

O-IX12

The exchange of water between the Mediterranean and the Red Seas through the Suez Canal

Girgis F. SOLIMAN* , Selim A. MORCOS** and Nabil HELALI***

*National Institute of Oceanography & Fisheries, Anfoushi, Alexandria (Egypt)

**Division of Marine Sciences, UNESCO, 75700 Paris (France)

***Suez Canal Authority, Ismailia (Egypt)

Seasonal water exchange is exhibited between the Mediterranean and the Red Seas which is highly controlled with the specific characteristics of the water body of the Suez Canal and the belonging lakes. Six hydrographic surveys - mostly in summer - have been conducted along the canal between Port-Said and Port-Tawfik during the period 1982-1986. Four cruises were involved in-depth surveys and have been undertaken to investigate the current regime particularly in summer. Temperature, salinity and currents have been observed. The mean water level along the canal was taken into consideration. It should emphasize that the last two cruises of August and September 1986 gave an evidence of peculiar patterns of the water movement in summer and winter. The southward current set on earlier than that previously experienced. Consequently, the northward current regains its original direction more earlier.

Southward current regime along Suez Canal is highly affected by the significant amount of fresh waters discharged from Lake Timsah, Lake Menzalah and the entrainment of relatively low saline water from the Mediterranean which have been prevailing before the construction of the Aswan High Dam. Presently, its amount fluctuates from year to year and consequently influences the water circulation in the canal. The prevailing north wind also plays an important role in driving the water into the northern and the southern parts of the canal. The water of the central part is affected by the high saline water from the Bitter Lakes and the low saline water discharging from the sweet canal at Ismailia and driven by the tidal currents. A current of more than 30 cm/sec is observed in the northern part of the canal which could be related to the high water level recorded at El-Kantara.

The last deepening and widening of Suez Canal is assumed to influence the resident time of the water in the Bitter Lakes and its water salinity. The resident time of the water in the lakes is expected to be about three to four months. The minimum salinity of 43.5 ‰ is reached in the last few years and the salt barrier is disappearing, which is revealed by the free movements of the marine organisms between the Mediterranean and the Red Seas.