

Short communication

The establishment of blue crab *Callinectes sapidus* Rathbun, 1896 in the Lagoon of Patok, Albania (south-east Adriatic Sea)

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Abstract

The presence of the blue crab *Callinectes sapidus* has been recently recorded in the Lagoon of Patok. Twelve individuals from this lagoon have been observed and measured during October 2009. Based on carapace measurements most of these crabs can be considered as mature. The population of the blue crab seems to be increasing and can be considered as established in Patok area.

Key words: *Callinectes sapidus*, blue crab, invasive species, Adriatic Sea, Albania

The blue crab *Callinectes sapidus* Rathbun, 1896 (Figure 1), a species originating from the western Atlantic, also occurs and is considered as an invasive species in the Mediterranean (Streftaris and Zenetos 2006). After the first Mediterranean record (Venice, Italy, 1949), this species has been widely recorded in different Mediterranean regions, especially in the Eastern part (Galil et al. 2006). Several records have been published in recent years, with regard to the species distribution in the Adriatic (Florio et al. 2008; Onofri et al. 2008; Kirincic and Stevcic 2008) and other parts of the Mediterranean Sea (Gennaio et al. 2006; Tuncer and Bilgin 2008), relating this expansion to the increase of maritime transportation.

Based on personal communications with the local fishermen of Patok Lagoon, the blue crab appeared in the Patok area in 2006. A technical report on sea turtles of Patok area (White et al. 2009) also showed a picture of an individual blue crab. Besides that picture, no other information on the presence of blue crab in Patok or in Albania has ever been published. This paper is the first one about the blue crab in the Albanian coast.

The Lagoon of Patok is situated in the north-western coast of Albania, in the south-eastern Adriatic Sea (41°38'N, 19°36'E), between the mouths of the Mati River in the north and the

Ishmi River in the south. The mean annual water temperature in the lagoon is 17.7°C, with a minimum of 6.8°C and maximum of 28.6°C. Salinity values reported for the lagoon show oscillations from 15.7 psu to 39.1 psu, after Guelorget and Lefebvre (1993), Dhora and Beqiraj (2001) and authors' personal data from 2004-2005.

The data presented in this paper was collected in October 2009, based on the observation of 12 individuals of *Callinectes sapidus*, caught in a gillnet by local fishermen on October 11th and October 29th. Carapace measurements, including length (CL – distance between the center of the anterior interorbital margin and the center of the posterior margin) and width (CW – maximal distance between the posterior anterolateral spines), as well as sex identification were recorded for all 12 individuals, while the body weight for the 6 individuals collected in October 29th was also reported (Table 1).

As seen in Table 1, three out of twelve observed individuals were males. Most of the individuals found in Patok Lagoon could be considered as matured, if referring to Cadman and Weinstein (1985), which reports that maturity is reached at carapace width of 120-170 mm. All these 12 individuals can be considered as large, based on a classification of Harding (2003), which uses carapace width to classify

