



The Effect of Environmental Fluctuations on Fish Diversity at the Lower Ends of the Shatt Al-Arab River, Iraq

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ABSTRACT

The present study was organized to address the effect of environmental fluctuation on the diversity of fish communities from November 2021 to October 2022 in the lower area of the Shatt Al-Arab River/Iraq. To collect fish samples, two stations were chosen, one of which is at Al-Seeba region and the other in Ras Al-Bishah region. The environmental factors affecting the abundance, diversity and distribution of fish species such as temperature and salinity were studied.

Air temperature ranged from 10.1 - 46.3°C in December 2021 and July 2022 respectively, and water temperature ranged from 14.6 - 32.5°C during January and July 2022, respectively. While, water pH fluctuated between 8.15 & 9.51, and the salinity showed high fluctuation during the study period, it ranged from 2.7g/L - 46.8g/L, whereas transparency values fluctuated between 11.5 and 72.5cm. Water current speed ranged from 1.5 - 4.2 cm/sec. The total number of fish samples was 1827, belonging to 31 species and 21 families. Fish samples were collected using a bottom beach gill net. Fish samples comprised of 26 marine fish species, three freshwater fish species and three estuarine fish species. Clubidae family consisted of four species, followed by Gobiidae with three species. *Thryssa whiteheads* were the most abundant species numerically comprising 27.96%, followed by *Tenuulosa ilisha* 20.08%, *Planiliza subviridis* (13.95%) and *Planiliza klunzingeri* (7.38%). The diversity index ranged between 1.211 & 2.073. The values of the evenness index ranged from 0.598 - 1.063; the range of richness index (Margalef) was (0.919 - 3.231) recorded. The fish classified according to their appearance in the monthly samples were divided into three groups: marine species, mirants river species and estuarine species.

INTRODUCTION

Studies on the diversity and effect of change in ecological variables on the fish composition are of great importance for drawing a clear picture of the nature's structure of fish composition, as well as providing good information on commercial and non-commercial species of fish and their spread (Korsbreke *et al.*, 2001).

The study of the environmental aspects is one of the important strategies to know the structure of the fish community (Al-Rudiny, 2010), which has an important role in understanding the reality of fish populations in the water body in order to develop them