

OCCURRENCE OF THE BLUE CRAB *CALLINECTES SAPIDUS*, RATHBUN, 1896, AND ITS FISHERIES BIOLOGY IN BARDAWIL LAGOON, SINAI PENINSULA, EGYPT

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Abstract

Callinectes sapidus, Rath. was firstly recorded in Bardawil Lagoon (BL) during the present study in 2015. It constitutes about 15% of the total catch while *Portunus pelagicus* is considered the major part in crab fishery in (BL). The size range of *C. sapidus* was from 65 mm to 155 mm (CW). The regression of width length relationship showed a marked deviation from isometric growth. Length-width and body weight regressions have also deviation from the isometric growth and the analysis of the covariance indicates that there is a significant difference between sexes with respect to length weight relationship.

Keywords: *Crustacea, Levantine Basin, Fisheries, Lagoons*

Introduction

The ecosystem of Bardawil Lagoon (BL) differs from the other Northern Delta Lakes of Egypt, as it is hypersaline and shallow in depth (Fig. 1).

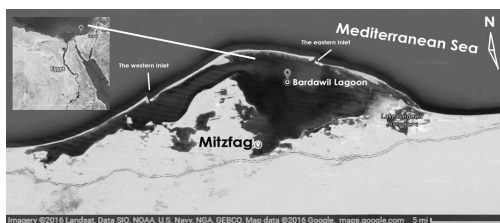


Fig. 1. A map showing the location of Bardawil Lagoon and the selected fishing area.

Crabs and shrimps are considered recently as one of the most important crustacean fishery resources in (BL) (Ameran, 2004; Ameran et al., 2009; Abdelrazek et al., 2006 & 2008; Mohamed and El-Aiatt, 2012). The increasing of crab production continued from 2000 to 2009 to reach about 38% of the total lagoon fisheries. By 2014 this production decreased to be 19% after fisheries regulations done during 2015 by preventing the use of the fishing trawl (Kalsa). Thus, crab catch increased to be 42% of the total lagoon production (Fig. 2) (GAFRD, 2015).

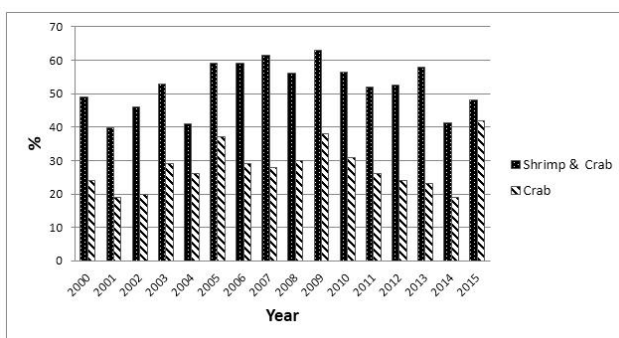


Fig. 2. Crustacean Fisheries in Bardawil Lagoon between the years 2000 - 2015.

Callinectes sapidus (Rath.) was firstly recorded in Lake Manzala, Egypt in 1940 and then in Lake Edku (Banoub, 1963). Ramadan and Dowidar (1972) mentioned that *C. sapidus* production was greatly affected by the high dam construction and decreased completely in the northern lakes as well as in the Mediterranean marine catch. In the present study, *C. sapidus* was recorded in (BL) from May to December (2015). The catch of *C. sapidus* is about 15% of total crab production while the remaining 85% is of the *Portunus pelagicus*. Materials and Methods: During the fishing season 2015 from May to December a monthly sample of crab catch from (BL) was collected from Mitzfag (Fig. 1).

The sample was frozen and transported to NIOF laboratory. 140 individuals of *C. sapidus* were isolated and sexed, then, their carapace width, length and weight were measured using Vernier Caliper (0.05 mm accuracy). Regression equations were derived. Results and Discussion: The results showed that *C. sapidus* ranged from 65 mm to 159 mm in carapace width (CW) and from 52-303 g in weight (Wt). 105 mm CW is considered the main size group observed in its catch, smaller and larger sizes were represented with few individuals. The regression relationship of width length of *C. sapidus* were done. The (b) values were 0.9838, 0.9566 and 0.9267, respectively for males, females and combined sexes. The regression equations for the length- weight relationships were $Wt = 0.004 CL3.133$, $WT = 0.008 CL2.931$ and $Wt = 0.004 CL3.1234$ for males, females and combined sexes, respectively. The exponential values showed a marked deviation from the isometric growth. (r) values of for males, females and combined sexes were 0.9579, 0.9256 and 0.9512 respectively. The (b) values for the carapace width CW and body weight body Wt of males, females and combined sexes were 2.7693, 2.396 and 2.545 respectively, which represents a deviation from isometric growth pattern. The (r) values were 0.9838, 0.9566 and 0.9267 respectively. The analysis of covariance indicates that there is a significant difference between sexes with respect to length-weight relationship. The interrelationship between CW/Length and propodus length/depth for males and with abdomen width /length for females were done which suggested in most cases the positive relationship and the highly significant case. The ratio of females in *C. sapidus* population in Bardawil lagoon was in favor of males. In Turkish waters, the reverse was recorded in Beymelek lagoon *C. sapidus* population as the females were more than males (Sumer et al., 2013). In Brazil, a similar pattern was obtained for Babbitonga Bay, with females dominating in most samples, while in the bay of Santos, Sao Paulo state, males dominated in samples. Thus, ratio may be related to the longevity and growth of crabs population, also to different migration pattern in the lagoon system and all these parameters seem to affect their relative occurrence.

Further studies on the population of *C. sapidus* and on the potential dispersal of this species in adjacent areas would be of interest to provide rich information on population structure and dynamics of the blue crab in Bardawil Lagoon.

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