

STATUS OF EXPLOITATION OF THE EGYPTIAN FISHERIES IN THE MEDITERRANEAN SEA.

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ABSTRACT

Annual variations of the commercial catch from Mediterranean Sea in front of Egypt show a certain declination in recent years which may be attributed to the extensive fishing in the spawning grounds by shallow water nets e.g. beach-siene nets. On the other side, catch/effort analysis for trawl and purse siene management regulations mainly the trawl nets, as their catch considerably decrease in recent years, which may be due to overfishing and toxicological effects of pollutants contaminated the bottom of the sea mainly in the west of the delta zone i.e., Abu Quir area.

INTRODUCTION

The Egyptian fisheries in Mediterranean Sea is the largest fishing area in the national fishery economy. It can contribute a major part in food security programmes, putting in consideration the stress shortage in animal protein substitutes in the country.

Published data and information about the commercial catch from the Egyptian fisheries in Mediterranean Sea show that its annual production is too low, with a decline trend in the last years. A matter which is not economically justified, since about 22% of the Egyptian labours in the entire fishery economy is engaged in these fisheries, as well as, some 63% of the Egyptian marine fishing fleet is working in its water (Abdel Hafiz, 1985). Such decrease in the yield from these fisheries was attributed mainly by the increase of the fishing fleet and its mechanization (El-Kholy and El-Wakeel, 1975). They mentioned also that the Nile discharge control adversely affected the biological productivity of the sea, the building of Aswan high dam resulted in sharp river discharge reduction and changed its intra year distribution in the sea.

Ibrahim and Soliman (1981) explained that the decrease of fishery potential in the Egyptian water of Mediterranean Sea is a direct result of increasing licenced small motorized fishing boats and the construction of Aswan high dam. Saleh and El-Karashily (1985) explained this decrease of fishery potential in the Egyptian coast of Mediterranean Sea as due

to the progressive increase of pollution. The effect of pollution is indicated in the lagoons and bays which are considered as the spawning grounds of water organisms and growth of its larvae (Saleh, 1984 and Halim et al., 1985).

This study is an attempt to examine and review the present status of exploitation of the Egyptian fisheries in Mediterranean Sea during recent years. The results of this study may be useful in the management of these fisheries in order to conserve the existing fish stock and to achieve better economic utilization for the factors of production.

MATERIAL AND METHODS

The annual catch of Mediterranean sea in front of Egypt during the period 1966 - 1984 was collected and differentiated according to different fishing gears. However, about 90 % of the Egyptian fish catch from Mediterranean sea is captured annually by motorized vessels using trawl nets, purse seine nets and long-line. These vessels operate from five major fishing ports namely : port Said, Damietta, Rossetta, Abu Quir, and Eastern harbour in Alexandria (Map 1). Data of two fishing ports were selected and analysed one in the east (Port said) and the other in the west (Abu Quir). In order to review and examine the status of exploitation by the dominant fishing gears, two different periods were taken the first from 1966 - 1968, and the second from 1982 - 1984.

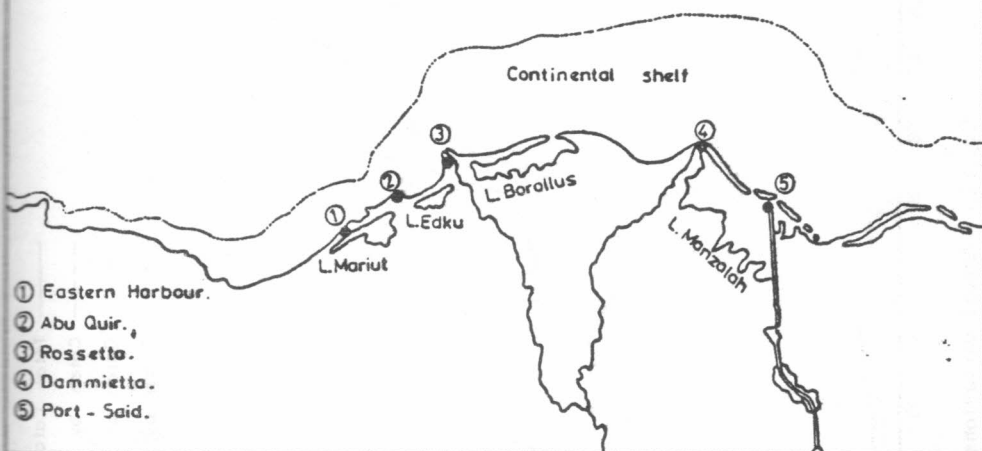
The effort exerted by each of the three fishing gears in terms of sailing hours and the catch per unit effort (cpue) in terms of Kgm/man/24 hours on board has been collected and calculated from primary data collected according to statistical sampling system (Panse, 1957).

