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SHORT COMMUNICATION

An additional record of *Lamna nasus* (Bonnaterre, 1788) from Croatia, Adriatic Sea

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Abstract

The porbeagle (*Lamna nasus*) is a species of mackerel shark of the Lamnidae family distributed widely in the cold and temperate waters of the North Atlantic, as well as the Mediterranean Sea and the Southern Hemisphere. This species is considered Critically Endangered worldwide and in the Adriatic Sea, the occurrence of this vulnerable species is sporadic. In this work we aim to complement the existing occurrence list of porbeagles in the Adriatic Sea by adding an individual caught near Čiovo Island, the Channel of Split, by a professional fishing vessel.

Keywords: Porbeagle, Croatian coast, Adriatic Sea, Mediterranean Sea

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The porbeagle (*Lamna nasus* Bonnaterre 1788), is a littoral and epipelagic shark species from the surface and inshore waters less than 1 m deep, down to 715 m deep. The species is distributed across the North Atlantic, as well as the Mediterranean Sea and the temperate waters of the southern Atlantic, southern Indian Ocean, southern Pacific and Antarctic Ocean (Compagno 1984). It reaches an average total length (TL) of 244 cm (Scott and Scott 1988) and an observed maximum age of 30 years (Campana *et al.* 2002). It feeds mostly on teleost fish, both pelagic and demersal species, and on cephalopods (Compagno 1984).

In the Adriatic Sea, three species of lamnoid sharks have been recorded to date, namely the great white shark (*Charcharodon carcharias* Smith 1838), the shortfin mako (*Isurus oxyrinchus* Rafinesque 1810), and the porbeagle, with the

latest considered to be the rarest (Lipej *et al.* 2004). The species has virtually disappeared from the landing records of most Mediterranean countries for various reasons, including (i) the vast decline of its population as a result of fisheries overexploitation (Ferretti *et al.* 2008), (ii) the fact that is strictly protected (GFCM Recommendation 36/2012/3[1]; Regulation 2107/2017[2]; Regulation 120/2018[3]) which might lead to misreporting, like for other protected elasmobranchs (Giovos *et al.* in press) and possibly because of misidentification with other lamnoids, typical issue with elasmobranchs of the same family (Kleitou *et al.* 2017). Compared to the other three lamnoids occurring in the Mediterranean Sea, namely the great white shark, the shortfin mako and the longfin mako (*Isurus paucus* Guitart-Manday 1966), the porbeagle is relatively smaller and with a shorter body, while the main morphological differences are (i) the rear tip of 1st dorsal fin abruptly white, (ii) the large eyes and (iii) the large smooth-edged teeth, with small lateral cusplets on each side (FAO 2014).

In the North Tyrrhenian and Ligurian Sea, Vacchi and Serena (1997) reported 15 specimens of the porbeagle during a few decades of observation. Soldo and Jardas (2002) reported only nine records of this species in the Eastern Adriatic since the end of the 19th century until 2000, while Storai *et al.* (2005) reported only 13 records in the Western Adriatic from the late 19th century until 2004. Orsi Relini and Garibaldi (2002) reported three newborn porbeagles, caught in pelagic swordfish longline as a bycatch in the Western Ligurian Sea. A young porbeagle was also caught in the Central Adriatic during a big-game fishing tournament. Based on its length, its age was between 1 to 17 months (Marconi and De Maddalena 2001). More present records include two porbeagles (a subadult and an adult) caught as bycatch by an artisanal fisher using a gill net in the central Adriatic Sea in 2010 and 2011, respectively (Scacco *et al.* 2012), while another porbeagle, considered to be the first ever recorded in the Slovenian waters, caught in the Gulf of Trieste in 2015 (Lipej *et al.* 2015). These records suggest that a nursery area may possibly occur in the Central Adriatic.

