

# OBSERVATIONS ON THE ABUNDANCE OF HOLOTHURIAN SPECIES ALONG THE ALEXANDRIA COAST, EGYPT

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## Abstract

Sea cucumber plays an important role in marine communities besides its great economical importance to man. By 2000, production increased from 20 tones in 2000 to 2310 tones in 2002, and then dramatically decreased to 6 tons in 2006 [1]. The present study presents abundance, distribution size composition of Holothurians along Alexandria coast of Egypt. Samples were anaesthetized in MgCl<sub>2</sub> (2.5%) solution to overcome the error resulted from contraction and relaxation of body muscles[4].

**Keywords:** *Eastern Mediterranean, Biodiversity*

## Introduction and Methods

Two species of holothurians *Holothuria arenicola* and *Bohadshia argus* were recorded. The abundance was 98% and 2% for *H. arenicola* and *B. argus*, respectively. 2015 Samples were collected randomly using quadrat transect (20 m × 10 m) from the selected sites along the Alexandria coast in eastern Mediterranean Sea during the period from January 2005 to July 2007 as in fig. 1. The distribution and abundance of Holothurian species were calculated by counting the number of each species per 200 m<sup>2</sup>. Samples were anaesthetized in magnesium chloride (2-5%) solution to overcome the error resulted from contraction and relaxation of body muscles [4]. Samples weighed with a digital balance, then gently straightened and their lengths measured to 1 mm with a ruler. The total length (TL), total wet weight (Twt) was measured for each specimen.

## Results and discussion

During the present study only two species of holothurians; *Holothuria arenicola* and *Bohadshia argus* were recorded. *H. arenicola* was the most abundant species along the Alexandria Coast of Egypt. The abundance percentage was 98% and 2% for *H. arenicola* and *B. argus*, respectively.

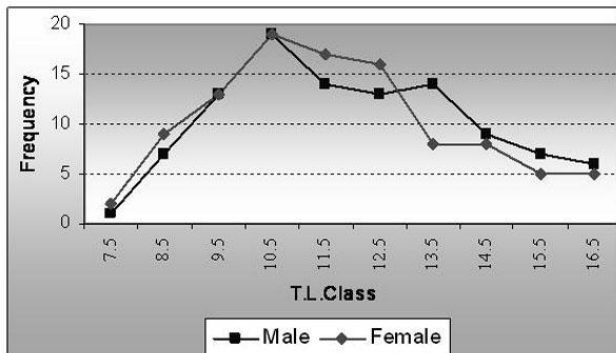


Fig. 1. Length Frequency distribution of male and female *Holothuria arenicola*

Length distribution of *H. arenicola* for males and females as presented in fig. (1). Regardless of male and female, the most frequent length was in range of 9.5 to 13.5 cm. By comparing the present results with that [3] decrease in frequent length in clearly observed as 11.0 – 15.7 in 1999 to 9.5 – 13.5 cm in 2007. This reflects the intensive fishing activity in the last years which supports the necessity of rapid management of *H. arenicola* fishery in Mediterranean Sea. It is found that smaller individuals observed in winter and autumn which may be attributed to the fact that the fishing activity in summer and spring is higher as well as the fishing selection during these seasons is lead to presence of small sized animals in autumn and winter. Further migration and hence greater habitat separation between juveniles and adults of some species may occur as holothurians mature [2]. The regression equations of length-weight relationship for male and female of *H. arenicola* were described in (Table 1). In the present study, regardless of sex and season, the slope was ranged between 0.8 – 1.3 that was significantly different from 3. This means that length does not grow at the same rate of the weight. [3] reported negative allometric relationship for *H. arenicola*. The higher regression coefficient in the present study reflects the fitted length weight relationship. The present information confirmed that *H. arenicola* along the Alexandria coast of Mediterranean Sea is exposed to over

fishing during the last eight years as a result of drastic increase in demand for sea cucumber as bech-de-mer. The problem of over fishing can be overcome through firm and conservative management as well as aquaculture of this valuable resources.

Tab. 1. Regression equation of weight relationship of male and female *Holothuria arenicola*

Sex	Regression Equation	R <sup>2</sup>	n
Male	W=7.4107 L <sup>0.8473</sup>	0.9484	103
Female	W=47.9351 L <sup>0.8372</sup>	0.8572	102

## References

- 1 - Ahmed, M. I. (2006): Taxonomic and fishery stock status of sea cucumber in the Egyptian Red Sea. M. Phil. Thesis. Hull University.
- 2 - Hamel, J. F., and Mercier, A. (1996b): Studies on the reproductive biology of the Atlantic sea cucumber *Cucumaria frondosa*. SPC Beche-de-mer Info. Bull. 8:22-33.
- 3 - Raouf, W. K.; Fatma, A. A., and Mohamed, H. Y. (2000): Population growth and asexual reproduction of the sea cucumber *Holothuria arenicola* from the eastern Mediterranean. Egypt. J. Aquat. Bull. & Fish., Vol.4, No.4 :119-135.
- 4 - Sewell, M. A. (1992): Reproduction of the temperate aspidochirote *Stichopus mollis* (Echinodermata: Holothuroidea) in New Zeland. Ophelia, 35:103-121.