SUMMARY

Lake Nasser, one of the largest and the most productive man made lakes in Africa, constitutes a very important sector in the Egyptian fisheries, both for significant total catch and for the large number of economically important fish species. Planktonic and epiphytic microinvertebrate communities constitute the main component of the food chain, especially in Lake Nasser.

The abundance and distribution of the planktonic and the epiphytic microinvertebrates at six khors in Lake Nasser during the post-flood season (March, 2006) and flood season (November, 2006) showed greatly variations. The principal objective of the present work is to estimate the impact of the different physico-chemical parameters on the planktonic and the epiphytic microinvertebrates at the studied sites before and after the flood, to obtain the impact of the flood on their distribution, in addition to the analysis of stomach contents from these invertebrates.

I- Physico-chemical parameters:

1- Water temperature showed agreement and slightly variations with air temperature. The lowest average value of water temperature was recorded during PFS (21.5 ˚C) while the highest one was recorded during FS (23.2 ˚C). At all the collected stations, the highest value of water temperature (26.7 ˚C) was recorded at Station IN of Gurf Hussein during PFS, while the lowest (18.5 ˚C) was measured at Station IIN of Gurf Hussein during PFS.

2- Transparency of water decreased considerably from the northern part to the southern one of Lake Nasser. The highest average value of 2.60 m has been recorded at Khor El-Ramla, while the lowest average value (1.11 m) was recorded at Khor Tushka West.

3- The conductivity in Lake Nasser was less than 600 µmhos cm^{-1}. The average value of EC in Lake Nasser khors was 225 µmhos cm^{-1}, with the highest average value during FS (231 µmhos cm^{-1}) and the lowest during PFS (218 µmhos cm^{-1}). The highest values were recorded in the northern part of the lake at Khor El-Ramla

(241 µmhos cm^{-1}) while the lowest one was recorded in the southern part at Khor Tushka East (213 µmhos cm^{-1}).

4- Total solids appeared with the highest value at sector III in Khor El-Ramla (185 mg l^{-1}) during the PFS, while the lowest values (135 and 130 mg l^{-1}) were observed at Khor Tushka West in the first and middle sectors during FS.

5- The Hydrogen ion concentration in the lake lies on the alkaline side. The average values of pH during PFS fluctuated between 8.84 and 9.14; while during FS it ranged between 8.50 and 8.73. The lowest value of pH (8.50) was recorded at Station TEIN during FS, while the highest value (9.50) was recorded at Station GHIIN during FS.

6- Dissolved oxygen reached to the highest value (12.80 mg l^{-1}) at Station IN of Khor Gurf Hussein during FS. While the lowest one (6.80 mg l^{-1}) was recorded at Station IIN of Khor El-Ramla during PFS.

7- Chemical oxygen demand showed remarkable decrease during FS. Lake Nasser showed the highest values of COD (14.23 mg l^{-1}) at Station IN of Khor Tushka East during PFS, while the lowest one (0.80 mg l^{-1}) was recorded at Stations IN and IS of Khor Tushka East during FS.

8- Carbonate showed remarkable increase of concentrations during FS. The highest value was recorded at Tushka East (Stations IN & IIN) and Tushka West (Station IN), while the lowest value was recorded during the PFS at Khor El-Ramla (Stations IIS, IIIS and IN) and Khor Tushka West (Station IN).

9- Bicarbonate reached to the maximum value (267.8 mg l^{-1}) at Stations IS & IIIS in Khor Kalabsha during FS, while the minimum value (84 mg l^{-1}) was recorded at Station IIS in the same khor during PFS.

10- Sulphur is one of the six major elements required for living organisms. The southern khors showed highest values of sulphate than the northern khors. The highest value (19.74 mg l^{-1}) was recorded at Station IS of Khor Kurusku during FS and the lowest one (13.23 mg l^{-1}) was found at Gurf Hussein (Station IS) during PFS.

