



Ain Shams University
Faculty of Science
Zoology department

Ecological Studies on Aquatic Invertebrates of Ismailia Canal, Egypt

**A Thesis Submitted in Partial Fulfillment of the Requirement
for the Master Degree in Zoology (Environmental Science)**

BY

Marian George Nassif

B.Sc. (Zoology/Chemistry), Ain Shams University, 2006

Central Laboratory for Environmental Quality Monitoring,
National Water Research Center

Under the supervision of:

Prof. Magdy T. Khalil

Professor of Aquatic Ecology, Zoology Department,
Faculty of Science, Ain Shams University.

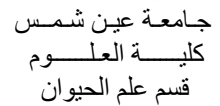
Dr. Amany S. Amer

Head of Ecotoxicology Lab., Central Lab for Environmental
Quality Monitoring, National Water Research Center

Dr. Montaser M. Sayed

Lecturer of Aquatic Invertebrates, Faculty of Science,
Ain Shams University

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رسالة مقدمه للحصول علي درجة الماجستير في العلوم
في علم الحيوان (علوم بيئية)

ماريانان جج ورج نصيف

بكالوريوس علم الحيوان و الكيمياء، كلية العلوم، جامعة عين شمس، ٢٠٠٦

المعامل المركزية للرصد البيئي، المركز القومي لبحوث المياه

تحت اشراف

أ. د. مجدي توفيق خليل

استاذ البيئة المائية، قسم علم الحيوان، كلية العلوم، جامعة عين شمس

الدكتورة/ أماني سعد عامر

رئيس قسم معمل مؤشرات التلوث البيئي، المعامل المركزية للرصد البيئي،
المركز القومي لبحوث المياه

الدكتور / منتصر محمد سيد

مدرس الالفقاريات المائية، كلية العلوم، جامعة عين شمس

Abstract

Ismailia canal is one of the most important canals in Egypt. It supplies water for a great number of the Egyptian citizens (about 12 million inhabitants), including those living in northern part of Cairo, Shubra El-Kheima, Mattaria, Musturod, Abu-Zaabal, Inchas, Belbeis, Abbasa, Abu-Hammad, Zagazeeg and El-Tell El-Kabier, before entering the Suez Canal Province. It is worthy to note that some factories are constructed at this area, discharging its wastes into the canal, which cause dramatic changes in the canal's water quality. To avoid problems associated with using poor quality water, we have to have monitoring program to reduce negative impacts and maximize sustainable use of the water. Thus, this study was devoted to assess the water quality of Ismailia Canal using physical and chemical parameters (e.g. water temperature, pH, EC, DO, BOD, Nitrate, Nitrite, orthophosphate and some heavy metals) and biological indicators (e.g. zooplankton and macrobenthic invertebrates). The samples were collected seasonally during 2010 from 10 stations along Ismailia Canal from El-Mezalat to Abu Zaabal city to monitor the adverse effect of three main companies' drainage. The results revealed that most of the physico-chemical parameters were within the permissible limits, although, Cairo Power station and Abu Zaabal Company causing partial pollution. Study of zooplankton community revealed relatively high species diversity and high population density indicating that the canal's water is suitable for fish production. The zooplankton was dominated by Rotifera (85.43 % of total zooplankton) indicating kind of eutrophication and fish predation along the canal. The community of macrobenthic invertebrates was represented by Mollusca (35.20 %), Annelida (33.62 %) and Arthropoda (31.18 %). *Limnodrilus hoffmeisteri* and Chironomus larvae were dominating the whole studied area (32% and 28.51% of total macrobenthos, respectively) and they are considered to be potential bioindicators for polluted ecosystem. Low species diversity and occurrence of pollution tolerant species (e.g. *Limnodrilus hoffmeisteri* and Chironomus larvae) indicate that the water quality of the canal is deteriorated. A regular program for biomonitoring is recommended which will allow future changes to be detected.

Key words: Ismailia Canal, aquatic invertebrates, zooplankton, macrobenthic invertebrates.



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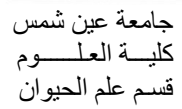
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Thesis Approval Sheet

Name: Marian George Nassif

Thesis title: Ecological studies on Aquatic Invertebrates of Ismailia Canal, Egypt.

Scientific degree: M.Sc.

Committee Signature,

Prof. Magdy T. Khalil

Professor of Aquatic Ecology, Zoology Department,
Faculty of Science, Ain Shams University.

Prof. Mahmoud T. Heikal

Professor of Aquatic Ecology, Nile Research Institute,
National Water Research Center.

Prof. Mohammed R. Fishar

Professor of Aquatic Invertebrates and Head of National Institute of
Oceanography & Fisheries.

Dr. Amany S. Amer

Head of Ecotoxicology Lab., Central Lab. For Environmental
Quality Monitoring, National Water Research Center.

اسم الطالبة: ماريان جورج نصيف

عنوان الرسالة: دراسات ايكولوجية علي اللافقاريات المائية بترعة الاسماعيليه، مصر.

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لجنة التحكيم:

أ.د. مجدي توفيق خليل
استاذ البيئة المائية، قسم علم الحيوان، كلية العلوم، جامعة عين شمس

أ.د. محمود توفيق هيكل
استاذ البيئة المائية، معهد بحوث النيل، المركز القومي لبحوث المياه

أ.د. محمد رضا فيشار
استاذ اللافقاريات المائية و مدير معهد علوم البحار و المصايد للمياه الداخلية.

د. أماني سعد محمد عامر
رئيس قسم معمل مؤشرات التلوث البيئي، المعامل المركزية للرصد البيئي، المركز القومي لبحوث المياه.

الدراسات العليا

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