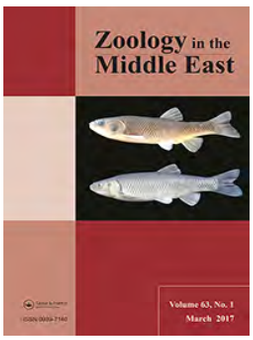

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Occurrence of *Lobotes surinamensis* (Osteichthyes: Lobotidae) in the Mediterranean: Historical and recent data

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This paper provides a review of the current status and historical distribution of *Lobotes surinamensis* in the Mediterranean Sea. Thirty two records were compiled for the period between 1968 and 2016, which shows that the species is in the Mediterranean much more abundant than previously understood.

Keywords: Tripletail; historical records; rare fishes

Introduction

The Tripletail, *Lobotes surinamensis* (Bloch, 1790), is a benthopelagic and cosmopolitan marine fish species with a wide distribution extending within the subtropical and tropical waters of all oceans except the eastern Pacific (Golani, Öztürk, & Başusta, 2006). Although it has been known since 1875, and then reported sporadically at certain locations in the Mediterranean, it is still considered rather rare for the Mediterranean as a whole (Dulčić, Dragičević, Lipej, & Stifanic, 2014a). We attempt here to assess the status of the species in the Mediterranean and compiled for this purpose the published Mediterranean records together with new unpublished records.

Results

In 2013, we obtained two specimens of *Lobotes surinamensis* from Dalaman (off the Sarigerme; 36º41'N, 28º41'E; sandy bottom with *Posidonia* grass, 10 m depth) and Gökova Bay (near to Gelibolu Island, 37º00'N, 28º14'E, rocky bottom, 20 m depth) (Figure 1).

A total of 32 reliable records of *L. surinamensis* were reported in the Mediterranean Sea (Figure 1, Table S1). The species was collected by a variety of different fishing gears along the Mediterranean coasts like bottom and mid-water trawl, trammel and gill nets, purse seine, longline, harpoon, hand line, by hand, UVC, seine net, beach seine, static net, and lift net from surface (Camilleri, Ragonese, Darmanin, & Rosso, 2005; Deidun, Vella, Sciberras, & Sammut, 2010; Dulčić & Dragičević, 2011; Dulčić et al., 2014a) to 40 m (Başusta & Erdem, 2000), mostly ranged 2-5 m (Table S1). The species found in a variety of habitats including the surface water in association with entangled floating ropes in shallow water (Deidun et al., 2010), on rocky seabed (Deidun et al., 2010; present study), and sandy bottom with *Posidonia* grass (Akyol & Kara 2012; Ounifi-Ben Amor, Ben Amor, Ben Souissi, & Capape, 2016; present study). Recorded numbers ranged from one (most records) to six (Bradai et al., 2004) individuals, lengths ranged from 76 mm (Palom, 1991) to 563 mm (De Pirro, Tosi, & Vanni, 1996). The

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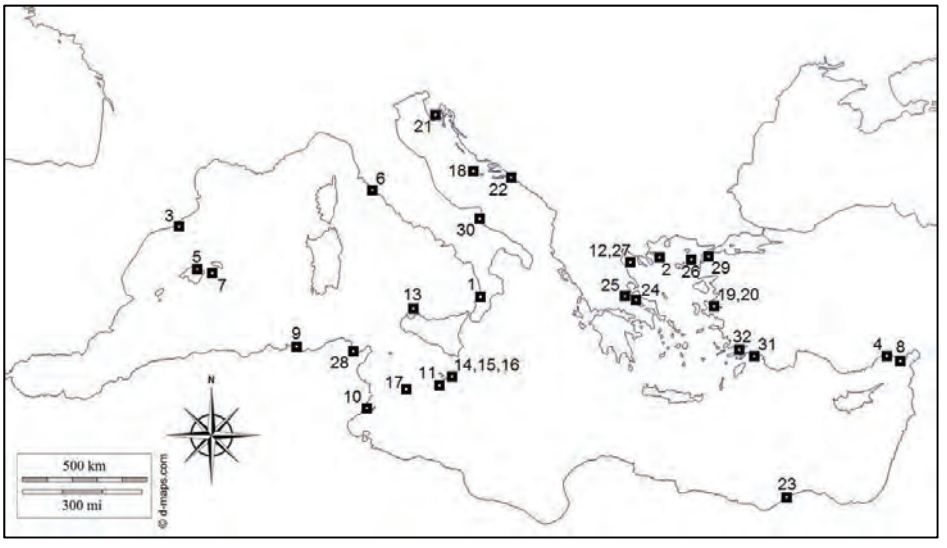