11- Calcium appeared the highest value (32.06 mg l^{-1}) at Tushka West (Station IIN) during FS and the lowest one (16.03 mg l^{-1}) at Tushka West (Station IN) during the PFS. Calcium concentrations showed a relatively increase in FS.

12- Magnesium showed the highest value (20.38 mg l^{-1}) at Station TWIN during PFS and the lowest one (5.41 mg l^{-1}) at Khor Tushka East (IIN) and Tushka West (IIN) during FS.

13- Nutrient salts in Lake Nasser lied in the acceptable ranges. The most important elements of nutrient measured in the present study are nitrite, orthophosphate, total phosphorus and silicate.

- Nitrite showed the highest value during the PFS at Tushka West (IN) with 25.46 µg l^{-1}, while the lowest value was recorded during FS at Kalabsha (IIIN) being 1.35 µg l^{-1}.
- Orthophosphate showed the minimum value at Khor Kurusku (IN) during PFS (17.99 µg l^{-1}). However, the maximum value was recorded at Khor Tushka West (IIS) during FS (199.90 µg l^{-1}).
- Total phosphorus showed the highest value at Khor Tushka West (IIIS) during PFS (1999.95 µg l^{-1}), while the lowest value (34.32µg l^{-1}) was recorded at Khor Gurf Hussein (IIS) during FS.
- Silicate showed the lowest value (0.51 mg l^{-1}) at Khor Tushka West (IIIS) and the highest (3.63 mg l^{-1}) at Khor El-Ramla (IIN) during FS.

II- Microinvertebrates:

II-A- Planktonic microinvertebrates (zooplankton):

1- The highest average standing crop was recorded at the southern part of the lake, at Khor Tushka West (123292 org. m^{-3}), while the lowest average was recorded at the northern part, at Khor El-Ramla (90741 org. m^{-3}).

2- Zooplankton community in Lake Nasser dominated by Copepoda, Rotifera and Cladocera. The highest number of zooplankton species was recorded during post flood season (PFS) being 34 species (3 Copepoda, 20 Rotifera and 11 Cladocera), while the lowest number of species was recorded during flood season (FS) being 31 species (3 Copepoda, 18 Rotifera and 10 Cladocera).

3- Copepoda was the main dominant group of zooplankton in Lake Nasser. It contributed 63.83 % of the total zooplankton population, with the lowest number during PFS (51944 org. m^{-3}) and the highest during FS (86362 org. m^{-3}).

- Nauplius larvae formed the highest bulk of copepods in the lake (53.25 % of Copepoda), with the lowest number during PFS (23098 org. m^{-3}) and the highest number during FS (51185 org. m^{-3}). The highest abundance of nauplius larvae was recorded at Station IIN (154085 org. m^{-3}) of Khor Kurusku during FS, while the lowest one was recorded at Station IS (815 org. m^{-3}) of Khor Kalabsha during PFS.
- Copepodite stages represented 29.77 % of the total Copepoda. Cyclopoid and calanoid copepodites were recorded with the lowest number during PFS (15.16 and 12.74 % of Copepoda, respectively), while the highest numbers were recorded during FS (41.9 and 16.75 % of Copepoda, respectively). At all the recorded Stations, the highest number of the copepodite stages was recorded at Station IIIN (63128 org. m^{-3}) during FS and the lowest one was found at Station IIN (339 org. m^{-3}) during PFS.
- Copepoda was represented by the calanoid *Thermodiptmus* (14.74 %) and the cyclopoids *Mesocyclops* (12.21 %) & *Thermocyclops* (2.04 %).
- The average number of *Thermodiptomus* was 7453 org. m^{-3}, with the highest number during PFS (8797 org. m^{-3}) and the lowest during FS (6109 org. m^{-3}). The highest average numbers were recorded at the northern khors (El-

Ramla and Kalabsha) and the lowest average was found at the southern khors (Tushka East and West).