RESULTS AND DISCUSSION

Annual statistical data and information show that there is a declination in the commercial catch of Mediterranean sea in front of Egypt, with the exception of high catch during 1979 - 1981 period which followed the irregularity of fishing activity due to war condition after opening the closed fishing area east of Damietta in 1979.

Trawl nets, purse seine nets, and long line are the dominant gears used in Mediterranean sea in front of Egypt. However, trawl nets may be considered as the principal fishing gear. Their catch contributes about 80% of the total catch in the first period of study, but in the second period their catch decreased to about 50 % of total catch (Fig. 1).

MEDITERRANEAN SEA



Map (1) - The Egyptian major fishing harbours in the Mediterranean Sea.

The use of purse seine nets has begun in the Egyptian waters of Mediterranean sea in 1969 (Faltas, 1983). These nets replaced sardine nets, due to their uselessness for catching sardine after stopping the Nile flood and the change in shoaling behaviour of sardine (Fig. 1).

The catch by long line is comparatively small with normal annual fluctuations (Fig. 1).

Interpretation of effort and catch per unit effort for the trawl nets, used by vessels landing in Port Said show that the trawl fishery in the eastern side of Mediterranean sea in front of Egypt was affected. Their catch per unit effort in the first period has an annual mean of 34.1 Kgm/m/24 h., decreased in the second period to an annual mean of 27.5 Kgm/m/24 h. This may be resulted from the increase in effort from an annual mean of 192.3 thousand hours in the first period to an annual mean of 426.4 thousand hours in the second period (Fig. 2).

Catch rates by long line for vessels landing in Port Said are nearly stable with slight increase in the second period (annual mean cpue were 53.4 Kgm/m/24 h and 55.0 Kgm/m/24 h for the two periods respectively). However, the mean annual effort increased from 2.5 thousand hours in the first period to 10.5 thousand hours in the second period. This may indicate existance of sustainable stock of fishes caught by long line (Fig. 2).

