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Catch of Surrounding net in Salloum Bay

Lov kružnom mrežom u zaljevu El-Sallum

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INTRODUCTION

Remarkable changes in the hydrographic and ecological conditions in the south-eastern part of the Mediterranean Sea have been observed after the construction of the Aswan High Dam in 1966 (El-Hehiawy, 1974; Al-Kholy and El-Wakeel, 1975; and Gerges, 1976a). These changes highly affected the pelagic fisheries especially sardine along the south-eastern part of the Mediterranean Sea. As it is known, before the construction of the High Dam, fishes belonging to genus *Sardinella* constituted from 27.8 to 68.5% of the total fish catch from the Egyptian waters (El-Maghraby, 1960; Rifaat, 1960; El-Zarka and Koura, 1965). The catch of sardine has been sharply decreased from 18 thousand tons in 1962 to less than one thousand ton in 1972. However, in the least few years, there were some indications of Sardine concentration in the area west of Alexandria.

The aim of this work is to investigate the possibility of finding profitable pelagic fisheries in the Salloum Bay using light attraction and surrounding nets.

MATERIAL AND METHODS

During August, September and October 1974, May and December 1975, 15 light fishing operations were carried out during the time of darkness of the moon at depths from about 20 to 45 fathoms by surrounding net in the Salloum Bay (Figure 1). The fishing operations were carried out using a small fishing ship (length 13 meters and 54 H. P.) belonging to the Alexandria Institute of Oceanography and Fisheries.

Reaching the fishing area, one or two small rowing boats anchor about 500 meter apart, lighted the hanged butane gas lamps (ranging from 3000 to 6000 foot candle) for about 6 hours till the fish aggregate towards the lighted

area. When a suitable amount of fish aggregates near the surface, the fishing operations begins. The fishing vessel circles the small lighted boat, while shooting the seine net. Once a circle at about 100 meter in diameter is complete, the messenger ropes holding the leading edges one pulled aboard the fishing vessel and bring the wings with them.

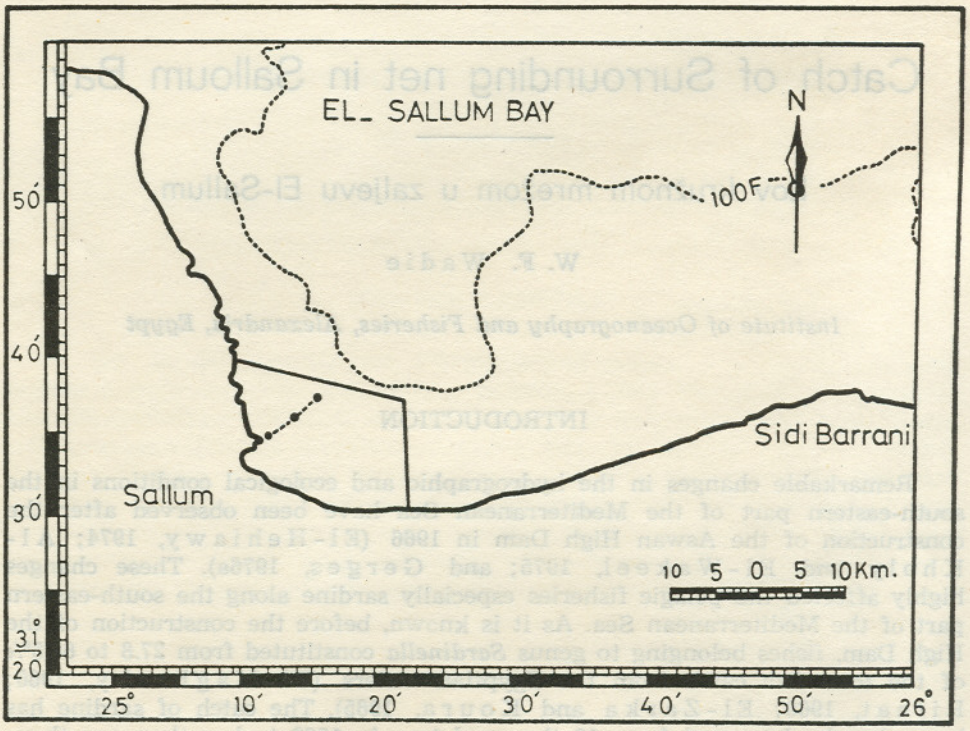

Fig. 1. Investigated Area in El-Sallum Bay

Then the net's cable is attached to the winch and then started to lift the closed net, the fish are collected to the middle of the net, and the net is completely aboard. The fish are then picked out of the net to the deck of the vessel, immediately graded and preserved with ice or salt.

