

A blue crab (*Callinectes sapidus* Rathbun, 1896) individual with two carapace widths: a case report

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Abstract: In this study, findings of morphological deformation observed on a blue crab sampled in Köyceğiz Lagoon (Muğla, Turkey) are presented. The deformation is in the left lateral spine. It has been observed that this spine, which normally should have been one, developed as two independent spines. Due to this abnormality observed in the individual, the individual has two carapace widths.

Key words: Deformation, morphology

1. Introduction

Blue crab, which natively lives on the America continents (<https://www.sealifebase.org/search.php>), is an exotic species for Turkey (1). This species, reported as sampled firstly in 1959 in Turkey (2), has high economic value (3) and is being commercially fished (4).

The purpose of this study is to report the morphological deformation observed in a blue crab individual. There is no example of this type of deformation previously reported for the species, and this case report is the first.

2. Case history

The blue crab specimen was sampled in Köyceğiz Lagoon (36°49'15.6"N, 28°37'23.1"E) on 17 May 2018 from the barrier traps belonging to the DALKO Fishery Cooperative (Muğla, Turkey). The individual was caught with a scoop net from the area with sandy muddy bottom and 1–2 m depth. The deformation was in the left lateral spine of the individual and it was observed that this spine, which normally should have been one, developed as two independent spines. No abnormality was observed in the right lateral spine or in other parts of the body of the individual. The sample was fixed in 4% formaldehyde solution and stored at the Ege University Fisheries Faculty Museum with registration number ESFM-MAL/2018-2 (Figures 1a–1c).

3. Results and discussion

The individual is male and has a total weight of 189.12 g. While the carapace width of the individual was measured

as 129.76 mm in the measurement using the upper left lateral spine (normal), the carapace width was 126.90 mm when measured using the lower spine (abnormal). While the length of the right normal lateral spine was 13.40 mm, the left normal lateral spine length was 13.26 mm. The length of the left abnormal lateral spine was 10.18 mm, and the distance between the normal and abnormal spine was determined as 3.93 mm.

There is no such deformation of blue crabs recorded in the scientific literature to date. In addition, examples of deformations reported for this species are cases of albinism or partial albinism (5–7). On the other hand, the most similar case to this situation was reported by the Oregon Department of Fish and Wildlife (ODFW), in the United States: a Dungeness crab (*Metacarcinus magister*) caught in 1990 had an extra immovable chela developed in the dactyl of the left chela (8).

Carapace width is a common measure used for crabs in scientific studies and in regulations (9,10). This individual has two carapace widths and there is a difference of 2.2% between the two measurements. It is not known whether this deformation observed in the individual is caused by a genetic disorder or by a mechanical effect that the individual experienced in its life.

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Figure 1. The picture of the specimen (a: side view, b: bottom view, c: the full specimen, red box: deformation area).

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