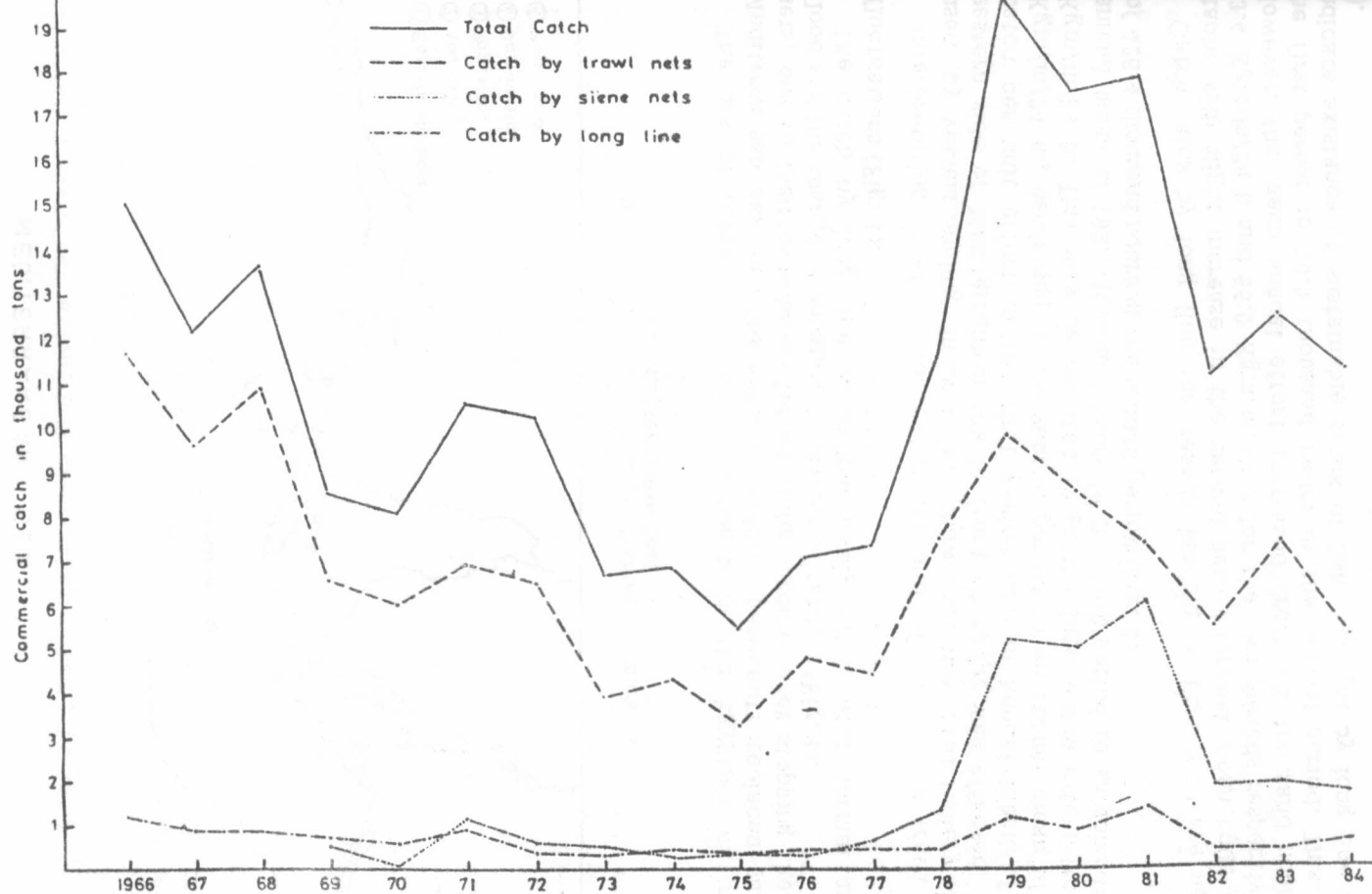


Fig. (1) - Annual variations in total catch, trawl nets catch, siene nets catch and long line catch in Mediterranean Sea in front of Egypt.