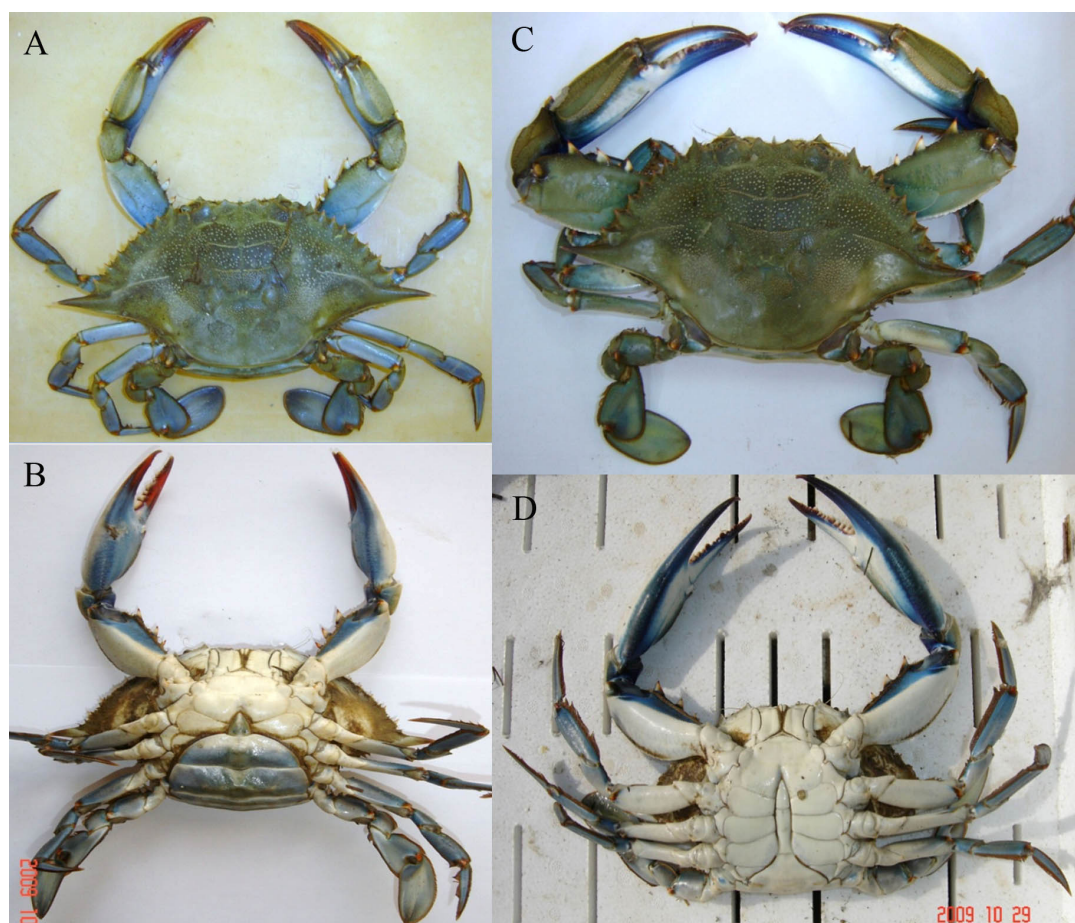


Figure 1. *Callinectes sapidus*, adult female (A, B) and male (C, D) from Patok lagoon, Albania: dorsal and ventral view. Photograph by Kashta and Beqiraj (2009)

blue crabs as small (CW < 80 mm), medium (CW 80 – 120 mm) and large (CW > 120 mm).

Referring to communications with the local fishermen, during the first years (2006–2008) of the blue crab appearance in Patok, this species was not abundant in fishing nets, while during 2009 its abundance had increased. A small co-operative group of fishermen reported a daily average of 40–50 individuals, caught in a 300 m gillnet during April–October 2009, while during 2006–2008 this number was 5–10 individuals. Based on the fishermen considerations, the highest abundance of the blue crab in Patok Lagoon was observed in August 2009.

It is noteworthy to highlight the abundance of this species in Patok, since most of the publications on the presence of *C. sapidus* in the Adriatic have reported a limited number of caught individuals. Furthermore, local fishermen

Table 1. Sex, carapace length (CL), carapace width (CW) and body weight (W) of *Callinectes sapidus* individuals caught in Patok Lagoon.

Date	Sex	CL (mm)	CW (mm)	W (gr)
11. 10. 2009	Female	71,2	181,1	
	Female	72,5	202,0	
	Female	74,2	188,2	
	Female	73,4	184,0	
	Female	67,0	172,2	
	Female	78,6	200,1	
29. 10. 2009	Male	76,7	177,3	380
	Male	70,8	162,4	300
	Female*	77,0	196,1	285
	Female	63,5	158,3	165
	Male*	55,7	125,5	115
	Female	73,7	170,0	270
Mean		71,1	176,4	252,5

* The right chela was missing.

confirm the presence of ovigerous females and juveniles in Patok area. According to the authors' personal interviews with the local fishermen, it seems that the abundance of this species is high and worrying for them. The fishermen often kill the crabs because they tear the nets and damage the fish. The blue crab has been reported as a highly aggressive species and it has been selected among the 100 "worst invasive" species in the Mediterranean with impact on both biodiversity and socioeconomics (Streftaris and Zenetos 2006).

Taking into account the high abundance and frequency in the fishing nets, as well as reports (in verbalis) of the presence of juveniles and ovigerous females, the population of the blue crab *Callinectes sapidus* can be considered as established in Patok area. Furthermore, the benthos of Patok is rich in mollusks, annelids, crustaceans, and fishes (Dhora and Beqiraj 2001; Beqiraj 2004; Beqiraj and Laknori 2006; Beqiraj et al. 2007), providing suitable feeding conditions for *Callinectes sapidus* as a predator.

Further studies on this population and on the potential dispersal of this species in adjacent areas would be of interest to provide richer information on population structure and dynamics of the blue crab in Albanian coast.

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