In August 1975, statistical and biological data were obtained from the commercial catch of both private and North Fisheries Company ships.

The length of fish was measured to the nearest centimeter and weight to the nearest gram.

RESULTS AND DISCUSSION

Table 1. represents the catch composition of different fish species (in kilogram) caught by the surrounding net in the Salloum Bay the small fishing ship. It is clear that there was a sharp decrease in the catch per lighting hour

from August to September and October 1974 (65.01, 32.4 and 27.5 kg respectively).

The catch of *Boops boops* in August 1974 contributed 73.4% of the total catch, while in September the catch decreased to 7.4% and then slightly increased to 9.6% in October.

Table 1. Catch of surrounding net in the Salloum region (data obtained from the fishing ship by which this study is carried out).

Species / Date	*Sardinella aurita*	*Boops boops*	*Trachurus mediterraneus*	*Scomber japonicus*	*Euthynnus alletatus*	*Sphyraena sphyraena*	*Trachynotus glaucus*	No. of fishing ships	Depth (fathom)	Duration of light (hour)	Total catch (kilogram)
21. 8. 1974	200.0	420.0	40.0	8.0	0.500	1.0	1.500	1	26.28	13	671.0
22. 8. 1974	100.0	800.0	40.0	40.0	10.0	—	—	1	25.27	12.5	990.0
Total	300.0	1220.0	80.0	48,0	10.5	1.0	1.500	2			1661.0
18. 9. 1974	100.0	11.0	—	—	1.0	0.250	0.150	1	25	7	112.400
19. 9. 1974	110.0	20.0	—	—	1.55	—	—	1	24	4	130.155
20. 9. 1974	270.0	—	—	240.0	—	—	—	1	36	14	510.0
21. 9. 1974	290.0	—	—	21.500	—	—	—	1	35.39	12	311.5
22. 9. 1974	300.0	120.0	8.0	0.500	—	3.500	—	1	27.28	14	432.0
23. 9. 1974	480.0	—	—	50.0	—	—	—	1	30.44	11.5	530.0
Total	1550.0	151.0	8.0	312.0	1.155	3.750	0.150	6			2026.55
10. 10. 1974	70.0	0.200	10.0	8.5	15.0	0.615	—	1	27.34	10	99.325
11. 10. 1974	130.5	75.0	70.0	240.0	0.100	1.00	—	1	25.28	8	516.600
12. 10. 1974.	86.0	—	—	82.0	—	—	—	1	31.38	10.5	168.0
Total	286.5	75.2	80.0	325.5	15.100	1.625	—	3			783.825

The catch of *Sardinella aurita* in August 1974, contributed 18.0% of the total catch, while in September the catch increased to 76.5% and then decreased in October to 36.5%.

Gradual increase in the catch of *Scomber japonicus* was observed from August to October 1974, contributed 2.9%, 15.4% and 41.5% of the total catch respectively.

The catch of *Trachurus mediterraneus* was represented in August 1974 by 4.8% of the total catch, in September 1974 by 0.4% and in October 1974 by 10.2%.

Beside the above species, small amounts of Scombrid sp., *Sphyraena sphyraena* and *Trachynotus glaucus* were found in the cath.

Table 2 represents the catch of the North Fisheries Company and private ships. The percentages of different fish species were given between brackets.

As shown in the table, the commercial catch of the surrounding net obtained during August 1975 was found to be 42380 kilogram (average catch of one ship for one night equals 883 kilogram). The catch per lighting hour from the commercial cath was determined from the catch of 9 ships (6980 kilogram) through light duration of 109 hours, and it was found to be 64.0 kg/lighting hour. *Sardinella aurita* was found to be dominant in the catch, representing 69% of the total catch. The catch of *Boops boops* representing 28.3% of the total catch, while that of *Scomber japonicus* and *Trachurus mediterraneus* were 1.5% and 1.0% from the total catch respectively.