Figure 1. Map of the Mediterranean Sea, indicating locations where *Lobotes surinamensis* individuals have been recorded between 1968 and 2016 [Bini (1968)[1], Economidis & Bouchot (1976)[2], Palom (1991)[3], Gücü & Bingel (1994)[4], Massuti & Renones (1994)[5], De Pirro et al. (1996)[6], Riera et al. (1999)[7], Başusta & Erdem (2000)[8], Hemida et al. (2003)[9], Bradai et al. (2004)[10], Camilleri et al. (2005)[11], Minos & Economidis (2007)[12], Zava et al. (2007)[13], Deidun et al. (2010)[14, 15, 16, 17], Dulčić & Dragičević (2011)[18], Akyol & Kara (2012)[19,20], Dulčić et al. (2014a)[21], Dulčić et al. (2014b)[22], Akel & Philips (2014)[23], , Kavadas & Bekas (2014)[24, 25], Gönülal & Güreşen (2014)[26], Minos & Economidis (2015)[27], Ounifi-Ben-Amor et al. (2016)[28], Tunçer & Önal (2016)[29], Tiralongo (2016)[30], This study[31, 32]].

most west, east, north, and south records of the species were in El Masnou (Spain), Karataş (Turkey), Rasa Bay (Croatia), and Alexandria (Egypt), respectively (Figure 1, Table S1). Most of the records were obtained in autumn.

Discussion

Lobotes surinamensis was reported for the first time in the Mediterranean from the waters of Palermo (Sicily) in 1875 (Bini, 1968). Until the 1960s, the species has been reported, mostly in lists without details, off Rhodes Island (Tortonese, 1947), in Israeli waters (Ben-Tuvia, 1953), Turkey (Akşiray, 1954), Lebanon (George, Athanassiou, & Boulos, 1964), and Italy (off Calabria; Bini, 1968). It has been described as rare in the Mediterranean (Bradai, 2000; Hemida, Golani, Diatta, & Capape, 2003; Zava, Gianguzza, & Riggio, 2007; Deidun et al., 2010; Akyol & Kara, 2012; Dulčić et al., 2014a; Tunçer & Önal, 2016), but its occurrence records are increasing. It is obviously seen (see Table S1) that *L. surinamensis* is not as rare as believed, especially in the eastern Mediterranean Sea, from where 80.6% of the 32 records come from. Coll et al. (2010) calculated the mean probability of occurrence for *L. surinamensis* as 0.36, assuming that a probability threshold of more than 0.40 is applied for frequent species. According to 30 examined articles, it seemed that this species is often locally common, but almost never abundant (see Figure 1 and Table S1). *L. surinamensis* is generally reported as an incidental catch in certain areas of eastern (Rhodes, Hellenic, Tunisian, Maltese, Leba-

nese and Turkish waters), and western (Spanish, Italian and Algerian waters) Mediterranean.

Recent findings of *L. surinamensis* in the Mediterranean showed an increase in the population of the species; possible climate changes affected fish distribution (Hemida et al., 2003, Dulčić & Dragičević, 2011). Akyol and Kara (2012) and Dulčić et al. (2014a) stated that the frequency of *L. surinamensis* may increase as a response to changing hydrological conditions and the gradual increase in the average global temperature, because it is primarily a warm water species. But, the occurrence of the species in some areas much colder than the eastern Mediterranean such as north Adriatic Sea (Dulčić et al., 2014a, 2014b) and north Atlantic (Robins & Ray, 1986) may signify that the species may be quite tolerant of colder temperatures.

Lobotes surinamensis usually occurs in bays (Myers, 1999) and brackish estuaries (Brown-Peterson & Franks, 2001). Massuti and Renones (1994) stated that the species sometimes occurs in the open sea where they can be associated with floating objects. In the present study, both specimens (new records) were found near to the freshwater outputs and very close to the shore line.

According to Minos and Economidis (2015) *L. surinamensis* may be on the one hand a dweller of the warmest parts of the Mediterranean Sea (seasonal resident) utilising the surface currents for dispersing to new areas, on the other hand, it seems to perform seasonal movements; northwards during summer for foraging, disperse to new areas and for spawning (given the gonadal maturity) and southwards in late autumn and winter for overwintering (higher temperatures).

Supplementary Material

The tables are given as a Supplementary Annex, which is available via the “Supplementary” tab on the article’s online page (http://dx.doi.org/10.1080/09397140.2017.1269392).

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Disclosure Statement

No potential conflict of interest was reported by the authors.

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