

AN OVERVIEW OF TUNA CATCHES IN LIBYA:
METHODOLOGY, BIOLOGY AND STATISTICS

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Introduction

Blue fin tuna constitutes an important component of the total pelagic fishing activities in Libya, and form an old Libyan tradition to catch this highly migratory species along the western Libyan waters during late spring and early summer. It is believed that this fish and other related Species migrated every year as a pelagic fish from the Atlantic to the Mediterranean through the Strait of Gibraltar (Anon, 1976, ICCAT, 1979, Zupanovic, et al, 1983 - Secor et al, 1997).

During its migration the blue fin tuna moves near the Libyan coast line towards the east up to Misurata only, there for it was possible to catch it by fixed Trap-nets in different localities the number of which reached (13) thirteen locality during the year 1934 Anon, 1976 the reason for such long journey and how far this journey extends towards the east, as well as the origin of blue fin tuna entering the Mediterranean either from the western Atlantic stock or from the eastern Atlantic stock are still the interest of many scientists especially during different ICCAT meetings. In the mean time and according to Anon, 1976, Zupanovic et al. 1983 and ICCAT, 1977, 1985 as well as other reports from the Libyan authorities (personal communication) the number of migrated blue fin tuna caught by trap - nets and the number of traps were declined sharply due to different reasons. This paper is a review of the few studies and reports carried out on the Libyan blue fin tuna as well as Statistical and Biological analysis of the data obtained during the year 1996 - 1997 -1998 -in order to find an answer to the above mentioned problems -

Catching methods of blue fin tuna

Tuna fishes are caught by fixed trap - nets along the western Libyan waters, those traps are fixed at a distance ranges between 2.4 to 5.5 K.m. from the coast at depths ranges from 36 to 50 meters (zupanovic et al. 1983). fig. (1) shows some Localities of the Libyan trap - nets. However in recent years new methods were introduced to catch tuna species namely the purse seiners and the baited Long Lines.

Statistics

Records of the blue fin tuna goes back to 1919, table (1) shows the trends of blue fin tuna catches by trap - nets in the Libyan waters during the period from 1919 to 1982 as indicated by zupanovic, et al. (1983). Several other reports of the recent catches from 1977 to 1982 was mentioned by zupanovic (1983) and from 1971 - 1983 by ICCAT (1985) also from 1970 to 1995 by ICCAT 1997. A detailed record of the number and weight to blue fin tuna caught from two localities, Marsa Zwaga (60k.M.) west of Tripoli, and Bu - Fatma (200 km.) east of Tripoli from period of 1927 up to 1982 were recorded by Libyan fishing company and presented by zupanovic et al (1983) (Fig.3) During the years 1996 and 1997 only three traps were operated, they are situated east of Tripoli the total catch of those traps reported in table (2)

Table(2) shows the total catch of Bluefintuna from three traps during the years 1996, 1997

Locality	No of fish	Total weight of fish, M. T.	year
Bu - Fatma	710	24.600	1996
=	480	33.600	1997
zerig	12623	67.354	1996
=	664	33.337	1997
Bu-Rugia	314	24.134	1996
=	104	04.671	1997

Biological studies

few detailed biological analysis of blue fin tuna caught from the Libyan waters have been reported during the year 1981 fishing activities, those studies include lengths and weights, Sex and stage of maturity as well as stomach contents. The length of the blue fin tuna fish caught from off Zwaga ranges from 132 - 260 cm. with mean of 168 cm. with average weight of 75 k.g., while the same Species ranges from 123 to 260 cm with mean of 186 cm and average weight of 107 kg. were caught from off Bufatma. The ratio between males and females of fish caught from Marsa Zwaga was 18:26 while it was 26:24 obtained from fishes collected from Bu- Fatma. All males and females are almost ready for spawning. As reported by Zupanovic et al (1983) the stomach of all fishes studied were empty.

