BIHAREAN BIOLOGIST 5(2): pp.159-161
Article No.: 111204

http://biologie-oradea.xhost.ro/BihBiol/index.html

Range expansion of silverstripe blaasop, *Lagocephalus sceleratus* (Gmelin, 1789), to the northeastern Mediterranean Sea

Deniz YAGLIOGLU*, Cemal TURAN, Deniz ERGUDEN* and Mevlut GURLEK

Fisheries Faculty, Mustafa Kemal University, TR31220 Iskenderun, Hatay, Turkey
*Corresponding Author's, D. Yaglioglu, D. Erguden, E-mail: dyaglioglu@hotmail.com, derguden@gmail.com,
Fax: (+90) 326-614 18 66, Tel: (+90) 326-614 16 93

Received: 09. March 2011 / Accepted: 11. June 2011 / Available online: 17. July 2011

Abstract. The Lessepsian migrant fish silverstripe blaasop, *Lagocephalus sceleratus*, was recorded for the first time on 10th and 29th November 2010 from the Mersin and Iskenderun Bays (NE Mediterranean, Turkey) respectively. The present paper reported the first record of *L. sceleratus* from the Mersin and Iskenderun Bays. Previous records of the species confined in the western and northwestern Mediterranean Sea and Aegean Sea coasts of Turkey. According to this finding, the species has expanded its populations from Antalya Bay to around the coasts of Mersin and Iskenderun Bays, eastern coasts of Mediterranean side of Turkey.

Key words: Silverstripe blaasop, *Lagocephalus sceleratus*, North-eastern Mediterranean Sea, Mersin Bay, Iskenderun Bay.

The silverstripe blaasop, *Lagocephalus sceleratus* (Gmelin, 1789) was recorded for the first time in the Mediterranean Sea in February 2003 from Gokova Bay (southern Aegean Sea, Turkey) (Akyol et al. 2005), and later the species was observed again at the same location in 2004 (Filiz & Er 2004), and in November 2004 from Jaffa along the Israeli coast (Golani & Levy 2005, Galil 2007), and Bilecenoglu et al. (2006) reported this species from the south western Mediterranean coast (Antalya Bay) and north western Mediterranean coast of Turkey (Izmir Bay). Later this species was recorded by Corsini et al. (2006) and Kasapidis et al. (2007) from Rhodes Island and from the Cretean Sea respectively, and it rapidly expanded northward (Lesvos island) and westward (east Peloponnese) (Peristeraki et al. 2006). Lately *L. sceleratus* was recorded in July 2008 in Edremit Bay (NE Aegean, Behramkale coast) (Turker-Cakir et al. 2009). Although *L. sceleratus,* has undoubtedly formed a well established population in the western and northwestern Mediterranean Sea and Aegean Sea, up to now no specimens have been reported in the eastern side of Mediterranean Sea of Turkey. In the present paper, we report *L. sceleratus* from the Mersin and Iskenderun Bays (north-eastern Mediterranean) and discuss its expansion along the distributional range.

On 10th November 2010, two specimens (84.2 and 75.7 mm, total length, respectively) of *L. sceleratus* were captured from Mersin coast (Mersin Bay, north-eastern Mediterranean Sea) using a bottom trawl at a depth of 72 m (36° 20′ 737′′ N, 35° 47′ 463′′ E). Other two specimens (75.2 and 65.3 mm, total length, respectively) were caught in Konacik Harbour (Iskenderun Bay, northeastern Mediterranean Sea) by purse seine, on a sandy-muddy bottom on 29th November 2010, at a depth of 53 m (36° 33′ 203′′ E, 34° 48′ 680′′ N) (Fig. 1). These new records of *L. sceleratus* in the north-eastern part of the Mediterranean Sea coast of Turkey represent four specimens of a smaller size than those reported from previous catches in other locations. The specimens were preserved in 4% formalin and were deposited in the Museum of the Faculty of Fisheries, Mustafa Kemal University (catalogue number: MSM-PIS/2010-10) (Fig. 2). All morphometrics were measured to the nearest 0.01 mm using dial calipers. All measurements and counts, morphological descriptions and color were agreed with the descriptions of Smith & Heemstra (1986) and Turan et al. (2007).

