

SHORT COMMUNICATION

Occurrence of *Trachinotus ovatus* (Linnaeus, 1758) in the Istanbul Strait, Turkish Straits System

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Abstract

Two individuals of pompano, *Trachinotus ovatus* (Linnaeus, 1758), were captured in Filburnu Bay (İstanbul Strait), representing a new record for the fish fauna of the Turkish Straits System. Occurrence of this thermophilic species is presumably related to the increased seawater temperatures in the region.

Keywords: *Trachinotus ovatus*, Turkish Straits System (TSS), thermophilic species, meridionalization

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Trachinotus ovatus (Linnaeus, 1758) is a thermophilic carangid that distributes along the eastern Atlantic and Mediterranean coasts, excluding Marmara and Black Seas (Smith-Vaniz 1986). The species typically forms schools in coastal waters, in which adults generally swim close to the surface, while juveniles use shallow sandy beaches as a nursery ground (Golani *et al.* 2006). It also occurs in lagoons (i.e. Beymelek Lagoon, Antalya), although in small quantities (Balık *et al.* 2011). Despite of its delicious taste, *T. ovatus* is not a targeted species, which is often caught in mixed-species fisheries throughout its distribution range as bycatch and can have high value in markets depending on the size (Di Natale *et al.* 2011).

In this study, we present a new record of *T.ovatus* from the Istanbul Strait, the upper boundary of the Turkish Straits System (TSS), which significantly expands its known distribution range. The TSS, consisting of the Istanbul Strait (Bosphorus), the Marmara Sea and the Çanakkale Strait (Dardanelles), connects the Mediterranean Sea and the Black Sea. On 24 July 2019, two individuals of

T. ovatus (Figure 1) with fork lengths of 20.9 and 21.7 cm were collected from a traditional trap net catch in Filburnu Bay (Figure 2), at a depth of 6 - 8m.



Figure 1. *Trachinotus ovatus* individual (20.9 cm fork length) sampled from Filburnu Bay, Istanbul Strait (Photograph by B.Öztürk)

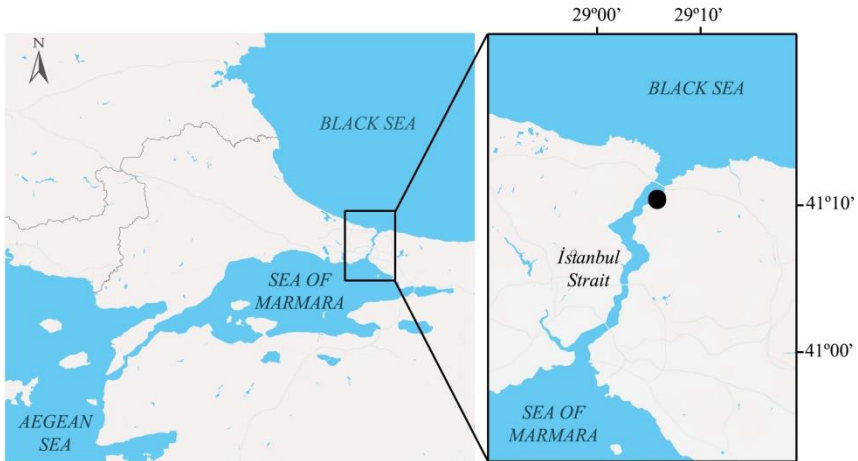


Figure 2. Sampling locality of *Trachinotus ovatus* (Filburnu Bay indicated with a dot)

The main diagnostic characters are as follows: dorsal finrays VI+I+24, anal finrays II+I+22; bases of soft dorsal and anal fins about equal in length. Eyes small, its diameter is found 3.84-3.88 times in head length (HL). The upper jaw extends only to below anterior third of eye. Body depth 3.42-3.47 and HL 5.52-5.67, all in fork length. Pectoral fins rather short, 1.35-1.41 in HL. Caudal peduncle has no grooves. The lateral line is arched above the pectorals and has no scutes on it. Dorsal, anal and caudal fin lobes are black distally. Five dark

vertically elongate blotches on the sides (the posterior one a little faded); the anterior 3 located just below the spinous dorsal rays. Morphometric measurements, meristic counts and color of the sampled individuals are well in agreement with descriptions of Smith-Vaniz (1986).