- *Mesocyclops* appeared with average of 3761 org. m^{-3}, with the highest number during PFS (4168 org. m^{-3}) and the lowest during FS (3354 org. m^{-3}). Variation of *Mesocyclops* showed that, the highest average number (27890 org. m^{-3}) was recorded at Station IN of Kalabsha, while the lowest average value (679 org. m^{-3}) was recorded at Station IN of Tushka East.
- *Thermocyclops* recorded the lowest average number of total Copepoda (1353 org. m^{-3}), with the highest average number during PFS (1116 org. m^{-3}) and the lowest number during FS (1589 org. m^{-3}).

4- Rotifera constituted 23.64 % of total zooplankton number with an average 26216 org. m^{-3}. The highest number (41107 org. m^{-3}) was noticed during PFS and the lowest number (11325 org. m^{-3}) during FS. The dominant genera of Rotifera were; *Keratella, Conochillus* and *Synchaeta*, forming collectively about 94.06 % of total rotifers.

- Twenty six species of rotifers belonging to 15 genera were recorded, with the highest number of species during PFS (20 species) and the lowest during FS (18 species).
- The maximum number of rotifers was observed at the southern part of the lake (Khor Tushka West) being 53428 org. m^{-3}, while the lowest average value was found at Khor Gurf Hussein being 7959 org. m^{-3}.
- *Keratella* considered the most dominant genera in Lake Nasser. It contributed about 89.89 % of the genus, 71.20 % of the total rotifers. It was represented by two species; *K. cochlearis* and *K. tropica*.
- The average number of *K. cochlearis* is 24348 org. m^{-3}, with the highest average number during PFS (41627 org. m^{-3}) and the lowest number during FS (7069 org. m^{-3}). The highest average numbers of *K. cochlearis* was recorded in the southern part of the lake at Tushka West (61924 org. m^{-3}) and the lowest in the middle at Khor Gurf Hussein (5617 org. m^{-3}). *K. tropica* constituted 10.72 % of the genus. The average number of *K. tropica* is 1108 org. m^{-3}. The maximum abundance of *K. tropica* (5498 org. m^{-3}) was

found at the northern part of the lake (Khor El-Ramla at Station IIIS), while the minimum one was noticed at Khor Tushka East (The southern part of the lake at Station IIS (170 org. m^{-3}).

- *Conochillus* was represented by *Conochillus* sp. It contributed 7.73 % of the total rotifers. The average number of *Conochillus* sp. is 1556 org. m^{-3}, with the highest peak at Khor Kurusku (IIIN) during PFS (24029 org. m^{-3}), while the lowest one was noticed at Khor Gurf Hussein (IN) during FS (102 org. m^{-3}).
- *Synchaeta* was represented by *Synchaeta* sp. constituting 6.58 % of the total rotifers. The average number of this species is 1950 org. m^{-3} with maximum abundance at Khor El-Ramla (IIN) during PFS (16630 org. m^{-3}), while the minimum one was observed at Khor Kalabsha in each IIN and IIIS Stations being the same value of 170 org. m^{-3} during FS.
- The infrequent or rare forms of rotifers; such as *Platyia, Annuraeopsis, Asplanchna, Brachionus, Colurella, Polyarthra, Trichocerca, Monostyla, Lepadella, Filina* and *Hexarthra* were recorded during the study.

5- Cladocera was represented by eight genera and twelve species. It contributed 13.91 % of the total zooplankton number with the highest occurrence during PFS and the lowest during FS.

- The recorded cladoceran genera are *Alona, Bosmina, Ceriodaphnia, Daphnia, Diphanosoma, Chydorus, Macrothrix* and *Simocephalus*.
- The number of total Cladocera varied from khor to other. The highest average number of total Cladocera was recorded at Khor Tushka East (22190 org. m^{-3}). It decreased at Khor Kalabsha (13390 org. m^{-3}), then reached to the lowest number at Kurusku (8080 org. m^{-3}).
- Genus *Bosmina* was represented by *B. longirostris*. It considered the most dominant species of Cladocera contributing 35.22 % of the total Cladocera number. The average number of *B. longirostris* in Lake Nasser khors was 7540 org. m^{-3} with the highest average during PFS being 14023 org. m^{-3} and the lowest during FS being. 1057 org. m^{-3}.

