Preliminary Study on the Hydrochemistry of the Egyptian Coastal Water of Aqaba Gulf, as an Unique Ecosystem during Year 2000

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The Environmental Information and Monitoring Program (EIMP) was established to assess the aesthetic quality of Aqaba Gulf, to initiate monitoring and database system for the Egyptian coastal water by using the quality assurance and quality control work and for sustainable use of the Gulf coast line. Within the framework of this program, six bimonthly field trips were carried out during year 2000. A total of 11 coastal stations were selected to cover different locations of the Gulf. The surface distribution pattern of hydrographical conditions (water temperature salinity, dissolved oxygen and pH) and eutrophication parameters (chlorophyll-a, total suspended matter, transparency, ammonia, nitrite, nitrate, total nitrogen, reactive and total phosphate and reactive silicate) were investigated and the obtained data deduced that:

- Water temperature was relatively high with almost no thermocline or thermal pollution.
- Variations in the distribution pattern of salinity and pH values were insignificant.
- The oxygen measurements clearly indicates that the water column is well oxygenated and the present load of organic matter and nutrients reached the Aqaba Gulf is below the level which bring about oxygen deficiency.
- Nitrogen in the dissolved inorganic forms (ammonia, nitrite, nitrate) is quite low in the surface coastal water of most locations of Aqaba Gulf. The abundance of different inorganic nitrogen forms were in the order ammonia > nitrate ≥ nitrite reflecting the increasing rate of ammonia production, as compared with the other inorganic nitrogen forms, than its uptake rate as a preferable inorganic nitrogen forms for phytoplankton.
- Phosphorus is principally the responsible nutrient for the limitation of phytoplankton growth.
- Nitrogen and phosphorus are found in the Egyptian coastal water of Gulf of Aqaba principally in organic forms.
- Based on the levels of chlorophyll-a, transparency ammonia, nitrate, total nitrogen, reactive and total phosphate Aqaba Gulf coastal water can be classified under oligotropic to mesotrophic state.
- It is safe to conclude that the main body of Gulf of Aqaba is not yet seriously threatened by eutrophication, the problem instead is sometimes local and regional and limited largely to specific coastal area of the northern part of the Gulf.