Northward advance of thermophilic fishes in the Mediterranean has received an increasing interest over the last few decades. This phenomenon is known as meridionalization (=subtropicalization), indicating the shift of tropical and subtropical taxa towards colder sectors of the Mediterranean Sea primarily as a result of seawater warming (Azzurro *et al.* 2011). Over the last two decades, a climate-related range expansion of *T.ovatus* from south of the Mediterranean to the colder northern sectors is being observed (Dulčić *et al.* 1997; Azzurro *et al.* 2011). Hence, species showing such signs of within-basin shifts can be regarded as biological indicators of global warming (Azzurro 2008). Nevertheless, it should be underlined that the TSS has been recognized as an acclimatization zone for Mediterranean originated species to penetrate into the Black Sea (Öztürk and Öztürk 1996).

Recent research pointed out that warm-water species have three different phases of colonization (occasional occurrence, common presence and establishment) (Lloret *et al.* 2015). Our present finding currently supports only an occasional presence of *T.ovatus* in the TSS. However, since the sampling locality is very close to the Black Sea, not only its potential northwards movement, but also the possible distribution through rest of the Marmara coastline, should meticulously be monitored. Mean surface water temperatures of the Sea of Marmara has clearly increased from 15°C during 1970-1978 period to 16.4°C during 2009-2018 period (TSMS 2018) and such a conspicuous increase have likely facilitated the penetration of *T.ovatus*.

***Trachinotus ovatus* (Linnaeus, 1758) türünün İstanbul Boğazı'ndaki varlığı**

Öz

İstanbul Boğazı'nda yer alan Filburnu Dalyanı'ndan yakalanan iki adet *Trachinotus ovatus* (Linnaeus, 1758) bireyi, Türk Boğazlar Sistemi balık faunası için ilk kayıt niteliğindedir. Termofilik bu türün varlığının bölgedeki artan deniz suyu sıcaklıklarıyla ilişkili olması muhtemeldir.

Anahtar kelimeler: *Trachinotus ovatus*, Türk Boğazlar Sistemi, termofilik tür, subtropikalleşme

References

- Azzurro, E. (2008) The advance of thermophilic fishes in the Mediterranean sea: overview and methodological questions. In: *Climate Warming and Related Changes in Mediterranean Marine Biota* (ed. Briand, F.), CIESM, Monaco, CIESM Workshop Monographs 35, pp. 39-46.
- Azzurro, E., Moschella, P., Maynou, F. (2011) Tracking signals of change in Mediterranean fish diversity based on local ecological knowledge. *PLoS One* 6: e24885.
- Balık, İ., Emre, Y., Sümer, C., Tamer, F.Y. (2011) Spatial and temporal variations and assemblage structure of fish species in Beymelek Lagoon, Turkey. *J Appl Ichthol* 27: 1023-1030.
- Di Natale, A., Bilecenoglu, M., Bariche, M., Bizsel, C. & Massuti, E. (2011) *Trachinotus ovatus*. The IUCN Red List of Threatened Species. Available at <https://www.iucnredlist.org/species/198644/9065343> (accessed 24 July 2019).
- Dulčić, J., Pallaoro, A., Kraljević, M. (1997) First record of pompano fingerling *Trachinotus ovatus* (Linnaeus, 1758) (Pisces: Carangidae) in the eastern middle Adriatic. *Nat Croat* 1: 61-65.
- Golani, D., Öztürk, B., Başusta, N. (2006) *Fishes of the eastern Mediterranean*. Turkish Marine Research Foundation, İstanbul, Turkey.
- Lloret, J., Sabatés, A., Muñoz, M., Demestre, M. (2015) How a multidisciplinary approach involving ethnoecology, biology and fisheries can help explain the spatio-temporal changes in marine fish abundance resulting from climate change. *Global Ecol Biogeogr* 24(4): 448-461.
- Öztürk, B., Öztürk, A.A. 1996. On the biology of the Turkish straits system. *Bulletin de l'Institut océanographique, Monaco* no special 17: 205-221.
- Smith-Vaniz, W.F. (1986) Carangidae. In: *Fishes of the North-Eastern Atlantic and the Mediterranean* (eds. Whitehead, P.J.P., Bauchot, M.-L., Hureau, J.-C., Nielsen, J., Tortonese, E.). UNESCO, Paris, Vol. 2, pp. 815-844.
- Turkish State Meteorological Service (2018) *Sea of Marmara*. Available at: <https://www.mgm.gov.tr/FILES/resmi-istatistikler/denizSuyu/Marmara-Deniz-Suyu-Sicakligi-Analizi.pdf> (accessed 24 July 2019) (in Turkish).