In the mean time during the year 1987 few samples have been examined from fishes obtained by the fixed traps, the weight length as well as sex have been determined, the length ranges from 230 - 88 cm- the mean length was 128.04 cm while the weight ranges from 68-19 k -g - the mean weight was 33 - 48 k.g. the sex ratio between female to male was 3-2 all the samples class were mature.

During this year 1998 two Libyan longlines permitted to catch Bluefin tuna in the Libyan territorial waters the number of fishes caught was 735 fishes the weights ranges between 370 to 20 k.g. the mean weight was 100.09 k.g.

Discussion:

According to the reports the large blue fin tuna migrates from the Atlantic to the Mediterranean mainly for spawning, this hypothesis which was presented by Sara (1963) is supported by many facts of which, all the fish caught by fixed trap - nets are of large size fish, Zupanovic et al, 1983 those fishes are almost ready for spawning also, these are migrating from the west to the east with their stomachs are empty as most of other fish during spawning season - fixed trap- nets (Tonnara) opens its gates towards the west for the coming fish while during late summer those gates opens to the east - ward to catch the returned fish. which were spent in the Mediterranean Anon, 1976 the origin of blue fin stock in the Mediterranean seems to be from the stock of the eastern Atlantic, However interchanges between the eastern and western Atlantic stocks have been proposed by many scientists (Anon 1976, ICCAT,

1977 and Secor et al (1997), this proposition is in need for further biochemical and population studies.

According to statistics reported the total catch of blue fin tuna by trap- nets decreased sharply and hence the number of those traps. The present decrease of fish catch is caused by the over fishing of small - sized fish taken by purse seine in many parts of the central and western Mediterranean. Anon, 1976, ICCAT, 1985, El - Tawil 1986. Considering the different ecological conditions Zupanovic et al. 1983

concluded the presence of periodic fluctuation of natural origin which means that natural was fluctuations in the stock of blue fin tuna, occur every three years and some times every seven years.

References..

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Caught by Trap - nets in Libyan waters
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Table 1 Trends of bluefin tuna catches by trap-nets in the Libyan waters during the period 1919 to 1982.

Year	Trap-net	Catch
1919-1920	1-3	1160-6206 - fish/trap year
1921-1934	8-13	347-2607 - fish/trap year 255-1200 - ton/year (average weight 56-110 kg/fish)
1935-1939	7-10	1133-1737 - fish/trap year 700-950 - ton/year (average weight 86 kg/fish)
1940	9	20497 - fish/year 2277 - fish/trap year
1951	10	18355 - fish/year 1121 - ton/year 1936 - fish/trap year (average weight 61 kg/fish)
1964-1971	5	80-300 - ton/trap year
1972	4	1550 - fish/year 236 - ton/year 367 - fish/trap year
1975	4	320 - ton/year 80 - ton/trap year
1980	3	3628 - fish/year 339 - ton/year 1209 - fish/trap year 113 - ton/trap year
1981	3	2357 - fish/year 255 - ton/year 786 - fish/trap year 85 - ton/trap year (average weight 104 kg/fish (Bu Fatma))
1982	2	2132 - fish/year 1066 - fish/trap year 130 - ton/trap year (Bu Fatma) (average weight 95 kg/fish)

Sources: Anon. 1976; Libyan Fishing Company — Tripoli.