- *Diphanosoma* was represented by only *D. excisum* that contributed 13.85 % of the total Cladocera. The average number of *D. excisum* was 2254 org. m^{-3} with the highest average count during PFS and the lowest during FS.
- *Ceriodaphnia* was represented by *C. cornuta* contributing 12.94% of the total Cladocera. The average number of *C. cornuta* was 1952 org. m^{-3} with the highest average number during PFS being 2777 org. m^{-3} and the lowest average during FS being 1127 org. m^{-3}.
- *Daphnia longispina* constituted 12.98 % of the total Cladocera. The average number of *D. longispina* was 1606 org. m^{-3}, with the highest average during PFS being 1766 org. m^{-3} and the lowest during FS being 1446 org. m^{-3}.
- On the other hand the infrequent or rare forms of Cladocera such as *Chydorus, Alona* and *Macrothrix* were recorded during the study.

6- Other zooplankton groups appeared as rare groups, representing totally 0.53 % of the total zooplankton number. They included Turbellaria, Nematoda, Insecta, Oligochata and Protozoa.

II-B- Epiphytic microinvertebrates:

1- Epiphytic microinvertebrates is comprised of seven main groups; Nematoda, Rotifera, Protozoa, Cladocera, Insecta, Oligochacta and Copepoda. Forty five species were recorded (27 Rotifera, 5 Protozoa, 9 Cladocera, 2 Copepoda and 2 Oligochaeta).

2- The highest number of epiphytic microinvertebrate species was recorded during post flood season (PFS), being 36 species (23 Rotifera, 7 Cladocera, 3 Protozoa, 2 Copepoda and one Oligochaeta), while the lowest one was found during flood season (FS), being 32 species (18 Rotifera, 7 Cladocera, 4 Protozoa, one Copepoda and 2 Oligochaeta).

3- The average numbers of TEM in Lake Nasser Khors was 2806 org. g plant dw^{-1}, with the highest average during PFS (4258 org. g plant dw^{-1}) and the lowest during

FS (1355 org. g plant dw^{-1}). The highest number of TEM was recorded at Khor El-Ramla (IIN) with 11358 org. g plant dw^{-1} and the lowest one was recorded of Khor Kalabsha (IIIS) being 411 org. g plant dw^{-1}.

4- Epiphytic Nematoda showed that, it considered the most dominant group forming 31.41 % of the total epiphytic microinvertebrates, with average number 847 org. g plant dw^{-1}.

5- Rotifera constituted 28.89 % of total epiphytic microinvertebrates, with average number 1044 org. g plant dw^{-1}. The highest average number was recorded during PFS (1725 org. g plant dw^{-1}) and the lowest one (363 org. g plant dw^{-1}) was found during FS.

- Rotifers was represented by twenty seven species of epiphytic rotifers belonging to 11 genera, with the highest number of species during PFS (23 species) and the lowest during FS (18 species).
- The dominant genera of rotifera were *Keratella, Monostyla, Lecane* and *Anuraeopsis.* They formed collectively 87.51 % of the total epiphytic rotifera.
- TER varied from khor to other, the highest average number was recorded at Khor El-Ramla (1904 org. g plant dw^{-1}) and the lowest average (194 org. g plant dw^{-1}) was recorded at Khor Tushka East.
- *Keratella* considered the most abundant genus contributing 39.93 % of the total rotifers. It was represented by two species; *K. cochlearis* and *K. tropica*.
- *Lecane* was represented by seven species; *L. Luna, L. nana, L. holiclysta, L. aspasia, L. arcula L. ludwigi* and *L. Clara.* This genus contributed 21.05 % of the total epiphytic rotifers.
- *Anureopsis* was represented by one species, *A. fissa,* contributing 5.34 % of the total epiphytic rotifers.
- *Macrochaetus* was represented by *M. collinsi* and *M. intermedium.* It contributed 3.10 % of the total epiphytic rotifers.

