (Ar.).

We examined 29 females of *Mustelus punctulatus*. They are landed in the Kerkennah islands by gillnet (Kalabia and Guatatia) and by mini-trawl at sizes ranging from 90 to 125 cm TL. It is described by Quignard & Capapé (1972) as common in Tunisian waters and reported for the first time in the Gulf of Gabès by the same authors in 1977 where it is caught incidentally or targeted throughout the year (Capapé

& Quignard, 1977). The catches include the different sizes of both sexes. Juveniles and adults of both sexes are captured throughout the year; moreover, the newborns appear in the captures between May and August (Hamdaoui, 2010).

Lamnidae

***Carcharodon carcharias* (Linnaeus, 1758) (Photo 4)**

Common names: White shark (En.), Requin blanc (Fr.), Kalb bhar Kbir (Ar.).

Four juvenile females of *C. carcharias* were caught incidentally during the months of March and April 2019 by coastal fishermen using gillnets (Kallabia) in depths included between 7 and 17 m. Their total lengths ranging from 210 to 245 cm. Based on previous records (n = 63; Bradai *et al.*, 2013; Rafrafi Nouira *et al.*, 2019; Ben Amor *et al.*, 2020) and the results of the present study, 67 specimens of *C. carcharias* were recorded in Tunisian waters from the 1953s to date. This is the first report of the species in the Kerkennah Island. In fact, neonates, small juveniles and pregnant females' white sharks were well reported in the same areas (Saidi *et al.*, 2005; Bradai *et al.*, 2013; Ben Amor *et al.*, 2020). These reports confirm that the Gulf of Gabès provide a nursery area for this species as mentioned by Saidi *et al.* (2005) and Ramos-Esplá *et al.* (2011). But, despite that captures of juvenile and adult males and females, and pregnant specimens could suggest that a sustainable population has been established in the Mediterranean, the collected records do not constitute sufficiently strong argument for a definitive conclusion about the status of *C. carcharias* in the Mediterranean Sea (Saidi *et al.*, 2005 ; Maliet *et al.*, 2013).

***Isurus oxyrinchus* (Rafinesque, 1810)**

Common names: Shortfin mako (En.), Taupe bleue (Fr.), Kalb bhar (Ar.).

We examined a single juvenile shortfin mako shark female that was landed by a shrimp trammel net having a size of 78 cm TL and a weight of 4.7 Kg.

The first report of this species concerns a female of 1.25m TL mentioned by Quignard & Capapé (1972) in the region of Zarzis. The various reports of this shark in the region showed its catches are rare and that most of the reports concern juvenile individuals (Bradai *et al.*, 2017); the species is rarely observed as isolated individuals mainly in surface longlines landings (Saïdi, 2008). *Isurus oxyrinchus* is infrequently captured throughout the Tunisian coasts but according to Rafrafi-Nouira *et al.*, 2019 a recent abundance of the shortfin mako and *Alopias vulpinus* off the northern Tunisian coast was observed. The authors explain this pattern by the fact that the warming of the Mediterranean waters encourages the occurrence of species in areas where they were previously unknown or rare as the case of *C. plumbeus* cited above.

Batoids (Plate 2)

Plate 2 : Batoids landed in the Kerkennah islands

Myliobatis aquila



Pteromylaeus bovinus



Glaucostegus cemiculus



Rhinobatos rhinobatos



Dasyatis pastinaca



Dasyatis tortonesei



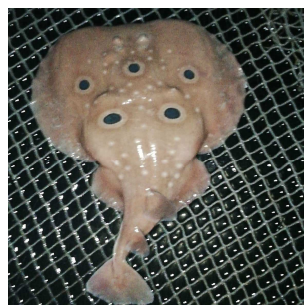
Taeniura grabata



Pteroplatytrygon violacea



Torpedo torpedo



Torpedo marmorata



Malacoraja clavata



Raja radula



Myliobatidae

***Pteromylaeus bovinus* (E. Geoffroy Saint-Hilaire, 1817)**

Common names: Bull ray (En.), Aigle vachette (Fr.), Geindouz (Ar.).

We examined 172 specimens of *Pteromylaeus bovinus* (101 females and 71 males). They are landed in the Kerkennah Islands by gillnet (Kalabia), by surface longline and by mini-trawl in sizes ranging from 19 to 163 cm DW.

The bull ray is common in the Gulf of Gabès, and is caught accidentally by trawlers from 10 m deep. From the month of June, it also appears among the by-catches of sardine boats (Hamdaoui, 2010).

***Myliobatis aquila* (Linnaeus, 1758)**

Common names: Common eagle ray Common names: Aigle commune (Fr.), Geindouz (Ar.).