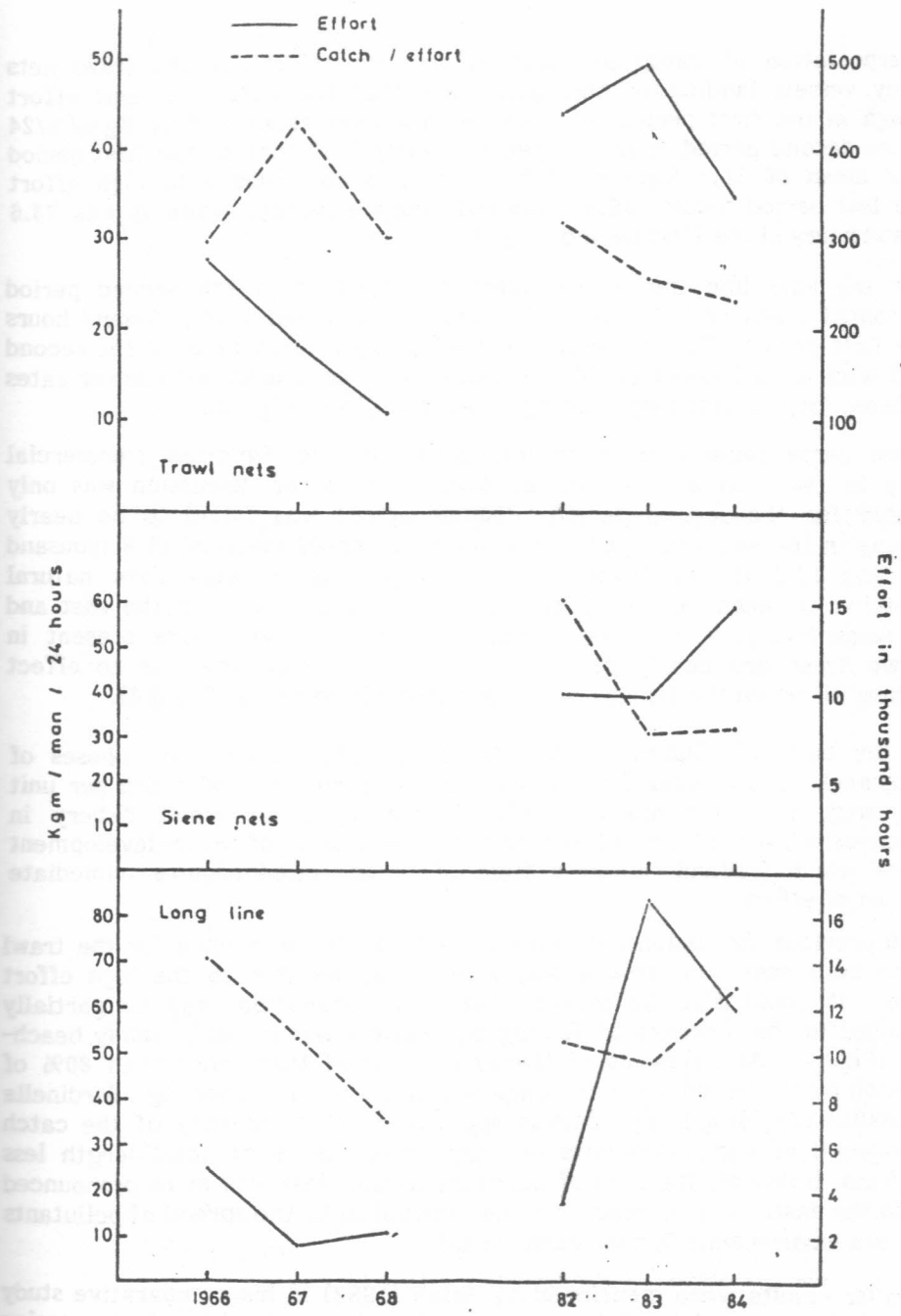


Fig. (2) - Annual variations of catch/effort for trawl nets, purse siene nets and long line in Port Said area.

Interpretation of catch per unit effort and effort for the trawl nets used by vessels landing in Abu Quir show that the catch per unit effort was high in the first period of study, with annual mean of 60.7 Kgm/m/24 h. In the second period cpue dropped to nearly half that of the first period with a mean of 31.3 Kgm/m/24 h. This drop coincides with high effort in the last period being 106.3 thousand hours annually, while it was 73.6 thousand hours in the first period (Fig. 3).

For the long line the effort exerted decreased in the second period with annual mean of 7.7 thousand hours while it was 18.9 thousand hours in the first period. This decrease resulted in high catch rates in the second period with annual mean of 70.3 Kgm/m/24 h, compared with lower rates calculated for the first period being 20 Kgm/m/24 h (Fig. 3).

Since purse seine nets were introduced in the Egyptian commercial fishery in 1969, on a small scale, data suitable for discussion was only available for the second period. Fishing effort was found to be nearly the same in the east and west areas being of annual mean of 11.6 thousand hours and 13.8 thousand hours respectively. Catch rates show natural fluctuation of mean values of 41.0 and 52.0 Kgm/m/24 h in the east and west respectively. These mean that the pelagic fish stocks present in the two areas are nearly of similar abundance, i.e., there is no effect of fishing effort on the fishery of pelagic fish till now (Fig. 2 and 3).

on the basis of Gulland curve (Gulland, 1983) about main phases of development of a typical fishery and the interpretation of catch per unit effort with the corresponding effort, the Egyptian trawl fishery in Mediterranean sea is considered within the phase of over-development a phase which Gulland called a time of crisis which require immediate reduction of effort.

The previous discussion indicates a clear decrease in cpue for the trawl nets in both east and west areas, which may be due to the high effort exerted. It could also be stated that this declination may be partially attributed to the increase of fishing by shallow water nets, mainly beach-siene (Fig. 4). Al Sayes et al (1981) mentioned that more than 80% of the catch by the beach-siene is composed of economic fishes e.g., *Sardinella* spp, *Mallus* spp, *Mugil* spp, *Pagrus* spp,....etc., and majority of the catch is composed of high ammounts of very small fishes of total length less than 5 cm. However, the rate of decrease in the west was more pronounced than in the east. Such decrease may be attributed to the spread of pollutants in the sea environment (Sindermann, 1980).

