First record of the blue crab *Callinectes sapidus* (Crustacea, Decapoda, Portunidae), a non-indigenous species in the central/southern Tyrrhenian Sea

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Four individuals of the non-indigenous blue crab, *Callinectes sapidus* Rathbun, 1896 (Crustacea, Decapoda, Portunidae) were collected during commercial trammel net operations in fall 2019 and winter 2020 along the coast of NW Sicily. The crabs were collected in very shallow waters on a sandy bottom close to the coast. Although blue crabs are now widespread along most eastern, western and northern Mediterranean coasts, this is the first record of this species from the central and southern Tyrrhenian Sea.

Key words: Alien species, invasive species, Mediterranean Sea

INTRODUCTION

The blue crab *Callinectes sapidus* Rathbun, 1896 (Crustacea, Decapoda, Portunidae) is a brachyuran crab whose native distribution extends along the northwestern Atlantic coasts from Nova Scotia to Argentina, where it makes a major fishery resource (WILLIAMS, 1984). Its morphology, taxonomy, fisheries, biology and ecology were reviewed by WILLIAMS (1974, 1984).

This crab has shown a highly invasive potential, likely mediated by transport in ballast waters, and is considered one of the most widespread non-indigenous species in European waters (GALIL et al., 2014), and a key species able to impact the native biota in the invaded areas (CARDECCIA et al., 2018).

The first blue crab records in the Mediterranean date back to 1949 and 1950 from the northern Adriatic Sea (GIORDANI SOIKA, 1951), misidentified as *Neptunus pelagicus*). Earlier records of this species were reported from the northern Aegean Sea in 1935 (RIEDL, 1983) and from Egyptian waters (in 1940), but erroneous identification is very likely because of the confusion with the other non-indigenous portunid crab *Portunus segnis* (NEHRING, 2011). Successively blue crabs have been recorded from many Mediterranean localities, especially along the northern and eastern sectors, the western basin (e.g., GARCIA et al., 2018) and the Black Sea (LABRUNE et al., 2019), with recent findings on the southern rim in Algeria (BENABDI et al., 2019) and Morocco (CHARTOSIA et al., 2018). Besides many occasional records of single or few specimens, established
populations are known to occur in several Mediterranean coastal areas, especially in the Levant Sea and the northern and eastern Aegean Sea (NEHRING, 2011). In Italian waters the blue crab has been recorded extensively along the Adriatic coast and less often in the Ligurian and northern Tyrrhenian seas (LABRUNE et al., 2019). LIPEJ et al. (2017) reported the collection of three specimens along the southern Sicily coast in October 2016, which represent the first Sicilian record of this species.

This paper reports the collection of four blue crab individuals along the coast of northern Sicily, which is also the first finding of this species in the central and southern Tyrrhenian waters.

**MATERIAL AND METHODS**

Four adult individuals of blue crab were collected between 29 October 2019 and 1 February 2020 by a professional fisherman at Balestrate (Gulf of Castellammare, NW Sicily, southern Tyrrhenian Sea: 38°03‘13” N, 13°00‘48” E, Fig. 1) during four different fishing operations in strictly coastal waters. The crabs were collected with a trammel net deployed at night in two areas located on the east and two on the west of the harbour over a sandy bottom with scattered stones between 2 and 10 m depth. All areas are characterized by moderate organic pollution, especially on the eastern side. The easternmost fishing area is at 300 m distance from the outlet of the Jato river, a small torrential creek with a very limited flow during the dry seasons.

**RESULTS AND DISCUSSION**

The four crabs were used for personal food consumption by the fisherman, who kindly provided only the photos, the collection details and the weight of each individual. For this reason, the authors were unable to observe, measure and preserve the specimens. Their identification was based on the literature, which allows for an easy recognition of the main morphological characters (WILLIAMS, 1974).

The colour of the chelae propodi (WILLIAMS, 1984) and/or the shape of the abdomen in our photos suggest that the crabs were three males (between 400 and 600 g) and one female (400 g). A male and a female are shown in Figs. 2 and 3, respectively. According to interviews made in January 2020 by the authors to professional and recreational fishermen in Balestrate and in the nearby harbours of Trappeto and Castellammare, no other blue crabs had been collected prior to that date. It is noteworthy that the fisherman who caught the four crabs in Balestrate is the only one, among the interviewed fishermen, who regularly fishes in very shallow waters in winter, and he never caught blue crabs previously in the same or adjacent areas. Indeed, most Mediterranean blue crab occurrences have been recorded in summer and fall, with few records in spring and almost none in winter (CARROZZO et al., 2014).

Blue crab is a strongly euryhaline, eurythermal species whose habitat in the native areas includes different types of bottom - mainly sandy and muddy - in oceanic and brackish waters from the coast to 90 m depth, more frequently less deep than 35 m (WILLIAMS, 1984). Many, although not all of the Mediterranean records, come from estuaries and lagoons. In some cases, a river mouth was close to the collection site, like in the easternmost site described in this paper and in the previous blue crab record from Sicily (LIPEJ et al., 2017).

Brackish waters play an important role in the blue crab life cycle, since mating and hatching
of this species should be monitored, especially where local environmental conditions are potentially favourable to the establishment of new populations.

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Prvi nalaz plavog raka Callinectes sapidus (Crustacea, Decapoda, Portunidae) u središnjem i južnom Tirenском moru

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SAŽETAK

Četiri jedinke authtonog plavog raka, Callinectes sapidus Rathbun, 1896, (Crustacea, Decapoda, Portunidae) prikupljena su tijekom komercijalnog ulova u jesen 2019. i zimu 2020. uz obalu sjeverozapadne Sicilije. Jedinke su sakupljene u vrlo plitkim vodama, na pješčanom dnu, te u blizini obale. Iako su plavi rakovi danas rašireni duž većine istočne, zapadne i sjeverne obale Sredozemlja, ovo je prvi nalaz ove vrste iz središnjeg i južnog Tirenskog mora.

Ključne riječi: strane vrste, invazivne vrste, Sredozemno more