- *Lepadella* was represented by four species; *L. ovalis, L. beingamini, L. ehrenbergi* and *L. patella*. This genus contributed 2.24 % of the total epiphytic rotifers. All the species were recorded during PFS.
- *Euchlanis* was represented by *E. dilatata*. It contributed 0.76 % of the total epiphytic rotifers.
- *Tripleuchlanis* was represented by *T. plicata*. It contributed 0.29 % of the total epiphytic rotifers.
- *Platyias* was represented by *P. patulus*. It contributed 0.24 % of the total epiphytic rotifers.
- *Trichocerca* was represented by *T. longiseta*. It contributed 0.14 % of the total epiphytic rotifers.

6- Protozoa contributed 12.20 % of the total epiphytic microinverterbrates. The average number of total epiphytic Protozoa (TEP) in lake Nasser khors was 260 org. g plant dw^{-1}, with the highest average during PFS (278 org. g plant dw^{-1}) and the lowest during FS (242 org. g plant dw^{-1}).

- The highest average number of TEP was recorded at Khor El-Ramla (818 org. g plant dw^{-1}) and the lowest average was recorded at Khor Tushka East (24 org. g plant dw^{-1}). It was recorded only at Station IIS (176 org. g plant dw^{-1}) during PFS.
- Protozoa was represented by five species belonging to five genera; *Centropyxis, Acropisthium, Trachelomonas, Euglypha*, and *Arcella*.
- *Centropyxis* was represented by *C. aculeate*. It considered the most abundant protozoan genera, contributing 85.79 % of the total epiphytic Protozoa with average number of 240 org. g plant dw^{-1}. The maximum abundance of *C. aculeate* was found at Station IIN of Khor El-Ramla during PFS while the minimum one was noticed at Station IS of Khor Kalabsha during FS.
- *Acropisthium* was represented by *A. mutabi* contributing 9.60 % of the total epiphytic Protozoa with average number of 26 org. g plant dw^{-1}. *A. mutabi* was found at four stations. The highest number was recorded at Station IIN

of Khor El-Ramla and decreased to the lowest one at Station IIS of Khor Gurf Hussein.

- *Trachelomonas* was represented by *Trachelomonas* sp. contributing 2.09 % of the total epiphytic Protozoa with average number of 12 org. g plant dw^{-1} during PFS while it disappeared during FS.
- *Euglypha* was represented by *Euglypha* sp. contributing 1.48 % of the total epiphytic Protozoa.
- Genus *Arcella* was represented by *A. discoides* contributing 1.05 % of the total epiphytic Protozoa.

7- Nine species of epiphytic Cladocera belonging to seven genera were recorded with the same number of species (7 species) during PFS and FS constituting 7.88 % of the total epiphytic microinvertebrates with an average 265 org. g plant dw^{-1}.

- The highest number of total epiphytic Cladocera was recorded at Khor El-Ramla (844 org. g plant dw^{-1}) and the lowest average was recorded at Khor Gurf Hussein (88 org. g plant dw^{-1}).
- The dominant genera of Cladocera were *Alona* spp. and *Chydorus sphaericus*, forming collectively 84.52 % of total epiphytic Cladocera.
- *Alona* was represented by *A. intermedia*, *A. rectangular* and *A. guttata*. This genus contributed 66.73 % of the total epiphytic Cladocera.
- *Bosmina* was represented by *B. longirostris,* contributing 3.73 % of the total epiphytic Cladocera. The average number of *B. longirostris* was 33 org. g plant dw^{-1} during PFS, while it disappeared during FS.
- *Chydorus* was represented by *C. sphaericus*, contributing 17.79 % of the total epiphytic Cladocera. The average number was 64 org. g plant dw^{-1}.
- *Diphanosoma* was represented by *D. excisum*, contributing 6.74 % of the total epiphytic Cladocera. The average number was 13 org. g plant dw^{-1}.
- *Pleuroxus* was represented by *Pleuroxus* sp., contributing 3.61% of the total epiphytic Cladoceera. The average number of *Pleuroxus* sp. was 6 org. g plant dw^{-1} during FS while it disappeared during PFS.