Research on bycatch of swordfish fisheries by pelagic longline in the Western Mediterranean, did not record any porbeagle (De La Serna *et al.* 2002). Only 15

[1] Recommendation GFCM/36/2012/3 On fisheries management measures for conservation of sharks and rays in the GFCM area

[2] Regulation (EU) (2017/2107) Laying down management, conservation and control measures applicable in the Convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT), and amending Council Regulations (EC) No 1936/2001, (EC) No 1984/2003 and (EC) No 520/2007.

[3] Regulation (EU) (120/2018) Fixing for 2018 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters, and amending Regulation (EU) 2017/127.

specimens were caught during research conducted from 1998 to 1999 on sharks' bycatch in large scale pelagic fisheries: catches were reported from landings only in the southern Adriatic and Ionian Sea, mainly by driftnets (Megalofonou *et al.* 2000). Official statistics from Mediterranean Sea show that the only landings in the area were reported in 1996 by Malta as 1 ton (FAO 2003), however this might be an artefact due to various reasons, like the aggregated landing categories, both intentional and unintentional misreporting.

Reports of this species are in general difficult to find in the Adriatic Sea, since most of them come from irregular records (Soldo and Jardas 2002). For all the aforementioned reasons, the Mediterranean population of the species is listed as Critically Endangered in the IUCN Red List of Threatened Species (Ellis *et al*. 2016). Hereby we present a record from the Eastern part of the Adriatic, in the Channel of Split. The aim of this report is to complement the existing list of occurrences of porbeagles in the Adriatic Sea and help in understanding the status of the threatened Mediterranean population of this lamnoid species.

On the 19th of September 2018 an individual of *L. nasus* was incidentally captured and landed by a small-scale fisher using pelagic longlines with sardines as bait. The individual was captured near the Čiovo Island, in the Channel of Split (43.474574° N, 16.347705° E), at a depth of 60 m (Figure 1). The total length (TL) was approximately 80 cm and the weight around 7 kg (Figure 2). According to the fisherman the specimen was released right after its capture, making impossible to retrieve any other information.

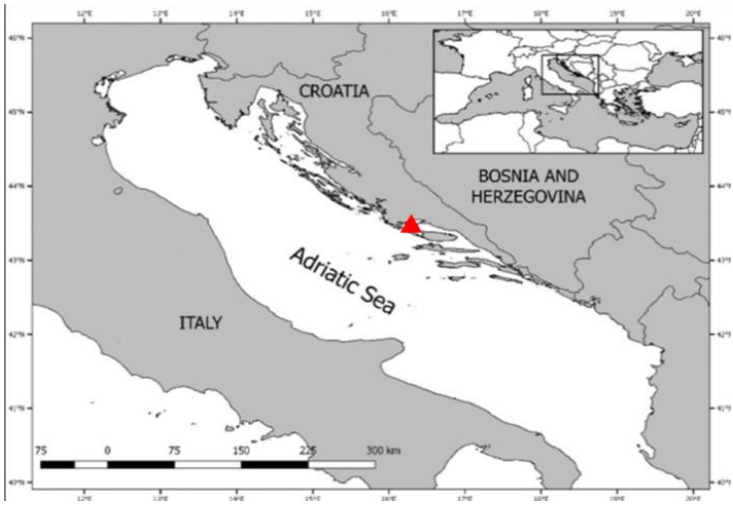

Figure 1. The location of the *Lamna nasus* specimen caught near Čiovo Island (red triangle)

To date around 29 records of porbeagle have been recorded in the Adriatic Sea, with more occurrences in the Western than in the Eastern part. The Adriatic Sea appears as a critical area for several species of sharks, a highly threatened taxa in the Mediterranean (Dulvy *et al*. 2016). It is important to continue reporting findings of rare and threatened shark species, such as the porbeagle, in order to increase our knowledge and improve the conservation of these species.

Figure 2. The specimen of porbeagle (*Lamna nasus*) caught near Čiovo Island

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