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First Results from the Egyptian Coastal Water Monitoring Programme

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Abstract

The marine water sampling programme designed for the whole Egyptian coast, covering the Mediterranean Sea, the Gulf of Suez, the Red Sea and the Gulf of Aqaba has now compiled data obtained since March 1998. This environmental data sampled on a continuous basis has provided information on the environmental condition in coastal areas of Egypt including the Mediterranean Sea. The programme as presented at MEDCOAST97 (Jensen et al., 1997) is designed to focus on measurements of basic parameters, bacteriological and eutrophication parameters at 83 selected stations every second month. On the Mediterranean coast, 45 stations have been carefully selected taken into consideration existing data and focusing on sources of pollution from industrial and urban areas, major tourist resort areas and outlets from the river Nile.

The results from the first year show that high levels of both nitrate-nitrite and reactive phosphate are found around most major outlets in the Alexandria region as well as around the outlets from the river Nile and associated lakes and drainage systems. The concentrations of nitrate-nitrite were in general low in regions west of Alexandria and east of Port Said where impacts from land pollution sources remain relatively low. The highest concentrations of reactive phosphate were measured at El-Mex (2.6 (M/l with annual average at 1.1 (M/l) and close to the sewage outlets from Alexandria (NIOF - 2.8 (M/l with annual average at 0.9 (M/l). These high levels reflect presumably discharge of sewage whereas the high concentrations of nitrogen compounds may reflect run-off from agricultural areas. The highest concentrations of ammonia are found in areas with both increased levels of nitrate-nitrite and reactive phosphate.

The biological response to the described nutrient parameters is found in observations of high levels of chlorophyll-a at several stations with sewage or drainage outlets. The average concentrations of chlorophyll-a are between 8.8 - 20.9 µg/l at El-Mex, NIOF outlet, Eastern Harbour, Abu Qir Bay and Port Said with occasional peaks up to 65 µg/l at Port Said. These levels are an indication of occurrences of phytoplankton sometimes reaching a level considered as blooms. These areas have throughout the year general high concentration of nutrients. From Biatch and westwards the concentration of chlorophyll-a is in general at a much lower level due to the reduced number of freshwater and sewage outlets.

The results of the bacteriological examinations (E.coli, total coliforms and Faecal streptococci) show a seasonal pattern with increased levels in July-August due to high recreational use of the coastal area in this period. Several of the popular beaches exceed slightly the EU-standard for acceptable bathing water quality. The level of bacteria increases dramatically from El-Mex and around the inner part of Alexandria harbour to levels between 10.000 to well above one million bacteria/100 ml.

The present programme is intended to run for several years with annual adjustments.