We examined 11 female specimens of *Myliobatis aquila*. They were landed by the gillnet (Kalabia) in sizes ranging from 85 to 98 cm DW.

Capapé (1974) reported the presence of this species all along the Tunisian coasts throughout the year, and Bradai (2000) mentioned that it is common in the Gulf of Gabès. However Hamdaoui (2010) noted that its capture is becoming rare by bottom trawls and explained this by the collapse of their stock.

Rhinobatidae

***Glaucostegus cemiculus* (*Rhinobatos cemiculus*) (E. Geoffroy Saint-Hilaire, 1817)**

Common names: The blackchin guitarfish (En.), Poisson guitare fousseur (Fr.), Mahrath ahrach, Gerss (Ar.).

One hundred and fifty eight specimens of *G. cemiculus* (82 females and 76 males) were examined. They are landed in the Kerkennah Islands by gillnet (Kalabia and Guatatia), by bottom longlines and by mini-trawl at sizes ranging from 73 to 210 cm TL.

The species was reported for the first time in the Gulf of Gabès by Seurat (1934) and described as common in the region by Bradai (2000). It is landed by trawlers, longlines and nets operating at depths not exceeding 50 m. During spring and summer, a specific fishing campaign of the species takes place in the south of the Tunisia and Libya with a specific gillnet named locally "Garracia" (UNEP/MAP SPA/RAC, 2018).

***Rhinobatos rhinobatos* (Linnaeus, 1758)**

Common names: Common guitarfish (En.), Poisson guitar (Fr.), mahrath artab, Gerss (Ar.).

We examined a single male of *Rhinobatos rhinobatos* landed by Gillnet (Kalabia) with a size of 150 cm TL. The first report of the common guitarfish in the Gulf of Gabès was by Azouz (1971).

Rhinobatos rhinobatos and *Glaucostegus cemiculus* are commonly caught in the Gulf of Gabès

(Hamdaoui, 2010). According to this study, *Glaucostegus cemiculus* appears more abundant than *Rhinobatos rhinobatos*. This result corroborate previous observations who noticed the rarity of *R. rhinobatos* in the landings of Zarzis and suggested that *G. cemiculus* drove *R. rhinobatos* back north (Ennajar, 2009). Besides, investigations conducted on the northern Tunisian coasts confirm this hypothesis by reporting the absence of *G. cemiculus* and the presence of *R. rhinobatos* (Mnasri, 2008).

It is to be noted that the guitarfish species which are classified in appendix II of the Barcelona convention (list of endangered or threatened species) for the Mediterranean seems to be less affected in Tunisian waters. Thus, Tunisia proposed to classify them in Appendix III (protected species whose exploitation must be regulated).

Dasyatidae

***Dasyatis pastinaca* (Linnaeus, 1758)**

Common names: Common stingray (En.), Pastenague commune (Fr.), Hamem (Ar.).

We examined 132 specimens of *Dasyatis pastinaca* (104 females and 28 males). They were landed in the Kerkennah islands by gillnet (Kalabia), mini-trawl, by cuttlefish trammel net and by bottom longline in sizes ranging from 35 to 100 cm DW. The first report of this species in the Gulf of Gabès was by Pietschmann (1906).

***Dasyatis tortonesei* (Capapé, 1975)**

Common names: Tortonese stingray (En.), Pastenague de tortonèse (Fr.), Hamem (Ar.).

We examined 22 specimens of *Dasyatis tortonesei* (18 females and 4 males). They were landed in the Kerkennah Islands by gillnet (Kalabia), by mini-trawl and by Charfia at sizes ranging from 39 to 96 cm DW.

These are the two most common species in the Gulf of Gabès (Ennajar, 2009). It is to highlight that the two species have been confused for many years because of their overall similarity and also due the poor and erroneous description of *D. tortonesei* but the study of Saadaoui *et al.* (2016) shows that they are distinct although looking alike in general morphology and the main differences were found in the head region.

***Taeniura grabata* (E. Geoffroy Saint - Hilaire, 1817)**

Common names: Round stingray (En.), Pastenague africaine (Fr.), Hamem, Terch (Ar.).

We examined 24 specimens of *Taeniura grabata* (14 females and 10 males). They were landed in the Kerkennah Islands by gillnet (Kalabia), mini-trawl and longline (bottom and surface) in sizes ranging from 35 to 190 cm DW. Among the specimens caught we noted the presence of pregnant females.

The round stingray is reported in the Gulf of Gabès by Postel (1956), Quignard & Capapé (1971) and Neifar *et al.* (1999). Enajjar (2009) noted that this species is landed in the ports of the Gulf of Gabès especially in winter and spring in small groups, the majority of which are mature females. The same author noted that *Taeniura grabata* has acquired new habitat in the Gulf of Gabès and assumes that it has invaded the ecological niches of *Dasyatis centroura*, which is the reason for the rarity of the latter.