Table 2. Catch of the surrounding net in the Salloum region (data obtained from private ships and those belonging to the North Fisheries Company)

Species / Date	*Sardinella aurita*	*Boops boops*	*Trachurus mediterraneus*	*Scomber japonicus*	No. of fishing ships	Total catch (kg.)
8. 8. 1975	1680.0	520.0	20.0	160.0	6	2380.0
9. 8. 1975	5640.0	1960.0	—	140.0	5	7740.0
10. 8. 1975	5220.0	1360.0	100,0	100.0	8	6780.0
11. 8. 1975	2800.0	1460.0	200.0	—	6	4460.0
12. 8. 1975	4240.0	1960.0	100.0	—	8	6300.0
13. 8. 1975	4240.0	2260.0	20.0	220.0	7	6740.0
14. 8. 1975	5500.0	2480.0	—	—	8	7980.0
Total catch (kilogram)	29320.0	12000.0	440.0	620.0	48	42380.0

CONCLUSION

The results of fishing operations that have been carried out during the period from August to October 1974 and August 1975 by the surrounding net using a small fishing ship us well as those obtained from the North Fisheries Company and the private ships indicate that the Salloum Bay is rich in fish production, where the catch of one ship per night varies between 500 and 1550 kilogram, and the average catch of one ship for one night equals 883 kilogram.

It was also found that, the catch per lighting hour for the months August, September, October 1974 and August 1975, were represented by 65.1, 32.4, 27.5 and 64.0 kg respectively. This means that the catch per unit effort was generally high in August and it decreases to half its value in September. A further decrease was observed in October, which can be considered as the end of the fishing season.

Sardinella aurita, Boops boops, Scomber japonicus and Trachurus mediterraneus constituted the dominant fish concentrations during the period of study.

Beside the above four mentioned species, small amounts of *Scombrid* sp., *Sphyraena sphyraena* and *Trachynotus glaucus* were also recorded in the catch of the surrounding net.

REFERENCES

Al-Kholy, A. A. and El-Wakeel, S. K. (Ed), 1975. Fisheries of the South-Eastern Mediterranean Sea along the Egyptian Coast. Soviet-Egyptian Expedition 1970—1971. Bull. Inst. Ocean. Fish., 5, Egypt.

El-Hehiawy, M. E., 1974. Changes in salinity and landing of six fish species in the shelf, north to the Nile Delta. Bull. Inst. Ocean. Fish., 4, A. R. E.

El-Maghraby, A. M., 1960. The biology of the Egyptian Sardine. Preliminary account of the biology of *Sardinella eba*. Hydrobiological Department, Alexandria Institute of Hydrobiology, Notes and Memories, (58), Cairo.

El-Zarka, S. and Koura, R., 1965. Seasonal fluctuation in the production of the important food fishes of the U. A. R. waters of the Mediterranean Sea. Alex. Inst. Ocean. Fish., Notes and Memories, (74), Cairo.

Gerges, M. A., 1976a. The damming of the Nile River and its effects on the hydrographic conditions and circulation pattern in the South-Eastern Mediterranean, Malta 1973. Acta Adriat., 18 (11): 177—191.

Rifaat, A., 1960. Sardine Fisheries in U. A. R. Alex. Inst. Ocean. Fish., Notes and Memories, (54), Cairo.

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LOV KRUŽNOM MREŽOM U ZALJEVU EL-SALLUM

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KRATAK SADRŽAJ

U radu se daju kvalitativni i kvantitativni podaci o lovinama kružnom mrežom u području zaljeva El-Sallum za 1974. i 1975. god. u donekle promijenjenim ekološkim prilikama koje su uslijedile u području jugoistočnog Mediterana nakon izgradnje Aswanske brane (1966). Analizirane su lovine malih ribarskih brodova, privatnih brodova i onih koji su pripadali »North Fisheries Company«. Posebna pažnja bila je posvećena ulovu vrsta *Sardinella aurita, Boops boops, Trachurus mediterraneus* i *Scomber japonicus*, koje su ujedno bile dominantne u lovinama, zatim još *Euthynnus alleteratus, Sphyraena sphyraena* i *Trachynotus glaucus*, koje su bile u lovinama slabije zastupljene.