

## SHORT COMMUNICATION

### **First record of *Marsupenaeus japonicus* (Bate, 1888) (Crustacea: Decapoda: Penaeidae) from the western coast of the Turkish Black Sea**

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#### **Abstract**

*Marsupenaeus japonicus* (Bate, 1888) is one of the alien species in the Mediterranean Sea introduced from the Indo-Pacific through the Suez Canal. The present study reports this species for the first time from the Turkish part of the Black Sea. This species was intentionally introduced to the Sea of Marmara in the 1960's. It is assumed that the species was possibly introduced through the Istanbul Strait to the Black Sea.

**Keywords:** *Marsupenaeus japonicus*, Black Sea, alien species, biodiversity

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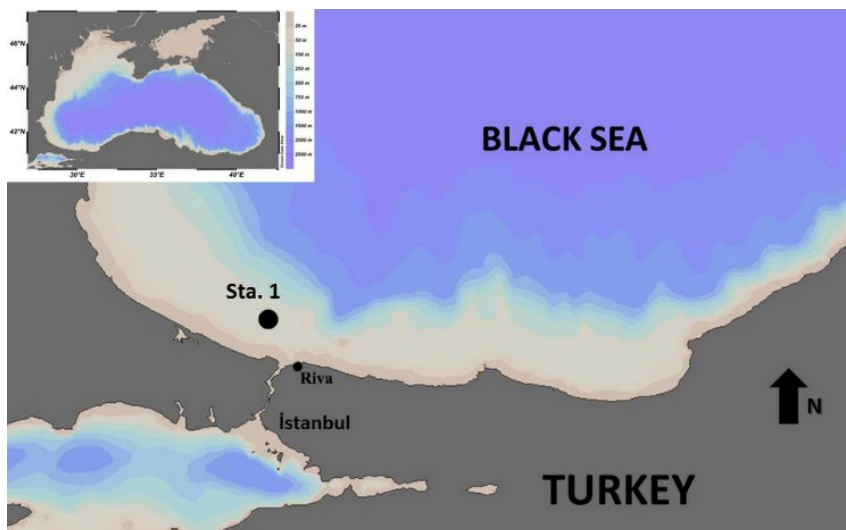
Alien species has several effects on marine biota such as changing community structure, displacing native species, negative impacts on food web and ecosystem process, consequently on human health and economical losses (Katsanevakis *et al.* 2013). In total, 1369 alien species have been identified in the European seas and 1257 of them were introduced by most probable pathway and vectors, and more than half of the species were introduced through marine and inland corridors (marine traffic and the Suez Canal). The second common pathway is aquaculture and followed by aquarium trade (Katsanevakis *et al.* 2013).

Turkey is surrounded by four seas with different characteristics. Heavy international marine traffic and the proximity to the Suez Canal, a corridor for Lessepsian migration, making the Turkish coasts more susceptible to invasive alien species (Çınar *et al.* 2005).

Recently several alien species have been reported from the Black Sea (Zaitsev and Öztürk 2001). In the Turkish seas, totally 400 alien species have been found, 125 of which were reported in the last 5 years. The highest number of the species was reported from the Levantine coast (400 species) while the lowest was reported from the Black Sea (20 species). Mollusca was the most common taxon (105 species), followed by Crustacea (64 species) and Pisces (58 species) (Çınar *et al.* 2011). Besides, according to Aleksandrov *et al.* (2017), 261 non-indigenous species have been registered in the database of Black Sea Commission (148 species for Ukraine, 94 for Turkey, 82 for Romania, 80 for Bulgaria, 51 for Russia and 34 for Georgia).

*Marsupenaeus japonicus* (Bate, 1888) is known as one of the worst invasive species in terms of expansion and impacts (Pancucci-Papadopoulou *et al.* 2005). The species was reported from the Ukrainian part of the Black Sea after the intentional introduction for the purpose of aquaculture in the 1970's (Zaitsev and Öztürk 2001). Later, Streftaris *et al.* (2005) also reported this species but without any information about the sampling site. This study presents the first record for *M. japonicus* that caught in the Turkish coast of the Black Sea.

Totally seven specimens were caught by a commercial bottom trawler off Riva on 17 June 2016. (N41°18'35.9" E29°03'24.3") (Figure 1). The sampling depth was 75 m. The specimens were kept in a deep freezer and transferred to Marine Biology Laboratory of the Faculty of Fisheries, Istanbul University. They were photographed and identified by using the diagnostic characters according to DAISIE, a website dedicated to the inventory of alien species in Europe.



