RESEARCH ARTICLE

Occurrence of the lesser spotted dogfish (Scyliorhinus canicula Linnaeus 1758) in the international waters of Mersin Bay, Turkey.

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ABSTRACT

Eighty-five specimens of the lesser spotted dogfish, Scyliorhinus canicula Linnaeus, 1758, was caught by a bottom trawl in the international waters of the Mersin Bay in May 2018. Some of the caught individuals were preserved in 4% formalin and was deposited in the Museum of the Systematic, Faculty of Fisheries, Mersin University, (catalogue number: MEUFC-18-11-079). The depth of sampling area is between 274 and 641 m. A total of 13 trawling operations were carried out. The total number of caught individuals was 85 and on average 5 individuals were caught in each operation. The other cartilaginous fishes caught apart from S. canicula were Galeus melastomus (1 individual), Squalus acanthias (4 individuals), Etmopterus spinax (11 individuals) and S. canicula made up 84.16% of all cartilaginous fishes which were caught.

Introduction

Scyliorhinus canicula is a small shark species belonging to the family of the Scyliorhinidae of the Carchariniformes order. This shark’s second dorsal fin is much smaller than the first. Its body is large, fairly chunky, and its dorsal part is characterized by black spots and sometimes small white spots in different sizes. Its lower jaw has only labial furrows and its small anterior nasal flaps reach the mouth (Compagno, 1984). S. canicula and S. stellaris cannot be easily identified with the reason that they are very similar to each other. Anterior nasal flaps of S. stellaris don’t reach the mouth. This is an important morphological difference that is distinctive for the two species.

It has been reported that S. canicula is found both in coastal and open waters on rocky bathyal bottoms or corals. Tough S. canicula distributes between 10 m and 780 m depth, its distribution is typically 80 to 100 m depth. While it can be found up to 400 m (Muus and Nielsen, 1999) in the Mediterranean Sea, this species inhabits up to 780
m in the Ionian Sea (Mytilineou et al., 2005). It feeds invertebrates like Crustacea and Mollusca and demersal bony fish species (Froese and Pauly, 2018). *S. canicula* is consumed by people. This species is consumed as fresh or salted and dried fish by humans, is also converted into fish meal (Froese and Pauly, 2018).

Its maximum total length is reported as 100 cm (Compagno, 1984), the common adult length is 60 cm (Muus and Nielsen 1999), and the average size at first sexual maturity is 57 cm which ranges from 41 to 64 cm (Froese and Pauly, 2018). This is an oviparous species, with a single egg laid at a time per oviduct (Compagno, 1984). It eggs in spring and summer seasons. They also leave their eggs on algae in the subtidal or intertidal zone (Ellis and Shackley, 1997).

*S. canicula* distributes in the Northeast and Eastern Central Atlantic and Mediterranean Sea, and it continues to the Shetland Isles and Southern Norway to the north and Senegal to the south. There is no distribution of this shark species in the Black Sea (Compagno et al., 2005). *S. canicula* was categorized as least concern (LC) in the IUCN Red List of Threatened Species 2009 (Ellis et al., 2009). It is difficult to assess the effects of fisheries on *S. canicula* populations in the Mediterranean Sea due to lack of species specific reports. Besides, this shark species has a high post survival rate as a discard species among the species (Ellis et al., 2009). Overfishing and habitat degradation seem to be the main factors responsible for the reduction of deep-sea demersal species in the Northeastern Mediterranean Sea. In this study, it was determined the distribution and density of *S. canicula* in the international waters of the Mersin Bay, Northeastern Mediterranean Sea.

**Material and Methods**

Deep-sea sampling by means of trawl was carried out in the international waters of the Mersin Bay between 14 and 17 May 2018 by a commercial trawl. The depth of sampling area is between 274 and 641 m. Coordinates of the sampled area: 36.24853N-34.36491E, 36.18839N-34.40686E, 36.07227N-34.53326E (Figure 1). A total of 13 trawling operations were carried out. Each trawl operation lasted approximately 4 hours. During the sampling, eighty-five specimens of the lesser spotted dogfish was caught. Some specimens were preserved in 4% formalin and was deposited in the Museum of the Systematic, Faculty of Fisheries, Mersin University, (catalog no: MEUFC-18-11-079) (Figure 2). Taxonomic identification was based on diagnostic characters provided by Compagno (1984). All morphometric measurements were done to the nearest 0.01 cm using dial calipers (Table 1).

**Results**

In the study, 85 individuals of *S. canicula* were caught in 13 trawling operations at a depth of 274-641 m from the open waters of the Mersin Bay (Figure 2). The mean length of the individuals is 32.3 cm and the mean weight is 117.302 g. Some morphometric measurements of the species were done and presented in Table 1.

**Discussion**

The mean length of the individuals caught in this study is 32.3 cm which ranges from 30 to 33.5 cm (Table 1). The size at first sexual maturity is 57 cm which ranges from 41 to 64 cm (Froese and Pauly, 2018). This indicates that all the individuals caught in the sampling area are immature.

While it can be found up to 400 m (Muus and Nielsen, 1999) in the Mediterranean Sea, this species inhabits up to 780 m in the Ionian Sea (Mytilineou et al., 2005). According to our findings, the distribution of this species is between 274 and 641 m, and this finding is similar to the literature. In this study, it was also determined that immature individuals of this species may be found at the depth of 641 m in the international waters of Mersin Bay. Baino and Serena (2000) reported that the juvenile individuals of the *S. canicula* are found especially on the upper slopes (~ 200 m). Researchers also reported that nursery ground is located on the seabed at depths of about 200 m. It can distribute at different depths depending on the maturation stages of *S.
The East Atlantic and Western Mediterranean Sea according to the literature; and it is also determined that its distribution is intense in the international waters of Mersin Bay in the Northeastern Mediterranean.

Conclusion

Immature individuals of *S. canicula* were only found in this study conducted in open waters of the Mersin Bay. This situation can be explained by the fact that immature is distributed in deep waters in order to avoid the predator and hunting pressure until the maturation period.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References