- *Oxyours* was represented by *Oxyours* sp., contributing 0.79% of the total epiphytic Cladocera. The average number was 7 org. g plant dw^{-1} during PFS, while it disappeared during FS.
- *Macrothrix* was represented by *Macrothrix* sp., contributing 0.60% of the total epiphytic Cladocera. The average number was 1 org. g plant dw^{-1} during FS, while it disappeared during PFS.

8- Epiphytic Insecta (TEI) constituted 7.06 % of the total epiphytic microinvertebrates. The average number of TEI in Lake Nasser Khors was 163 org. g plant dw^{-1}. The highest average number was recorded at Khor El-Ramla (396 org. g plant dw^{-1}), while the lowest average was recorded at Khor Tushka West (16 org. g plant dw^{-1}).

9- Oligochaeta constituted 6.65 % of the total epiphytic microinvertebrate. It was represented by two species; *Chaetogaster limnaei* and *Aeolosoma* sp. The average number of epiphytic Oligochaeta was 129 org. g plant dw^{-1}, with the highest average at Khor El-Ramla (228 org. g plant dw^{-1}).

10- Copepoda considered the lowest recorded group of the epiphytic microinvertbrates. It contributed 5.91 % of the total microinvertebrates, with the highest percent during PFS (10.28 %) and the lowest during FS (1.54 %).

- The average number of total epiphytic Copepoda in Lake Nasser Khors was 229 org. g plant dw^{-1}, with the highest average number during PFS (438 org. g plant dw^{-1}) and the lowest one during FS (21 org. g plant dw^{-1}).
- The highest average number of total epiphytic Copepoda was recorded at Khor El-Ramla (528 org. g plant dw^{-1}), while the lowest one was recorded at Khor Gurf Hussein (100 org. g plant dw^{-1}). It disappeared during FS.
- Copepodites stages (Cyclopoida and Calanoida) and Nauplius larvae formed the highest bulk of Copepoda, formed collectively 97.52 % of the total Copepoda**.**

- Nauplius larvae constituted 35.48 % of the total Copepoda, with average number of 110 org. g plant dw^{-1}. The highest abundance of nauplius larvae was found at Khor El-Ramla (Station IIN) during PFS (988 org. g plant dw^{-1}), while the lowest one was noticed at Khor Kalabsha at Station IN during FS (17 org. g plant dw^{-1}).
- Cyclopoida contributed the highest bulk of total Copepoda (55.06 %). The average number of cyclopoid copepodites was 108 org. g plant dw^{-1}, with the highest peak at Khor El-Ramla (IIS) during PFS (793 org. g plant dw^{-1}) and the lowest one at Khor Kurusku (IIS) during FS (33 org. g plant dw^{-1}).
- Calanoid copepodites considered the lowest abundant of the juvenile stages. It contributed 6.98 % of the total Copepoda. The average number of the calanoid copepodites was 9 org. g plant dw^{-1}.
- Copepoda was represented by two species only; *Thermodiaptomus galebi* and *Mesocyclops ogunnus*. They formed collectively 2.48 % of total Copepoda.

III-Submerged macrophyte communities and their associated microinvertebrates:

1- Three submerged macrophyte species were recorded in the study; *Myriophyllum spicatum, Najas horrida* and *Patamogeton schweinfurthii*. The aquatic submerged macrophytes were represented in four communities; *Myriophyllum spicatum, Najas horrida, M. spicatum-N. horrida* and *M. spicatum.-P. schweinfurthii*.

