Fish Production in the Presumed Lake of Qattara Depression

[1]Noor El- Deen, A. I.; [1] Mona,S.Zaki and [2]Shalby,S.I.

[1]Hydrobiology Department, Vet. Division, NRC, Cairo, Egypt
[2]Reproduction Department, Vet. Division, NRC, Cairo, Egypt
dr_mona_zaki@yahoo.co.uk

Abstract: Egypt is importing about 640,000 tons of fish annually. It costs Egyptian economy about 250 million dollars. Sea coast around Egypt is about 2,000 Km. To overcome this problem, about 200,000 acres of fish farms were constructed during the last decade, but due to explosion of population number to 86 millions, these farms were not adequate for solving this problem. Due to unavailability of freshwater resources, fish farms could not be increased. Construction of Qattara Depression project with filling of sea water from Mediterranean Sea may increase fish production from the resultant lake. The surface area of the lake will be around 12,100 square Km. A research review is needed to know the exact production of fish from the presumed lake after finishing Qattara depression. This study will be done in laboratory aquaria in National Research Center and also in cement ponds in one of the governorates on the North Sea coast (Kafr El-Sheikh). A field study will be done in 5 earthen ponds. It is predicted that fish production from the project will be around 150,000 tons of fish without fertilization and about 500,000 tons of fish with fertilization **Aim of this study** Is to asses fish production in the presumed lake of Qattara Depression with or without fertilization

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Key words: Phytoplankton, Global warming , Al Qattara depression, fish production .

Introduction

Egypt is importing about 640,000 tons of fish annually. It costs Egyptian economy about 250 million dollars. Sea coast around Egypt is about 2,000 Km. Fish consumption per capita of fish is about 12Kg/year in Egypt, consumption of animal protein from red meat 6.5 Kg/year and from white meat 7Kg/year . Fish production may solve the problem of lack of enough animal proteins which is essential for growth of children. To overcome this problem, about 200,000 acres of fish arms were constructed during the last decade, but due to explosion of population number to 86 millions, these farms were not adequate for solving this problem. Due to unavailability of freshwater resources fish farms could not be increased. Use of sea water is needed to increase fish farms in Egypt and is an unlimited resource . The needed land is available in the Egypt deserts (96% of surface area of Egypt). Exploitation of Qattara depression lake as a big fish farms may be the solution for the shortage of animal protein in Egypt. Construction of Qattara depression project with filling of sea water from Mediterranean sea may increase fish production from the resultant lake. The surface area of the lake will be around 12,100 square Km. A research project is needed to know the exact production of fish from the presumed lake after finishing Qattara depression project. The study will be done in laboratory aquaria in National Research Center and also in cement ponds in one of the governorates on the North Sea coast (Kafr El-Sheikh). It is predicted that fish production from the project will be around 150,000 tons of fish without fertilization and about 500,000 tons of fish with fertilization.

This study will be conducted to ass's fish production in the presumed lake of Qattara Depression with or without fertilization. It is predicted that fish production from the project will be around 150,000 tons of fish without fertilization and about 500,000 tons of fish with fertilization**.**

Background

Almost all the requirements of growing phytoplankton as a feed resource for fish in Al Qattara depression in Egypt are available. Chen, 2005. It occupies 18.3 square kilometers of western desert of Egypt . It constitutes a vast area of land that can be changed into a big farm for phytoplankton .This area could be a major strip for absorbing CO2 and reducing global warming. The net primary production of phytoplankton at the expected water intake of the project was 355gm in each cubic meter /year (Khafagy *et al*, 2009). Rising temperature during summer will increase the net primary production in Qattara Depression 2-3 fold which means an increase from 1.5to 3-4.5%in the annual removing of the atmospheric carbon dioxide increased per year Harding *et al*,2002,. .Many other projects will be added to this i.e.hydrolic power, electricity and fish production. Al Qattara Depression will play an important role in reducing global warming. All

helping factors like air velocity ,lighting and sunny climate are also available.

The ability to predict phytoplankton growth rates under light and nutrient limitations is fundamental to modeling the sea water carbon cycle equally fundamental is the ability to predict chlorophyll: carbon ratios, since satellite- 10 based chlorophyll estimates are one of the few data sets to which model output can be compared (Azov, 1986). Seawater phytoplankton blooms are suggestive of changes in seawater the ecological properties induced by phytoplankton mucus secretion (Jenkinson I. R., 1986, Jenkinson and Biddanda, 1995, Seuront et al, 2007, Sournia,1973). A positive correlation has even been found between seawater viscosity and chlorophyll concentration during phagocytes blooms in the German North Sea (Jenkinson and Biddanda, 1995 and Seuront et al,2007). The aerial productivity (in mgC m-2 d-1) in the pelagic Egyptian waters, off the shelf slope is about triple the "oceanic" rates measured over the deep SE Levantine basin (Bologa, A.S., 1986). The latter values compare rather to the waters south of Cyprus Dowidar, (1984).The annual net production in the "oceanic" Levantine waters was estimated to be of about 10–20 g.C m-2 y-1 while Dowidar, (1984) reports the average annual production of 55.5 g.C m-2y-1 for the Egyptian continental shelf waters. Weikert, 1988, in his review on primary productivity in the Mediterranean Sea the data were classified into "oceanic", "semi-oceanic", "neritic" , "lagoons and harbours. The average annual production corresponds respectively to 78 g C m-2, 65– 90 g.C m-2, 70 to 120 g.C m-2 and 100-300 g.C m-2. Average C-14 primary productivity in the Egyptian waters and the Southern Levantine basin Units as shown Off Nile delta (1982) neritic: 1.9 mg C m-3 h-1 pelagic:0.18neritic:176.39mgCm-2d-1pelagic:152.6 (Annual production: 55.5 g.C m-2 y-1 Berman et al.,1984 and Mostafa, 1985).

It appear to us that using the projected Qattara Depression for hydropower generation as well as aquaculture may be useful in sequestration of carbon dioxide to combat global warming and increase fish production.

Objectives

4.1 Wider objectives:

- Protein production of high nutrition value through farming of mullet fish in special cement and earthen ponds for hatching and rearing of mullet fish.
- Solving the problem of animal proteins shortage.
- Studying some diseases connected to mullet fish (diagnosis & treatment).
- Scientific research approach.
- Scientific publishing.
- Production development (farming of mullet fish) .
- Creation of new jobs (economical and social impacts)

4.2. Specific objectives:

- Reproduction and production of mullet fishes in Egypt.
- Fries nursing and rearing in cement and earthen ponds.
- Treatment and control of diagnosed diseases of mullet fish

4.3. The expected results versus objectives:

- Production of animal protein of high nutritional value in Egypt (farming of mullet fish) .
- Studying diseases connected to mullet fish
- Scientific researches and publishing approaches
- Drawing scheme of diseases endemic in Egypt affecting different types of mullet fish and Methods of their control.

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