

# بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



HOSSAM MAGHRABY



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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# جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم  
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



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لم ترد بالأصل



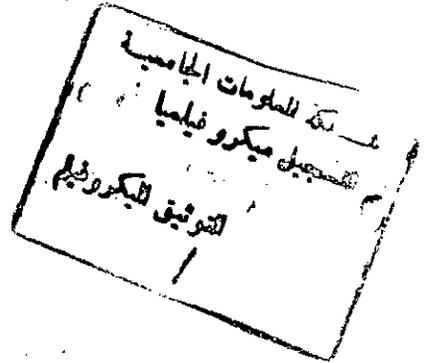
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By

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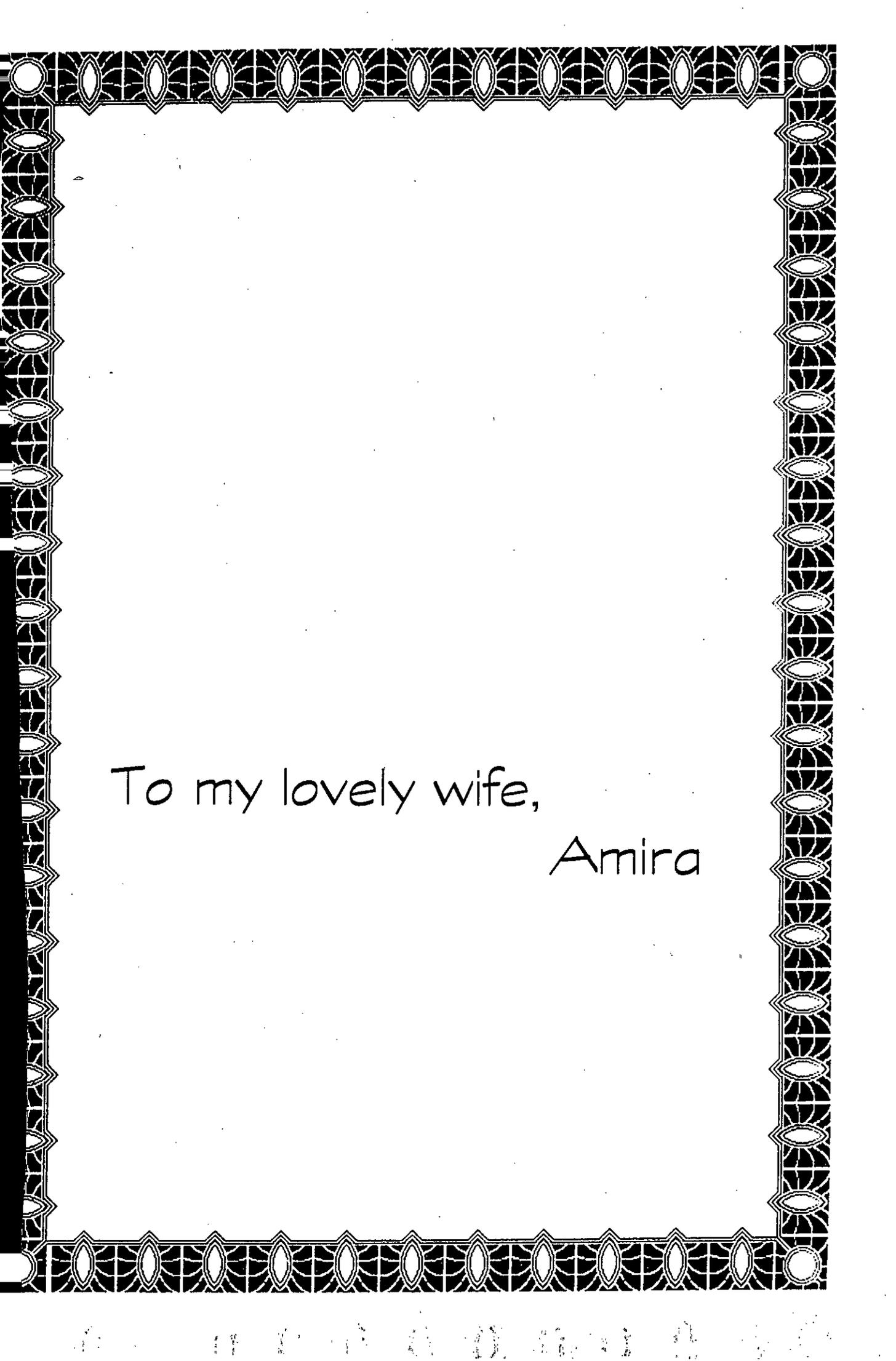
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To my lovely wife,

Amira

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# Introduction

## Introduction

The marine coastal zone have attracted the attention of various authors due to its importance to littoral fish assemblages. Littoral fish species may be either resident species (Hillden, 1984), juvenile fish which utilize shallow water as a nursery (Zijlstra, 1972) and some pelagic and demersal species which temporarily migrate to, and forage in coastal areas (Muus, 1967, Pihl, 1982). Daily and seasonal changes in temperature, salinity, oxygen content, and water level are abiotic factors of potential influence on the structure of fish assemblages in shallow areas. Alterations in fish assemblages might also be related to changes in biotic factors. Ecological and biological relations of coastal marine fishes along the Egyptian Mediterranean coast off Alexandria are still badly known. Moreover, after invasion of pollution problems along Alexandria coasts (effluents of various factories, e.g., pulp mills, power stations, fertilizers factories, etc), it becomes necessary to elucidate the biological as well as ecological relations of such fishes

The study of fish abundance and distribution in the Egyptian Mediterranean Sea did not receive the same importance as in other areas. However, some ecological studies were accomplished on Mediterranean lagoons (e.g. Guelorget & Michel, 1976; Ramos Espla & Perez Ruzafa, 1985). The fish fauna on posidonia meadows with their feeding behavior were investigated in different parts of the Mediterranean, (Harmelin-Vivien, 1982,1984; Bell & Harmelin-Vivien, 1982,1983; Ardizzone & Messina, 1983; Velimirov, 1984; Khoury, 1984; Harmelin *et al*, 1987). On the other hand, Caminas *et al*. (1990) listed the species composition in the Alboran Sea (SE Spain), caught by commercial vessels. Studies on the temporal and spatial distribution of the fish species inhabiting the shallow waters off Alexandria are still lacking.

Some of the economically important coastal fish species received the attention of various authors who have studied only their biology. Fishes of no or less economic interest, however, are still badly known. Basing on these information, the black goby,

*Gobius niger*, (family Gobiidae) was chosen for the biological study as representative of marine coastal fishes. Although widespread and often abundant, it is interesting to mention that this study is the first one on gobiid fishes in the Egyptian Mediterranean waters.

The present study aims to give some information on the temporal and spatial distribution of coastal fish populations in Alexandria waters and also to describe the growth, feeding habits, reproduction and hematology of one of the most abundant marine coastal fishes, the black goby, *Gobius niger*, as a trial to elucidate the effect of the environment on these fishes.

## **Chapter I**

# **Materials & Methods**