

INTRODUCTION

The present thesis deals with sedimentological studies on the bottom and beach sediments with emphasizes on the environmental pollution. The Bardawil Lake is a water body connected nowadays to the Mediterranean Sea by two artificial inlets. On the other hand, it is a shallow hypersaline water body separated from the sea by a long and narrow sand barrier, which varies in width from 100m to 1000m. Because of the shallow depth and high rate of evaporation, not compensated by freshwater supply, the term Bardawil lagoon instead of Lake is used in this study. The Bardawil lagoon (Figure 1) is one of the largest lagoons in Egypt, situated in the north of Sinai Peninsula between longitudes $32^{\circ} 40'$ and $33^{\circ} 30'$ E and latitudes $31^{\circ} 03'$ and $31^{\circ} 14'$ N. It covers an area of 1600 Km². The southern side of the lagoon is a desert surface covered by sand dunes with low shores and interdune sabkhas (Fig. 1).

The length of the lagoon is about 90 km along the northern coast of Sinai Peninsula between El-Qantara and El-Arish. The maximum width is about 20 km. The water depth in the lagoon ranges from a few centimeters in the near-shore area to about 2.5 m in the central part, and the mean depth is about 1.45m.

The lagoon is connected to the sea by one natural opening named "Zaranik" at its eastern part and two artificial sea inlets named "Boughaz I" at the west and "Boughaz II" at the east. The two inlets are opened by periodical dredging.

The two artificial inlets are located in the curved coastal barrier that runs from the mainland coast near Rommana village to its other end at about 30 km to the west of El-Arish.

Historical Background:

Bardawil Lagoon was called Sabkhat El-Bardawil or Sirbonian Lagoon during the Roman Period (Ben-Tuvia, 1979). The lagoon was managed by the concessionaire system since 1905 (Jenkins, 1925). Abu-Zikri was the last concessioner who operated the lagoon in the period from 1927 until 1967. In 1927 the area was dry and an inlet was dug near El-Qals area (Wimpenny, 1930). Two inlets were established by Abu-Zikri in 1950 (Boughazes I & II).

During Israeli occupation of Sinai in 1967, both inlets were closed by 1970. The salinity in the lagoon increased up to 70: 90 ppt (Pisanty, 1981). The inlets were reopened in 1972.