**Figure 1.** The catch location of *Marsupenaeus japonicus* specimens

The carapace of this species is smooth and the rostrum has 7-11 teeth in upper margin and 1 in lower. Antennal and hepatic spines are present. Telson is pointed and 3 moveable distal spines. Petasma and thelycum has special shape. The maximum length is 17 cm for male and 27 cm for female (DAISIE, 2017). The collected specimens had 10 teeth in upper margin and one tooth in lower margin of rostrum. Two of the collected specimens were measured as 19.5 cm and 12 cm in total length, 7.5 cm and 4.5 cm in carapace length, respectively (Figure 2).



**Figure 2.** The collected specimens of *Marsupenaeus japonicus*

This species is 13-14 cm as minimum maturity size and up to 17 cm after maturation for female. Spawning occurs between April-November. Its habitat is littoral and sublittoral soft sediments up to 90 m, but usually less than 50 m. It prefers the temperature 28-30°C during its long larval period. Optimal salinity is between 27 ‰ and 35 ‰ for young and adult (DAISIE, 2017).

*M. japonicus* is widely distributed in the Indo-West Pacific and introduced to the Mediterranean Sea through the Suez Canal. A population was firstly established along the coasts of Egypt and Rhodes, then caught in the central and western Mediterranean (Galil and Zenetos 2002).

According to Zenetos *et al.* (2005, 2010), *M. japonicus* is abundant in the Levantine and southern Turkey and followed by other prawns such as *Metapenaeus monoceros*, *Metapenaeus stebbingi*, and *Penaeus semisulcatus*.

Çınar *et al.* (2011) report that, the Black Sea represents the lowest number of alien species (20/400 species) in Turkish seas. The shipping is a major vector, introducing 80% of all alien species in the Black Sea. Nevertheless, the increasing of the number of alien species reported quite stable for the Black Sea compared with other seas in last five years (the increments are 44% for the Black sea, 69% for Aegean Sea and 52% for the Mediterranean).

Nowadays many Indo-Pacific originated species enter the Black Sea from the Mediterranean, which is a trend called Mediterraneanisation of the Black Sea (Oğuz and Öztürk 2011; Turan *et al.* 2016). Yağlıoğlu *et al.* (2014) reported that two male specimens of blue crab *Callinectes sapidus* were captured on the Black Sea coast of Turkey. Also twenty-one invasive alien fish species belonging to eight genera are reported from the Black Sea by Yankova *et al.* (2013). As a result, many Mediterranean species from plankton to fish are found in the Black Sea (Shiganova and Öztürk 2009). Dispersion of *M. japonicus* to the Black Sea could be an example of this Mediterraneanisation.

*M. japonicus* is one of the invasive prawns that are highly prized and has become economically important in the Mediterranean Sea. The economical importance of this species can be understood after a certain period in the Black Sea as it is still new in the region. Besides, the impact to the local biota of this species is also unknown, thus it needs to be monitored as a long term study. Öztürk and Albayrak (2016) reported that *M. japonicus* was intentionally introduced to the Sea of Marmara from İskenderun Bay in the 1960's but its population has not increased in the Sea of Marmara since that time. It is difficult to predict if this species can establish a self-sustaining population at least in the Turkish part of the Black Sea which is under heavy fishing pressure.

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### ***Marsupenaeus japonicus* (Bate, 1888) (Crustacea: Decapoda: Penaeidae)'un batı Karadeniz'in Türkiye kıyılarından ilk kaydı**

#### Öz

*Marsupenaeus japonicus* (Bate, 1888), Jumbo Karides, Akdeniz'e Süveyş Kanalı yoluyla giren yabancı türlerden biridir. Bu tür Karadeniz'in Türkiye kıyılarından ilk kez rapor edilmektedir. Tür yüksek ticari öneme sahip olup Süveyş kanalından Akdeniz'e girmiştir. Marmara Denizi'ne ise istemli olarak bırakılmıştır. Karadeniz'e ise İstanbul Boğazı yolu ile girdiği tahmin edilmektedir.

**Anahtar Kelimeler:** Jumbo Karides, Karadeniz, Yabancı türler, biyoçeşitlilik

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