L. sceleratus was morphologically analyzed: the body was elongated and cylindrical, slightly compressed laterally and ventrally. The body is dark brownish with regularly distributed black dots dorsally, and white ventrally. The dorsal area was grey-brownish with black, regularly distributed spots of equal size, covered with small spinules predorsally. Wide silver bands were present laterally, from mouth to

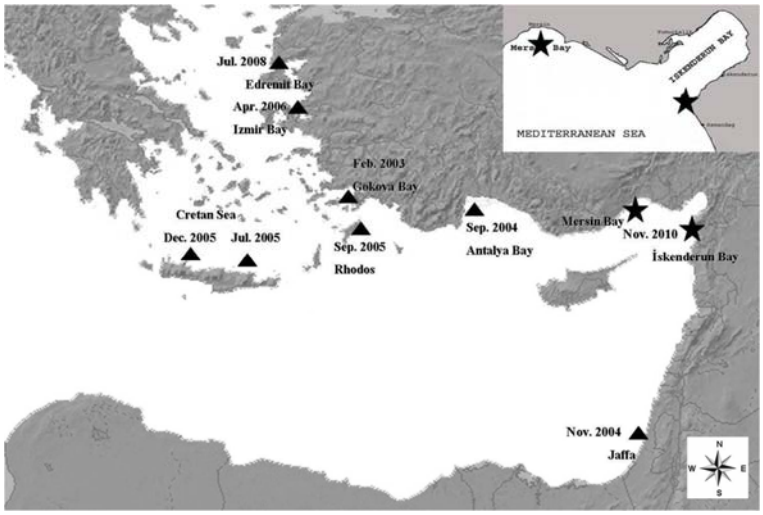

Figure 1. Spatial and temporal distribution of the *Lagocephalus sceleratus* in the Mediterranean Sea.

Figure 2. *Lagocephalus sceleratus* caught in Northeastern Mediterranean Sea, Turkey

caudal fin. The belly was white and rough. A silver blotch was present in front of the eye. No scales are present on the body surface. Pelvic fins absent. The pectoral fin base was black, the dorsal and anal fins were short-based and posterior in position, while the caudal fin was lunate. Dorsal fin rays 12, anal 10-9, pectoral 18-17, and caudal 20. Head length 29.6-26.8% of total length, predorsal length 61.9-60.9%, preanal length 57.4-55.1% of total length, in first and four specimens respectively. Eye diameter 30.0-35.8%, postorbital length 76.2-74.1%, interorbital distance 49.8-49.67%, of head length, in four specimens respectively.

L. sceleratus inhabits the Indian and West Pacific Ocean as well as the Red Sea. The silverstripe blaasop, and other pufferfishes are commonly known in the Red Sea and Gulf of Suez. *L. sceleratus* is usually found in the vicinity of shallow coral reefs, and it lives on sandy or muddy bottoms at depths between 18 and 100 m (Smith & Heemstra 1986, Froese & Pauly 2010).

L. sceleratus has a potential risk to humans, since it contains tetrodotoxin (TTX) that may be a source for food poisoning. The species has been included among the 100 'worst invasive species' in the Mediterranean (Streftaris & Zenetos 2006). TTX is a non-protein organic compound (aminoperhydroquinazoline) and one of the strongest marine paralytic toxins known today (Sabrah et al. 2006). Up to now, two cases of poisoning of persons who had consumed this fish were reported from Israel and Lebanon (Golani et al. 2006).

Lessepsian silverstripe blaasop is rapidly dispersed throughout the western Mediterranean Sea and northeastern Aegean Sea and compasses also the western part of the Mediterranean Sea basin. On the other hand, no information on the occurrence and spread of *L. sceleratus* to the northeastern Mediterranean coast of Turkey were reported. Our finding is a first report of *L. sceleratus* from the Mersin and Iskenderun Bays, north-eastern Mediterranean Sea coast of Turkey. Previous and present records of the species (location of capture, geographic coordinates, date, depth and quantity of the specimens) were presented in Table 1.

The propagation of this lessepsian species to the northeastern Mediterranean Sea may be explained with their pelagic propagules to the northern coast, assuming that propagules of *L. sceleratus* are pelagic like in co-familiar species (Golani et al. 2006, Froese & Pauly 2010). Ben Rais Lasram et al. (2008) indicated that lessepsian species with pelagic propagules are tending to colonize more the northern side of the Mediterranean Sea. However, benthic propagules colonize more proportionally both the southern and northern sides of the Mediterranean Sea.

Consequently, *L. sceleratus* is probably established all around Mersin Bay and Iskenderun Bays. The role of this newly established species within the coastal ecosystem, and the food availability and competition and its interactions with other native fish species should also be investigated.

Table 1. Previous records of *Lagocephalus sceleratus* in the Mediterranean Sea.