Similar results were mentioned by Saleh (1983) in his comparative study of *Mugil* fishery in lake Edku in which *Mugil* spp migrates for spawning in Abu Quir bay and *Mugil* fishery of lake manzalah in which *Mugil* spp migrates for spoawning in Tina bay near Port Said. He noticed that there are a considerable annual declination of *Mugil* fishery in lake Edku, while the *Mugil* fishery in lake Manzalah is flourishing.

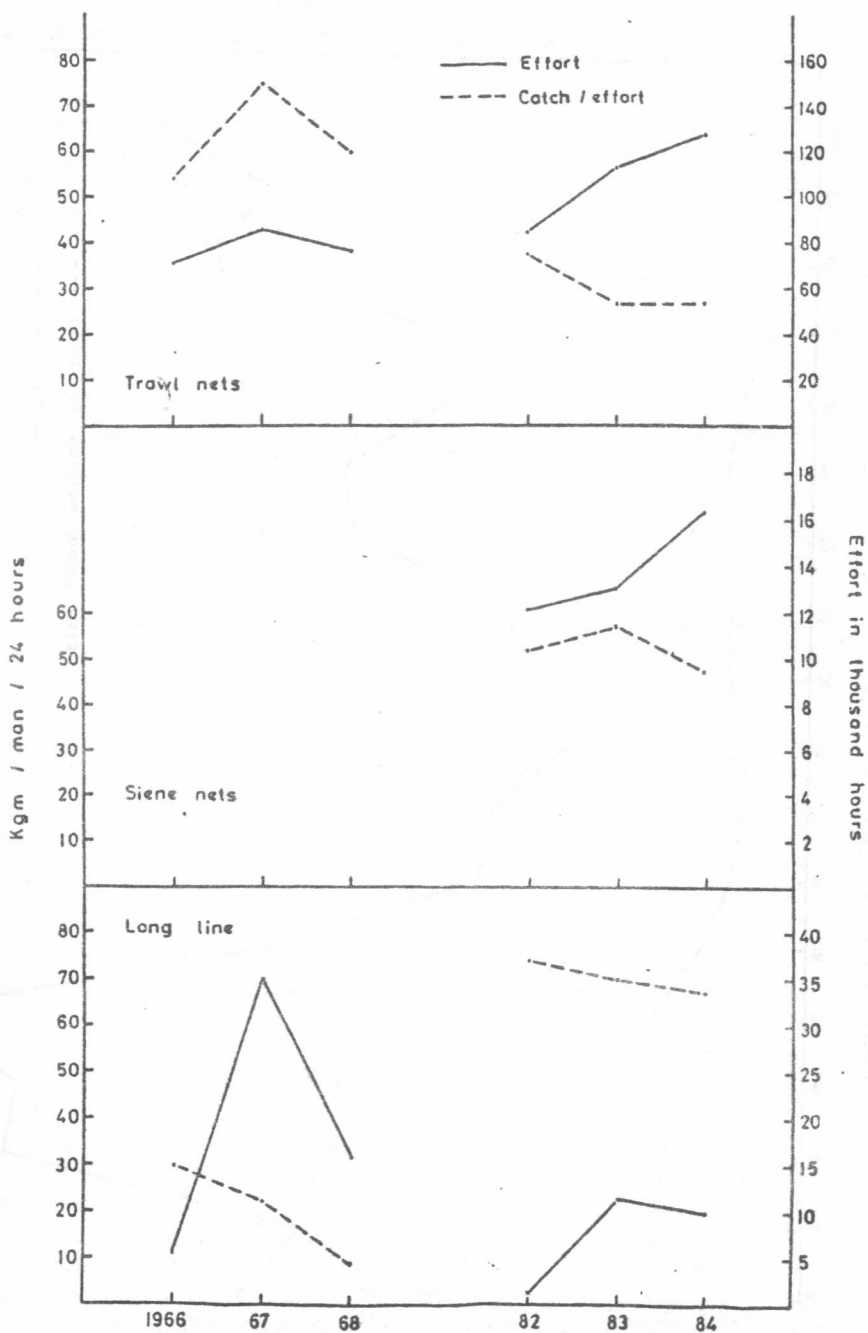


Fig. (3) - Annual variations of catch/effort for trawl nets, purse siene nets and long line in Abu-Quir area.

