شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومـــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قَسَـــم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

BIOLOGY AND GONADAL CYCLIC CHANGES IN FISHES OF FAMILY MUGILIDAE IN CLOSED FRESH WATER (NOZHA HYDRODROME).

A Thesis
Submitted for the Degree of
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(Fishery Biology)

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TO MY FAMILY

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CONTENTS

I. INTRODUCTION

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Fish farms, share a considerable part in the Egyptian fisheries and cover at present about 103 thousand feddans.

The Nozha Hydrodrome which was previously a part of Lake Mariut is considered as a natural fish farm. It receives water from the Nile through El Mahmoudia canal. Developing exploitation of Nozha Hydrodrome was practiced during the last years as a productive pond.

Mullets began to appear in the Hydrodrome in the same year of exploitation (1954) after their transplantation as fry from Mex canal at the west of Alexandria.

Mullets are mainly represented in the catch of the Hydrodrome by two species, Viz *Mugil cephalus* L. and *Mugil capito* Cuv. . Other *Mugil* species such as *M. saliens, M. auratus*, and *M. chelo* found in the Mediterranean catch, may be transplanted with the former two species, but they do not tolerate the fresh water salinity of the Hydrodrome and hence do not persist. With respect to the salinity tolerance, *Mugil cephalus* and *Mugil capito* are highly euryhaline fish, where as *Mugil saliens* are mesohaline and *Mugil chelo* are stenohaline (Hussein 1974).

Mullet transplantation into inland fresh water (El Zarka, 1963) started in Egypt in 1928. Fry were transplanted into Lake Mariut which has no direct connection with the Mediterranean Sea, other isolated areas such as Lake Quarun and Nozha Hydrodrome were subject for mullet transplantation (Paget, 1920; Wimpenny, 1932; Faouzi, 1936 and El Zarka

& Kamel, 1965), Nozha Hydrodrome and Lake Quarun are similar in their nature of isolation, but the two habitats are completely different. Both areas receive their mullets stock as fry, being transformed annually from the Mediterranean coast. The former is fed with completely fresh water from the River Nile, while the latter receives the agricultural drainage water and according to the high rate of evaporation, the lake water became highly saline.

Owing to their catadromic behavior mullets perform spawning migrations to the sea. However, as a result of being isolated in a fresh water habitat, the mullet populations behave differently during the spawning season.

The present being carried out studies on the biology of spawning of grey mullets in Lake Quarun. According to Hussein, 1994 (personal communication), *Mugil saliens* was the only species which possesses clumps of epithelial follicle layers in the spent fish gonads. According to him *Mugil saliens* performs its spawning in the lake, this was cited before by El Zarka (1963).

The exploitation of the Hydrodrome as a fishing area started in 1954. The catch was composed mainly of true Nile fishes. The dominant species were *Barbus bynni, Tilapia nilotica, Tilapia galilaea, Tilapia zilli, Anguilla vulgaris, Lates niloticus* and various *cat-fishes* of the genera *Clarias* and *Bagrus* and *Synodontis* (Hashem and Hussien, 1973). In the present investigation (1991) the annual catch (Kg) of the different Nile fishes caught from the

Hydrodrome were *Tilapias* 92290 Kg, *Carp* 29290 Kg, *B. bayad* 32741 Kg, *cat fish* 8205 Kg, *eel* 568 Kg, and *S. schal* 259 Kg. Mullet catch was 15570 Kg.

It is noticed that, the annual catch of most species decreased in the year, 1991 than the previous years, for example the annual catch of mullets and *Tilapias* in 1990 were 51098 Kg and 192488 Kg, respectively.

The man made deterioration of the natural resources of mullet fry was reflected on the numbers transplanted into the Hydrodrome. In fact a drop in the number of fry and fingerlings whicch are transplanted annualy to Nozha hydrodrome of mugil species have occcured. For example In 1984, a total of 7.2 million fry and fingerlings of both species were transplanted, while in 1989, 1.4 million fry of mullets were transplanted into the Hydrodrome.

AREA OF INVESTIGATION "NOZHA HYDRODROME"

The Nozha Hydrodrome (Fig. 1 & 2) is located in the area between latitude 31° 10 E. and longitude 30° N. and it impounds a total area of about 504 hectares (1200 feddans). Its bottom lies at a depth ranging between 3.4 and 3.8 m. below the mean sea level, and the average water depth is about 2.7 m..

