

INVESTIGATIONS ON THE BOTTOM DEPOSITS OF LAKE MANZALAH, EGYPT

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Summary : Sediment samples were collected from Lake Manzalah, the largest Delta lake in Egypt, and subjected to some investigations. The percentages of the different sediment constituents showed a considerable wide range of variations. The water content was directly correlated with the organic and allochthonous materials, whereas the calcareous substances showed indirect correlation with these two constituents. The percentage distribution of the different components was found to depend mainly upon certain factors which were discussed.

Lake Manzalah is the largest Delta lake in Egypt and very important for the fishery economy of the country. This shallow brackish water lake has an area of about 171,000 hectares and an average water depth of less than 1m. It is connected with the Mediterranean Sea and the Suez Canal and several drains open into it. Sediment samples were collected at selected 25 stations, representing different regions of the lake bottom, and subjected to some chemical investigations in order to throw more light on the lake fertility.

The percentages of each of the different sediment constituents showed a considerable wide range of variations. The water content varied from 35.18-82.37 %, with an average of 58.44 %. The variation of water of the sediments is due mainly to their nature and type. The water content was directly correlated with the organic and the allochthonous materials. The values of dry matter fluctuated between 17.63 and 64.82 %, with an average of 41.56 %.

The percentages of organic matter ranged from 0.65-10.24 %, with an average of 5.96 %. The organic matter was found to be directly correlated with the allochthonous materials. It can be concluded that the allochthonous materials entering into Lake Manzalah via drainage and fresh waters might be considered as a source of organic matter for this lake.

The calcareous substances varied from 14.04-85.18 %, with an average of 49.80 %. The periferiae of the lake bottom were relatively poor in calcareous substances. However, the bottom of the central parts was generally enriched with these substances, due to the great accumulation of calcareous shells and shell fragments of calcareous organisms. The calcareous substances were found to be indirectly correlated with the organic and the allochthonous materials. The lower percentages of calcareous substances coincided with the relative decrease in the amounts of calcareous shells (Saad, 1976a). This is due mainly to the continual covering of the calcareous shells by the entering allochthonous materials (Saad, 1974).

The periferae of the lake bottom were generally rich in allochthonous materials, since they are found in the vicinity of the drains, the canals and the sea. However, the bottom of the central parts had relatively low values of allochthonous materials. These materials fluctuated in the sediment samples between 11.66 and 85.03 %, with an average of 43.66 %.

The SiO₂ ranged from 0.60-2.89 %, with an average of 1.24 %. The minimum SiO₂-percentage was associated with the minimum percentages of calcareous substances and organic matter and the maximum percentage of allochthonous materials, mainly sand which destroyed the diatom frustules. The relatively high percentages of diatom-silica found in certain sediment samples reflect the richness of these samples with diatom shells (Saad, 1971, 1972, 1976a, 1976b).

References :

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