SUMMARY

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Lake Qarun lies at the lowest part of El-Fayoum depression in the western desert between longitudes 30° 24′ and , 30° 49′ E and latitudes 29° 29′ and 29° 34′ N . The area of Lake Qarun is about 55,000 feddans . It extends for about 40 Km long from east to west and 5.7 Km as a mean breadth .

The lake receives drainage water from the neighboring cultivated lands through a system of drains. El-Bats and El-wadi drains are the main channels joining the lake at the east and mid-south sides respectively .

The following is a summary of the obtained results :-

Physico-Chemical features of the lake :

1. Temperature :

Water temperature follows that of the air . The lowest average of surface water temperature was 12.7 °C during winter while the highest attained 31 °C calculated during summer .

2. Transparency :

Lake's water transparency is relatively low (average 35 Cm) . Secchi disc reading varied from 5 to 110 cm. The highest value was recorded in station VI , while the lowest was observed in station I and VIII .

3.Depth :

Water depth ranged from few centimeters beside shores to 700 cm at station VI which is the deepest station .

4.Nature of bottom :

Bottom sediments of Lake Qarun is nearly homogenous . Most of the studied stations have muddy bottom except those neighbouring the drains (have sandy mud bottom).

Benthic fauna in Lake Qarun and the feeding drains :

1. Twenty Species of benthic invertebrates were recorded in Lake Qarun belonging to 18 families and 10 orders. 6 of these species (30 % of the species number) are new to the area. These are one coelenterate (*Aiptasiogeton* cf *comatus*) recorded for the frist time throughout the present study, not only from Lake Qarun , but also from the whole Egyptian waters , one polychaete (*Polydora ligni*), one amphipod (*Corophium acherusicum*) , one deacopd (*Brachynotus sexdentatus*) , one gastropod (*Nassarius cuvieri*) and one bivalve (*Venerupis aurea*) . Crustacea are the main zoobenthos component in the lake followed by polychaeta , Mollusca and less so Coelentrata .
2. El-Bats and El-wadi drains are relatively poor than the lake. In them (8) species belonging to 6 orders of Annelida , Arthropoda and Mollusca were recorded.

3. The average population density of benthic organisms in the lake attained 1676 organisms/m^2/year weighing 81.23 G.F.W./m^2/year . The highest density was recorded in station VI with an average of 3925 , while the lowest P.D. and biomass (210 individuals/m^2/year weighing 18.35 G.F.W./m^2/year were recorded in station VII .
4. Winter was the most productive season (produced 2058 organisms/m^2/year) all over the whole area , while spring was the poorest .
5. Concerning biomass , the lowest value was observed during winter while the highest one (115.39 G.F.W./m^2) was observed during autumn .
6. Average P.D. and biomass of benthos in El-Bats Drain (2220 organisms/m^2 weighing 6.44 G.F.W./m^2) was low when compared with the corresponding values in El-Wadi Drain (3690 organisms/m^2/year weighing 344.13 G.F.W./m^2). The annual standing crop in the drains is higher than that observed in any station in the lake during the whole investigated period .
7. Arthropoda (represented by Crustacea) was the dominant benthic phylum in the lake's community . They represented about 69.98 % of the P.D. and 35.08 % of the biomass of the total benthos. Maximum distribution was recorded at station VI during winter. Numerically, *Corophium ascherusicum* was the most important crustacean species. It constituted 81.23 % of the

glaucum) . The last species represented the main biomass (30.6 %) of the total benthos in the lake .

In the feeding drains , Mollusca constituted about 14.36 % and 97.19 % , respectively , of P.D. and biomass of the total benthos in El-Wadi Drain and 1.35 % and 51.39 % respectively of the total P.D. and biomass in El-Bats Drain. They were mainly represented by 3 gastropods (*Theodoxus niloticus* , *Cleopatra bulimoides* and (*Physa acuta*) and one bivalve namely *Corbicula consbrina* .

10. Colentrata was less represented in the lake if compared with other benthic organisms. It constitute about 5.54 % and 1.26 % of the total benthic P.D. and biomass respectively . This group was represented by one odd species of sea anemone namely *Aiptasiogaton cf comatus.*

11. Lake Qarun is a fertile lake in benthic organisms . Both P.D. and biomass of zoobenthos were higher when compared with other Egyptian lakes .

The present study recommends station VI as a suitable site for a bottom feeders fish farm . As well , the high production of the bivalve *Cerastoderma glaucum* from the lake and specially station VIII encourages the exploitation and aquaculturaing of this edible species in Lake Qarun .