In 1939 the British Overseas Airways Cooperation diverted a part of Lake Mariut into a Hydro-aerodrome separated by an embankment surrounding it and extends to about 9 kilometers from the north-west to the south-east. The embankment was built by the material taken from the

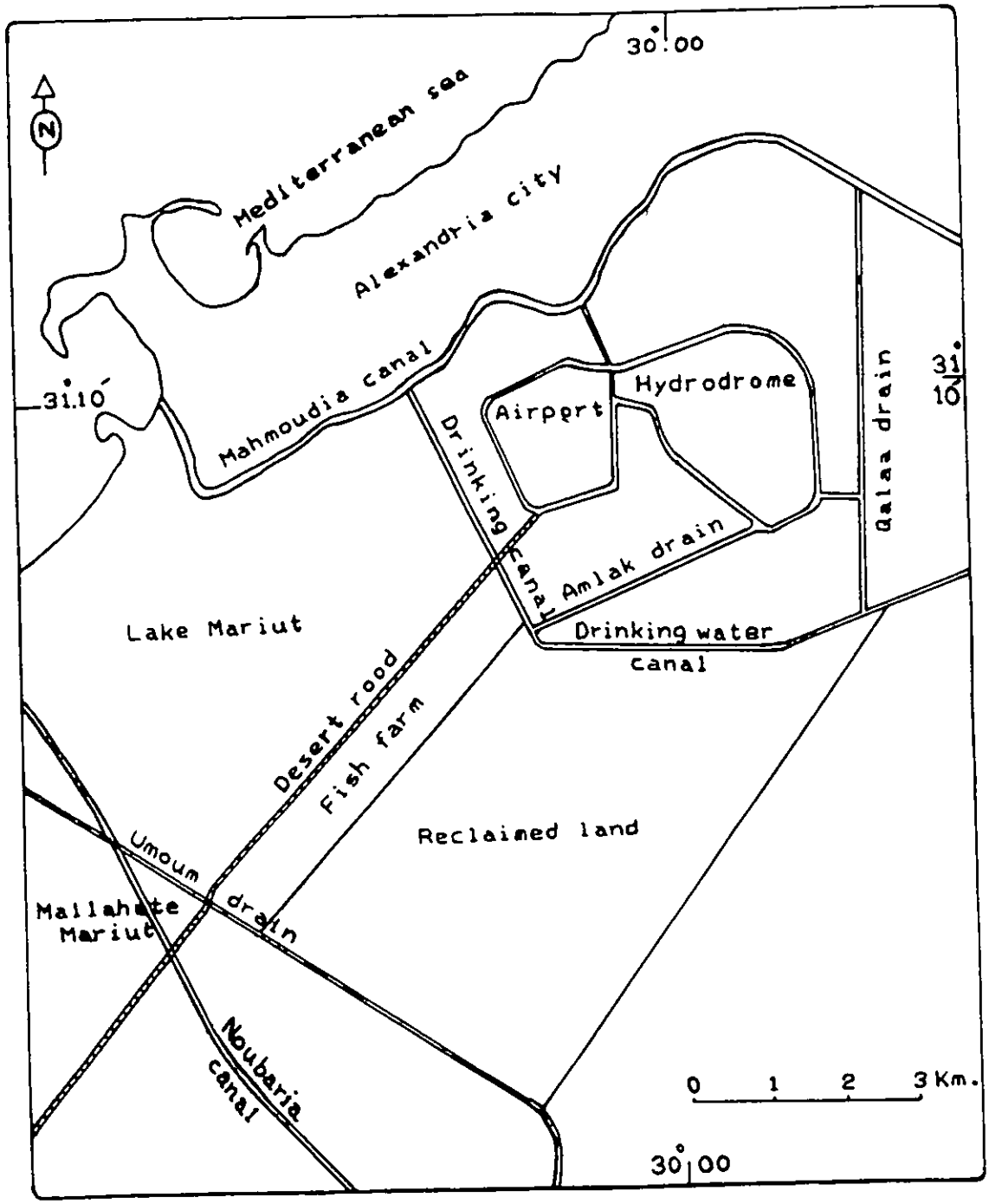

Fig. (1): LOCATION OF NOZHA HYDRODROME WITH RESPECT TO LAKE MARIUT.