

Nozha hydrodrome is an artificial lake with an area of about 504 hectare (1200 acres). Formerly it was a part of the brackish water lake Maryut, now used as a fish farm.

In 1982 till 1987 a long term fertilization experiment was carried out to increase fish production using chemical fertilizers. At the beginning 5 kg of super-phosphate+5 kg of ammonium nitrate were added weekly per acre. The fertilizer was well mixed with water and spread as evenly as possible using a motor boat. Fertilizers were not added during December and January also during July and August, as these months proved to be of minimum plankton production.

The amount of fertilizer was lowered according to the results of water analysis. Water was analysed for temperature, pH, oxygen content, ammonia, phosphate, nitrate, nitrite, carbonate alkalinity and chlorophylla.

Water temperature varied between a minimum of 12.9°C in February 1983, and a maximum of 29.5°C in July 1986. Generally water temperature is favourable for plankton production. The pH was nearly always above 8.0.

Alkalinity is relevant to the suitability of water to fish culture, water with low alkalinity values are generally biologically less productive. The alkalinity of the hydrodrome water was between 21-43 mg CaCO₃/L.

No sign of oxygen deficiency was observed in the hydrodrome water during the experiment. With the progress of fertilization the oxygen content increased.

In 1982 the average oxygen value was 4.95 ml/l, in 1983 it was 5.98 ml/l in 1984 it was 6.77 ml/l and in 1985, it reached 7.01 ml/l.

Nitrogen compounds were not detected in high concentrations even after fertilization, this is due to the role played by denitrification and retention of ammonia by bottom deposits and its subsequent utilization by algae. This leads us to ask whether adding inorganic nitrogen fertilizers is economic.

Unlike nitrogen compounds, inorganic phosphorus was high in the hydrodrome water due to successive superphosphate addition. From October 1982 to March 1987, the phosphate content of the water never fell below 15 µg at/l.

Chlorophylla is regarded as the essential component responsible for the amplitude of photosynthetic potential. Chlorophylla content of the hydrodrome water was measured before fertilization and found to be 2.0 mg/m³. After adding fertilizers it rose remarkably reaching up to 13.7 mg/m³ in the period May-December 1982, in 1983 it rose up to 20.11 mg/m³, in 1984, it reached a maximum of 29.11 mg/m³ in 1985 it reached 18.7 mg/m³. In May 1986, due to a sudden plankton bloom it rose up to 175.37 mg/m³, then dropped sharply after one week to reach 63 mg/m³.

The ultimate goal in any fertilization experiment is to increase fish production. The yield of fish from the hydrodrome before fertilization was 54 ton/year. As a result of fertilization the yearly increase in fish production is :

1982	1983	1984	1985	1986	1987	
13.4	48.7	150.6	148.8	65.0	151.0	ton

To sum up, the fertilization experiment of the Nozha hydrodrome gave a total gain in the fish yield of 577.5 ton, equivalent to a maximum increase reaching in some years up to 300%.