2- *M. Spicatum – N. horrida* community harboured the highest abundance of epiphytic microinvertebrates (1488 org. g plant dw^{-1}). It contained seven groups in association with this community; Nematoda (514 org. g plant dw^{-1}), Rotifera (453 org. g plant dw^{-1}), Insecta (195 org. g plant dw^{-1}), Cladocera (97 org. g plant dw^{-1}), Oligochaeta (94 org. g plant dw^{-1}), Protozoa (72 org. g plant dw^{-1}) and Copepoda (63 org. g plant dw^{-1}).

3- The lowest abundance of epiphytic microinvertebrates was found in association with *N. horrida* community (753 org. g plant dw^{-1}). This community harboured

five groups only; Nematoda (354 org. g plant dw^{-1}), Rotifera (275 org. g plant dw^{-1}), Copepoda (108 org. g plant dw^{-1}) and Oligochacta (8 org. g plant dw^{-1}) and protozoa (8 org. g plant dw^{-1}).

4- CCA analysis indicated that; during PFS, the most important factors affecting the epiphytic microinvertebrates distribution are Mg, Co_3, Silicate and COD, in addition to water temperature, electrical conductivity, sulphate, total solids, nitrite and total phosphorus which considered the most important factors affecting on zooplankton distribution also. However, bicarbonate and pH have a lesser influences of the distribution of the epiphytic microinvertebrates.

IV-Food habits :

1-comosition of *O. niloticus* revealed that, the large cladocern e.g. *Daphnia* is preferred to this fish while juvenile crustacean zooplankters and rotifers may actually increase under fish predation.

2- *S. galilous* recorded similar food habits to *O. niloticus.* This indicates that the cladocerans *B. longirostris* and *D. longispina* were preferred for these tilapias, while total Copepoda was recorded a negative value of selectivity index during PFS and FS. Also, Rotifera recorded a negative value of selectivity index during PFS and FS.

3- *Lates niloticus* incorporate zooplankton in their diets during their juvenile stages. In the present study, Copepoda and Insecta considered the most dominant groups being 47.34 % and 45.12 % of the total animal groups, respectively in *L. niloticus* stomachs during PFS. The selectivity index of *L. niloticus* fish species recorded a high positive value for *T. galebi* (0.73) during PFS and *D. longispina* (0.98) during FS.

4- *Alestes* sp. Showed a slightly differences in their feeding habits during the two seasons. During PFS, the cladoceran *D. longispina* was the most dominant group in *Alestes* sp. stomachs being 94.83 % of the total microinvertebrate while Insecta

and the copepod *M. ogunnus* were infrequently recorded in *Alestes* sp. stomachs with low numbers. Also, during FS, the cladoceran; *C. cornuta* and *C. spharicus* were the most dominant in *Alestes* sp. stomachs being 46.51 and 34.42 % of the total microinvertebrate, respectively. Copepoda formed 18.16 % of the total microinvertebrate content. It was dominated by *T. galebi* and cyclopoid copepodites.

5- The percentage composition for *H. forskalii* during PFS showed that, fairly shrimp recorded the highest occurrence (42.86 %) while Copepoda and Insecta recorded the lowest occurrence with the same value (28.57 % of the total invertebrate content in *H. forskalii* stomachs).

Conclusion & Recommendation

During flood season, the physico-chemical parameters of water lake showed that, all the selected sites were within safe limits for drinking and aquatic life survival.

The southern parts of the lake considered high productive in their zooplankton content while the northern one showed high productive in their epiphytic microinvertebrate. This attributed to the high fishing effort in the northern part.

The water sources from planktonic and epiphytic microinvertebrates were varied and available especially for the planktifors fish e.g. *O. niloticus* and *S. galilous* which recorded similar food habits in the lake.

The present study recommend that, using the shallow areas at the southern parts of Lake Nasser as enclosures is better than the northern one for the tilapia e.g. *O. niloticus* and *S. galilous* for increasing the fish yield in Egypt.