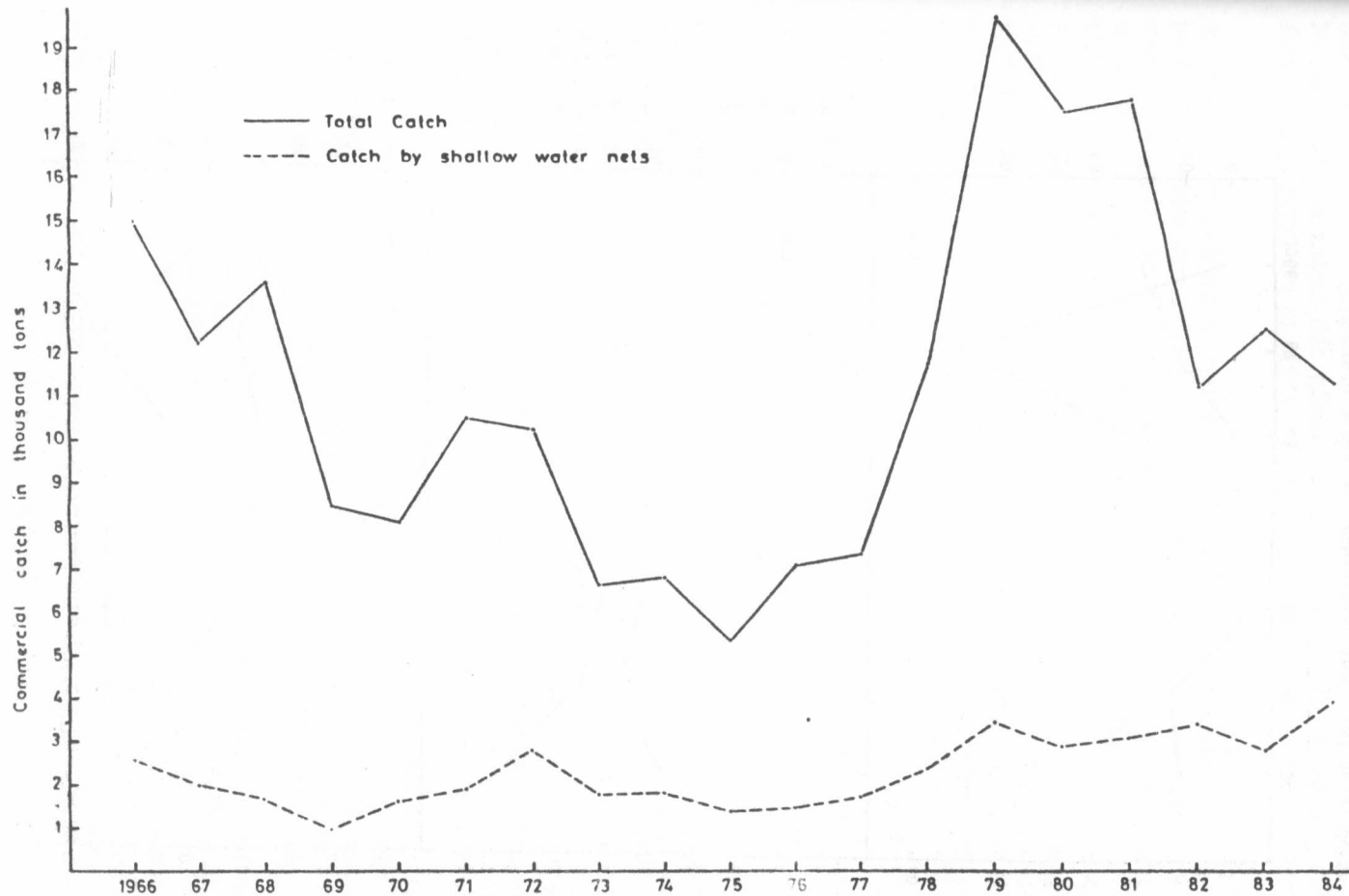


Fig. (4) - Annual variations in total catch and catch by shallow water nets in Mediterranean Sea in front of Egypt.

SUMMARY

The declination of fishery potential mainly demersal fishery in the Egyptian Mediterranean waters may be attributed to the effect of the high fishing effort and also to the effect of shallow water nets mainly beach-siene operating in the spawning area. Pollution may also has a major effect on the western demersal fishery.

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