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SHORT COMMUNICATION

Possible intrusion of *Lagocephalus sceleratus* (Gmelin, 1789) to the Turkish Black Sea coast

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Abstract

Capture of a single individual of *Lagocephalus sceleratus* from Türkeli shore (Sinop, Turkey) by an artisanal fisherman appeared in a local newspaper on December 2017, which represents the second occurrence record of the species from the Black Sea. Due to its highly invasive character, urgent and tangible measures (i.e. eradication) are needed to be taken both by Turkey and the neighboring countries.

Keywords: *Lagocephalus sceleratus*, Black Sea, lessepsian migration

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The silver-cheeked toadfish (*Lagocephalus sceleratus* Gmelin, 1789) is among the most dangerous invaders in the Mediterranean Sea, primarily due to its drastic influence on human health, negative impacts on artisanal fisheries, high growth and reproduction rate, capacity to tolerate a wide range of environmental conditions, lack of natural predators, ability to populate variety of habitats, and generalistic feeding habits (Bilecenoğlu 2010; Kalogirou 2013; Coro *et al*. 2018). Struggling with such a nuisance species is not an easy task and whatsoever measure implemented so far throughout the Mediterranean Sea has not yet created the desired effect. The species is becoming a much more serious threat than ever, which progressively continues to expand its hazard range.

Following its first observation from Gökova Bay (Akyol *et al*. 2005), *L. sceleratus* displayed an unprecedented invasion speed, which has reached as far as to the Adriatic Sea in the north and Spain in the west just within almost a decade (Izquierdo-Muñoz and Izquierdo-Gomez 2014; Dulčić *et al*. 2014; Figure 1).

Considering the Turkish coastline, the silver-cheeked toadfish has a continuous distribution between Iskenderun and Saros Bays (Akyol and Ünal 2017), and it penetrated to the Sea of Marmara by 2008 (Irmak and Altınağaç 2015). First Black Sea record of the species was given from the western coast of Sevastopol, where two mature individuals with standard lengths of 59.0 and 50.3 cm were collected on 2 and 7 November 2014, respectively (Boltachev *et al*. 2014). Three years later (1 December 2017), capture of a single *L. sceleratus* individual from Türkeli district of Sinop (central Black Sea) appeared in a Turkish local newspaper (Türkeli'nin Sesi, http://www.turkelihaber.com). No details on the capture depth, habitat type, size or weight of the individual were presented, other than an actual photograph of the fished individual (Figure 2).

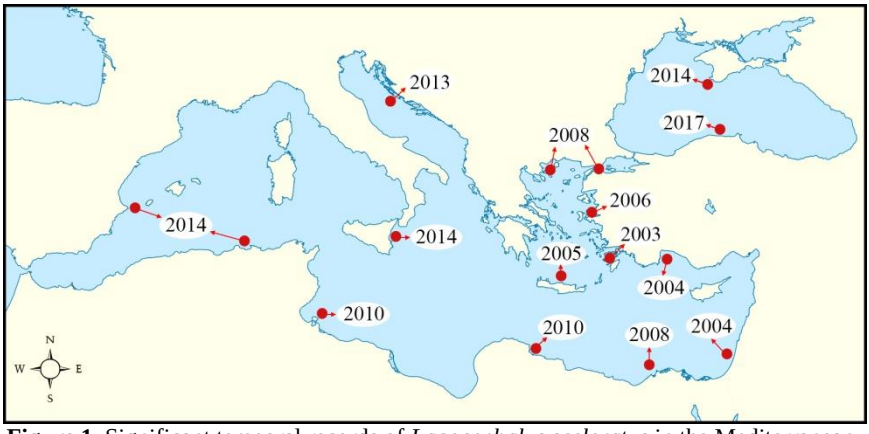

Figure 1. Significant temporal records of *Lagocephalus sceleratus* in the Mediterranean Sea (see Akyol and Ünal 2017 for reference details; Black Sea records: Sevastopol - Boltachev *et al*. 2014, Sinop - this study)

The silver-cheeked toadfish has a unique color pattern (regularly distributed spots of equal size on the dorsum, wide silver band on lower parts of the flank from mouth to the caudal fin, silvery blotch in front of eyes and black coloration on pectoral fin base) that easily distinguishes it from the other Mediterranean tetraodontids (Akyol *et al*. 2005), thus a positive identification from photograph was possible. Bello *et al*. (2014) recommended five criteria for the first record data in ichthyology and the present Black Sea record fulfills only two of them (B1: providing accurate photographs, B3: citing reference of papers used to identify specimens). Therefore, substantiation of the current finding by further studies is certainly required. An updated picture of the invasive species occurrence cannot be obtained using only official publications, where the involvement of citizen alerts, online blogs, web pages, videos, magazines and newspapers have proved to be helpful in early detection of noxious organisms (Parrondo *et al*. 2018). Therefore, despite the lack of a voucher *L. sceleratus* specimen from the Turkish Black Sea coast, the local newspaper data should be

seriously taken into consideration owing to the highly invasive character of the species.

Figure 2. *Lagocephalus sceleratus* individual caught in Türkeli, Sinop (central Black Sea) (Source: http://www.turkelihaber.com/zehirli-balon-baligi-sasirtti/6969/)

Introduction of *L. sceleratus* to the Black Sea is doubtless via the Sea of Marmara, although we are currently not sure if that originated from an established Marmara population or not. Sea surface water temperature along the Turkish Black Sea coast during December 2017 was higher than the seasonal expected values (around 13.5-14.0°C), which may have facilitated the influx of *L. sceleratus*. It is worth mentioning that Boltachev *et al.* (2014) also noted a similar water temperature (13.5°C) at Sevastopol during November 2014. The upper layer waters of the Black Sea are characterized by a predominantly cyclonic, strongly time-dependent and spatially-structured basin-wide circulation (rim current), with prominent western and eastern gyres (BSC 2008). According to this water circulation pattern, *L. sceleratus* should have first leaned eastward towards Sinop right after it passed through the İstanbul Strait, but the first observation locality and timing is not congruent with the existing hydrodynamic structure. It is quite possible that the species had reached to the Turkish Black Sea coast much earlier than December 2017, but somehow overlooked.

Turkey has not yet implemented any tangible measures on *L. sceleratus* invasion, except for the official ban (since 2008) of landing and selling of the species. There is an urgent need of a settled national (early detection and rapid response) coordination mechanism, a valid strategy plan on invasive alien species associated with appropriate action plans and effective public awareness campaigns (Bilecenoğlu 2017). Assuming that the silver cheeked toadfish is currently in the early stages of a possible invasion, then the rational response should be its immediate eradication (EEA 2010). Although an established population of the silver-cheeked toadfish does not currently exist neither in the Sea of Marmara, nor in the Black Sea, any of the further occurrences should be carefully monitored.

Lagocephalus sceleratus (Gmelin, 1789) türünün Türkiye' nin Karadeniz kıyılarındaki muhtemel varlığı

Öz

Bir balıkçı tarafından Sinop'un Türkeli sahillerinden yakalanan bir adet *Lagocephalus sceleratus* bireyine ait haber Aralık 2017'de yerel bir gazetede yer almış olup, mevcut bulgu türün Karadeniz'den ikinci kaydı niteliğindedir. Türün son derece istilacı bir karakterde olması nedeniyle, hem Türkiye, hem de komşu ülkelerde acil ve somut önlemlerin (ör: eradikasyon) alınması gerekmektedir.

Anahtar kelimeler: *Lagocephalus sceleratus*, Karadeniz, lesepsiyen göç

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