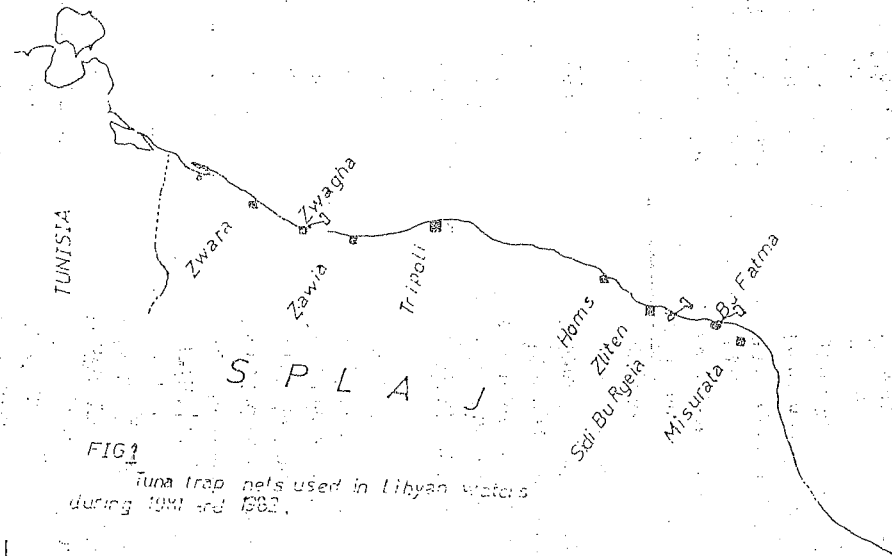


FIG. 2
Tuna trap nets used in Libyan waters during 1941 and 1982.

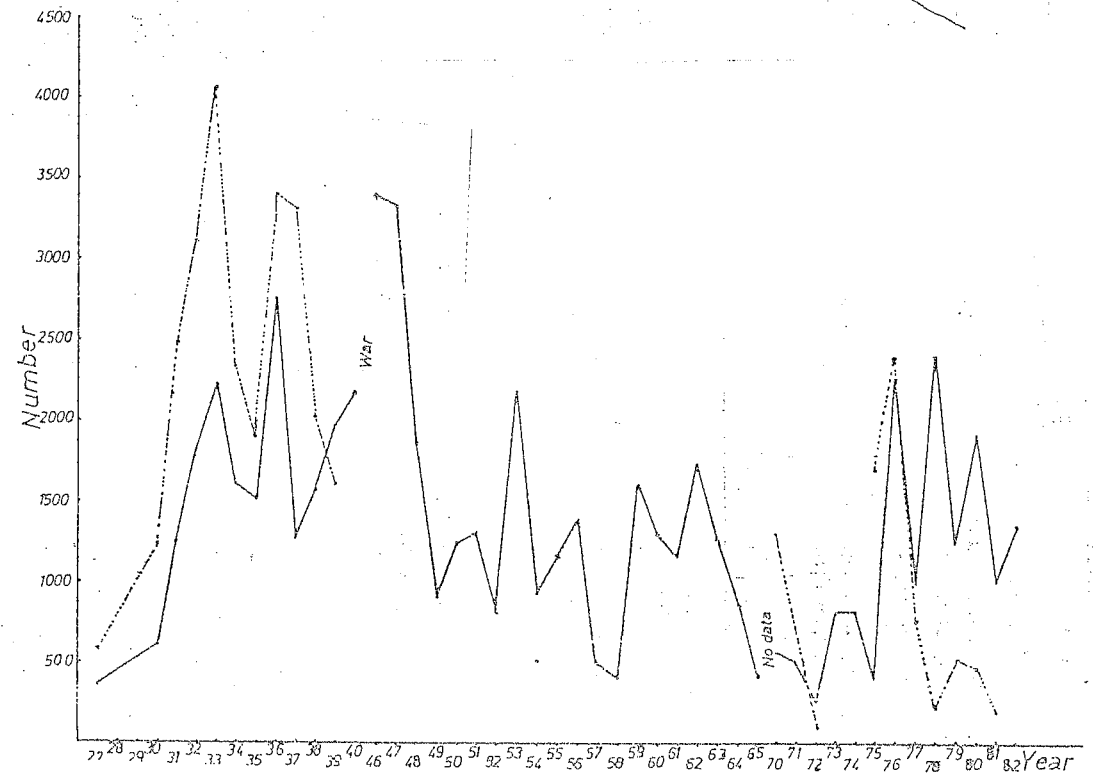


FIG. 3
Fluctuation of bluefin tuna catches by trap-nets of Bu Fatma (—) and Zwagha (.....).