Locations	Geographic coordinates (Latitude, Longitude)	Date	Depth (m)	Number of individuals	References
Akyaka (Gokova Bay), Turkey	37°09' N, 28°16' E	17.02.2003	15	1	Akyol et al. 2005
Kemer (Antalya Bay), Turkey	36°33' N, 30°34' E	18.09.2004	30	1	Bilecenoglu et al. 2006
Jaffa coast, Israel	-	08.11.2004	-	1	Golani & Levy 2005
Jaffa coast, Israel	-	24.02.2005	-	1	Golani & Levy 2005
Rhodes coast (Ladiko), Greece	-	21.09.2005	15-20	1	Corsini et al. 2006
Bodrum (Gokova Bay), Turkey	-	10.03.2005	-	2	Bilecenoglu et al. 2006
Adrasan coast (Antalya Bay), Turkey	36°18' N, 30°28' E	14.05.2005	3	2	Bilecenoglu et al. 2006
Kas (Antalya Bay), Turkey	36°12' N, 29°37' E	03.10.2005	-	1	Bilecenoglu et al. 2006
Creete (Heraklion Bay), Greece	35°20' N, 25°15' E	20.07.2005	9	1	Kasapidis et al. 2007
Chania (Georgioupolis Bay), Greece	35°21' N, 24°21' E	20.12.2005	30	1	Kasapidis et al. 2007
Hekim island (Izmir Bay), Turkey	38°26' N, 26°45' E	21.04.2006	10-12	1	Bilecenoglu et al. 2006
Behramkale (Edremit Bay), Turkey	39°28′ N, 26°20′ E	07.2008	60	1	Turker-Cakir et al. 2008

Acknowledgements. The study was supported by the Ministry of Agriculture and Rural Affairs of Turkey with a project number of TAGEM-09AR-GE11 coordinated by C. Turan.

References

Akyol, O., Unal, V., Ceyhan, T., Bilecenoglu, M. (2005): First confirmed record of *Lagocephalus sceleratus* (Gmelin, 1789) in the Mediterranean. Journal of Fish Biology 66: 1183-1186.

Ben Rais Lasram, F., Tomasini, J.A., Guilhaumon, F., Romdhane, M.S., Do Chi, T., Mouillot, D. (2008): Ecological correlates of dispersal success of Lessepsian fishes. Marine Ecology Progress Series 363: 273-286.

Bilecenoglu, M., Kaya, M., Akalin, S. (2006): Range expansion of silverstripe blaasop, *Lagocephalus sceleratus* (Gmelin, 1789), to the northern Aegean Sea. Aquatic Invasions 1: 289-291.

Corsini, M., Margies, P., Kondilatos, G., Economidis, P. S. (2006): Three new exotic fish records from the SE Aegean Greek waters. Scientia Marina 70: 319-323.

Filiz, H., Er, M. (2004): Akdeniz'in Yeni Misafiri. Deniz Magazin 68: 52-54. [inTurkish].

Froese, R., Pauly, D. (eds.) (2010): Fishbase (www Database). World Wide Web Electronic Publications. <www.fishbase.org, accessed at: 2010.12.05.>

Galil, B. S. (2007): Seeing Red: Alien species along the Mediterranean coast of Israel. Aquatic Invasions 2: 281-312.

Golani, D., Levy, Y. (2005): New records and rare occurrences of fish species from the Mediterranean coast of Israel. Zoology in the Middle East 36: 27-32.

Golani, D., Massuti. E., Orsi-Relini, L., Quignard, J.P. (2006): Tetraodontidae. In: CIESM Atlas of Exotic Fishes in the Mediterranean. <www.ciesm.org/atlas/appendix1.html, accessed at: 2010.12.09>

Kasapidis, P., Peristeraki, P., Tserpes, G., Magoulas, A. (2007): First record of the Lessepsian migrant *Lagocephalus sceleratus* (Gmelin, 1789), (Osteichthyes: Tetraodontidae) in the Cretan Sea (Aegean, Greece). Aquatic Invasions 2(1): 71-73.

Peristeraki, P., Lazarakis, G., Skarvelis, C., Georgiadisand, M., Tserpes, G. (2006): Additional records on the occurrence of alien fish species in the eastern Mediterranean Sea. Mediterranean Marine Science 7: 61-66.

Sabrah, M.M., El-Ganainy, A.A., Zaky, M.A. (2006): Biology and toxicity of the pufferfish Lagocephalus sceleratus (Gmelin, 1789) from the Gulf of Suez. Egyptian Journal of Aquatic Research 32: 283-297.

Smith, M.M., Heemstra, P.C. (1986): Tetraodontidae. pp. 894-903. In: Smith, M.M., Heemstra, P.C. (eds.), Smiths-sea fishes. Springer-Verlag, Berlin, Germany.

Streftaris, N., Zenetos, A. (2006): Alien marine species in the Mediterranean the 100 'worst invasives' and their impact. Mediterranean Marine Science 7(1): 87-118.

Turan, C., Erguden, D., Gurlek, M., Yaglioglu, D., Keskin, C. (2007): Atlas and systematic of marine bony fishes of Turkey. pp 486-538. In: Turan, C. (ed.), Lessepsien fishes of Turkey. Nobel Bookstore Publications, Adana, Turkey.

Turker-Cakir, D., Yarmaz, A., Balaban, C. (2009): A new record of *Lagocephalus sceleratus* Gmelin 1789) confirming a further range extension into the northern Aegean Sea. Journal of Applied Ichthyology 25: 606-607.