***Pteroplatytrygon violacea* (Bonaparte, 1832)**

Common names: Blue stingray (En.), Pastenague violette (Fr.), Zargaia (Ar.).

We examined 2 females of *Pteroplatytrygon violacea*, landed by mini-trawl at sizes equal to 54 and 85 cm DW. Reported in the Gulf of Gabès by Ktari-Chakroun & Azouz (1971), this stingray is

described as rare on the region. This species is either released or used as bait. The same result corroborates those of Echouiki *et al.* (2014).

Torpedinidae

***Torpedo torpedo* (Linnaeus, 1758)**

Common names: Common torpedo (En.), Torpille ocellée (Fr.), Naass (Tn.).

We examined 38 females of *Torpedo torpedo* landed all by mini-trawls in sizes ranging from 17 to 35 cm DW. The first report of this species was by Pietschmann (1906).

It is to highlight that the captured specimens have a number of ocellae varying from 1 to 11 (Fig. 3); this variation of the ocelli was also observed in the common torpedo of the northern Tunisian coasts (Capapé *et al.*, 2006; El Kamel *et al.*, 2009).



Fig.3: Different numbers of ocellae in *Torpedo torpedo* landed in the Kerkennah islands

***Torpedo marmorata* (Risso, 1810)**

Common names: Marbled electric ray (En.), Torpille marbrée (Fr.), Naass (Ar.).

We have examined 17 specimens of *Torpedo marmorata*, all of which are females and are landed by mini-trawls in sizes ranging from 20 to 41 cm DW. The marbled electric ray is reported in the Gulf of Gabès by Quignard & Capapé (1971).

Rajidae

***Malacoraja clavata* (Linnaeus, 1758)**

Common names: Thornback ray (En.), Raie bouclée (Fr.), Guerchella, Raya (Ar.).

We examined 3 females of *Malacoraja clavata* with sizes ranging from 35 to 42 cm DW. They are landed in the Kerkennah islands by mini-trawl. Immature individuals are discarded at sea.

Reported in the Gulf of Gabès by Ktari-Chakroun & Azouz (1971), this species is commonly caught in the region (Capapé, 1974). Kadri *et al.* (2014) noted that *M. clavata* is very common along the Tunisian coasts mainly in the Gulf of Gabès and most of the landings occur in winter and spring.

It should be noted that some specimens of *M. clavata* (males, females and juveniles) may show signs of different colors and roughness with presence or absence of curls. The species could therefore be confused with *Raja montagui* (still without curls) and with *R. polystigma* (always smooth). Thus, juveniles of *M. clavata* might have non-rough skin.

***Raja radula* (Delaroche, 1809)**

Common names: Rough ray (En.), Raie-râpe (Fr.), Guerchella / Raya (Ar.).

We examined 4 specimens of *Raja radula* (2 females and 2 males) landed by mini-trawls. The sizes of the specimens examined vary from 30 to 38 cm DW. This ray is reported by Ben Mustapha (1966) in the Gulf of Gabès where it is common (Capapé, 1989; Kadri, 2013).

The species abound along Tunisian coasts, mainly in the Gulf of Gabès where it is taken as a by-catch by trawlers, demersal gill-nets and longlines and usually captures are marketed (Kadri *et al.*, 2013).

In our study site, only two species of Rajidae were recorded during the six months of sampling. It should be noted that Kadri (2013) reported 6 species of Rajidae among the 21 species of batoids recorded in the Gulf of Gabès. Most species of Rajidae are landed by mini-trawl and are either released or used as bait.

CONCLUSION

In the landings of vessels operating in the Kerkennah Islands, our investigations led to the identification of 17 species of elasmobranchs (5 sharks and 12 batoids). This number represents 35.41% of elasmobranch species reported in the Gulf of Gabès which is equal to 48 species (Marouani, 2013). The important number of these species reveals the richness of this region in this group of fish and their growing commercial interest.

Besides it seems that several species of elasmobranch find favorable conditions in the region to reproduce and develop. Such result justifies the granting of the status of Marine and Coastal Protected Area to the Kerkennah island archipelago. In this region, although elasmobranch fishing is mainly linked to accidental capture does not mean that there is no impact on populations. Indeed, at worldwide, bycatch is the 1st threat to 99 shark populations and play a role for 67% of endangered species (Molina and Cooke, 2012).

In this regard, such critical habitat must be rigorously protected from degradation due to pollution,

mechanical destruction by fishing gear and overexploitation. The delimitation of these areas allows the necessary precautions to be taken to protect and preserve these areas.

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