

**Vertical distribution  
of zooplankton in the  
epipelagic zone off Sharm  
El-Sheikh, Red Sea, Egypt**

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MOHAMED MOUSSA DORGHAM<sup>1,\*</sup>  
MOHSEN MOHAMED ELSHERBINY<sup>2,3</sup>  
MAHNOUD HASSAN HANAFI<sup>2</sup>

<sup>1</sup> Department of Oceanography,  
University of Alexandria,  
Alexandria, 21511, Egypt;  
e-mail: mdorgham1947@yahoo.com

\*corresponding author

<sup>2</sup> Department of Marine Sciences,  
University of Suez Canal,  
Ismaelia, 41522, Egypt

<sup>3</sup> Department of Marine Biology, Faculty of Marine Sciences,  
King Abdul Aziz University,  
Jeddah, Saudi Arabia;  
e-mail: ooomar@kau.edu.sa

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**Abstract**

The purpose of the present study was to track the seasonal vertical distribution of zooplankton abundance in the epipelagic zone off Sharm El-Sheikh, Red Sea.

The complete text of the paper is available at <http://www.iopan.gda.pl/oceanologia/>

Zooplankton samples were collected seasonally within the depth ranges of 0–25, 25–50, 50–75, 75–100 m at a single station off Sharm El-Sheikh City. The present study is an attempt to expand knowledge about the structure as well as the vertical distribution of the epipelagic zooplankton community in the Gulf of Aqaba in general and in its southern part in particular. The results indicate the occurrence of 52 copepod species and several species of other planktonic groups in the study area; the zooplankton standing crop fluctuated between 1124 and 4952 organisms  $m^{-3}$ . Copepods appeared to be the predominant component, forming an average of 86.5% of the total zooplankton count, and with other groups demonstrated a markedly different seasonal vertical distribution. Twelve bathypelagic copepod species were reported during the present study, and five species were new to the area, having migrated northwards from the main basin of the Red Sea.

## 1. Introduction

The Gulf of Aqaba is a moderately oligotrophic basin (Reiss & Hottinger 1984) and is characterized by a clear seasonal variation in both hydrographical and biological features (Wolf-Vecht et al. 1992, Manasrah et al. 2006). Being an important link in many marine food chains, zooplankton is affected directly by the surrounding environmental conditions, and its dynamics is controlled mainly by the seasonal changes of these conditions.

The vertical distribution of zooplankton in the epipelagic zone indicated a more even zooplankton distribution in well-mixed than in stratified columns (Buckley & Lough 1987, Checkley et al. 1992, Incze et al. 1996). In the northern Gulf of Aqaba, seasonal stratification is usually reported in the water column during the warm months (May to September), while deep vertical mixing occurred during the winter (Reiss & Hottinger 1984, Wolf-Vecht et al. 1992). Such seasonality led to an analogous seasonality in the structure of the zooplankton communities (Böttger-Schnack et al. 2001).

Plankton research in the Gulf of Aqaba was concentrated for a long time in the northern part. Several studies dealt with the distribution and abundance of particular zooplankton groups, such as foraminiferans (Almogi-Labin 1984), appendicularians (Fenaux 1979) and tunicates (Godeaux 1978), or of zooplankton near coral reefs (Vaissiere & Seguin 1984, El-Serehy & Abdel-Rahman 2004, Yahel et al. 2005). Copepods were the main subject of numerous studies in the northern part of the Gulf of Aqaba (Prado-Por 1990, Böttger-Schnack et al. 2001, 2008, Schnack-Schiel et al. 2008). There are also reports on the surface zooplankton from the northern Gulf (e.g. Echelman & Fishelson 1990, Aoki et al. 1990, Al-Najjar et al. 2002, Al-Najjar 2004) and from the whole of the Gulf (Khalil & Abdel-Rahman 1997), in addition to that in the water column at different depths (e.g. Kimor & Golandsky 1977, Al-Najjar & Rasheed 2005, Cornils et al. 2005, 2007, Al-Najjar & El-Sherbiny 2008). The zooplankton of

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