

BLUEFIN TUNA (*THUNNUS THYNNUS* L.) PURSE SEINE FISHING IN THE EASTERN ADRIATIC SEA

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SUMMARY

Bluefin tuna purse seine off-shore fishing is one of the most important fishing activities on large pelagic fish in the eastern Adriatic Sea. This fishery can provide a large quantity of high-priced catches. The CPUE and CPU values have been obtained from fishing vessel reports.

RÉSUMÉ

La pêche au thon rouge par les senneurs actifs au large constitue l'une des activités les plus importantes de pêche aux grands pélagiques dans la zone orientale de l'Adriatique. Cette pêcherie fournit en effet de grandes quantités de captures à des prix élevés. Les valeurs de CPUE et de CPU ont été obtenues à partir des carnets de pêche des bateaux.

RESUMEN

La captura de atún rojo con cerco en alta mar es una de las más importantes actividades de pesca de grandes peces pelágicos en el Mar Adriático oriental. Puede aportar una gran cantidad de capturas altamente apreciadas. Se han obtenido los valores de CPUE y CPU a partir de los informes de los barcos pesqueros.

INTRODUCTION

Off shore purse-seine fishing activities on the large pelagic fish is very important fisheries in the Atlantic and Mediterranean sea. According to ICCAT statistic data (1993), about 47 % catches of bluefin tuna, from 1982. to 1992. is obtained with purse seine.

On the eastern part of the Adriatic sea (Croatian's coast) there are only few fishing vessels, about 25 - 30 m in length, equipped with gear for bluefin tuna fishing.

Fishing season covers the whole year, but these fishing activities usually are carried out from May to October if the weather conditions are favorable. Till now, there was not regulation or limitation for this fishing activities. However, after the most recent limitation, only fish bigger than 70 cm of fork length can be fished. Regarding at length-weight relationship ($W=3,44 \times 10^{-5} \times LF^{2,87}$, Ticina, 1994) calculated for BFT caught in the Adriatic sea, that should be fish at about 6,8 kg in weight. Usually, fish from 2 to 6 years old are caught.

METHODS

The most important source of data have been reports from fishing vessels and statistic data of "JADRAN RIBOLOV" fishing organization. Quantities of whole catch in kg and number of days at sea (during bluefin tuna fishing activities) were reported.

CPUE parameters are the following: C - bluefin tuna catch in MT (RWT); U - single vessel; E - day at sea. CPU values have been calculated as bluefin catches in MT (RWT) per vessel per year.

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RESULTS

Off shore water of the southern and middle Adriatic sea is the principal area for bluefin tuna fishing. The best catches have been reported from the open sea, off the island of Dugi otok, around the Jabuka pit and around the islands of Vis and Palagruža. In this area operates few Croatian's multipurpose purse-seiners. They are from 26 to 30 m in length, with engines of 240 - 500 HP, equipped with seine nets for sardines and tuna fishing (Tičina, 1994). They are not equipped for long-line fishing activities. So, this kind of fishing gear is not used for fishing on large pelagic fish.

Fishing activities on bluefin tunas can be carried out whole year, according to the weather conditions and presence of fish. But practically, tuna's fishing seasons for the purse-seiners in the Adriatic sea is from April to October (Fig.1).

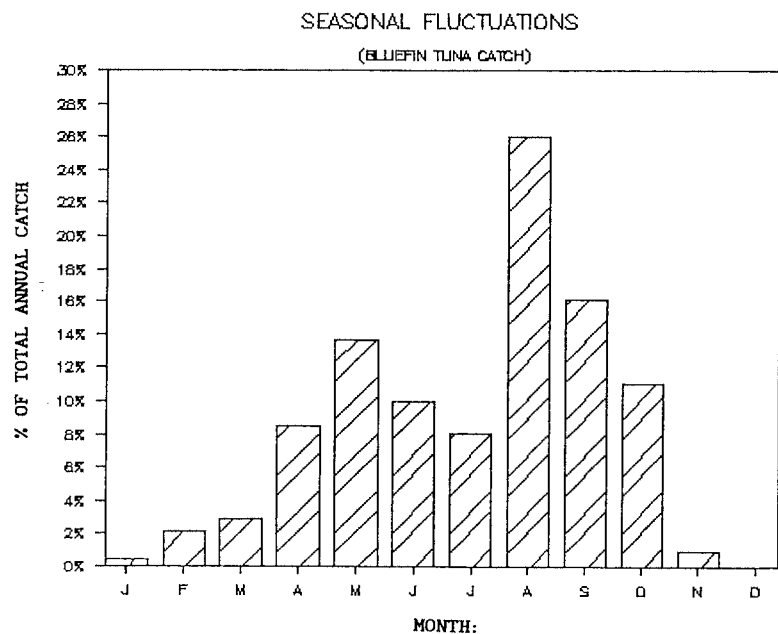


Figure 1.: The average seasonal fluctuations in the annual Croatian catch of bluefin tunas (BFT) from 1982.-1992. (Tičina, 1993.)

Total annual bluefin tuna's catch of Croatian's purse-seiners, in the period from 1980. to 1995., shows big fluctuations. The smallest catch was in 1982. (133,23 MT) and the biggest catch was obtained in the 1988. year (1.070,84 MT). However, with regard at total Mediterranean BFT catch, Croatian's part is pretty small, ranged between 0,85% (1982.) and 6,13% (1988.) with an average of 2,93% of the total BFT catch obtained in the whole Mediterranean fishing area (Fig.2.). The average annual BFT catch, obtained by Croatian's purse-seiners in the period 1983.-1994., when the fishing effort was more or less constant (5 fishing vessels) was 480 MT.

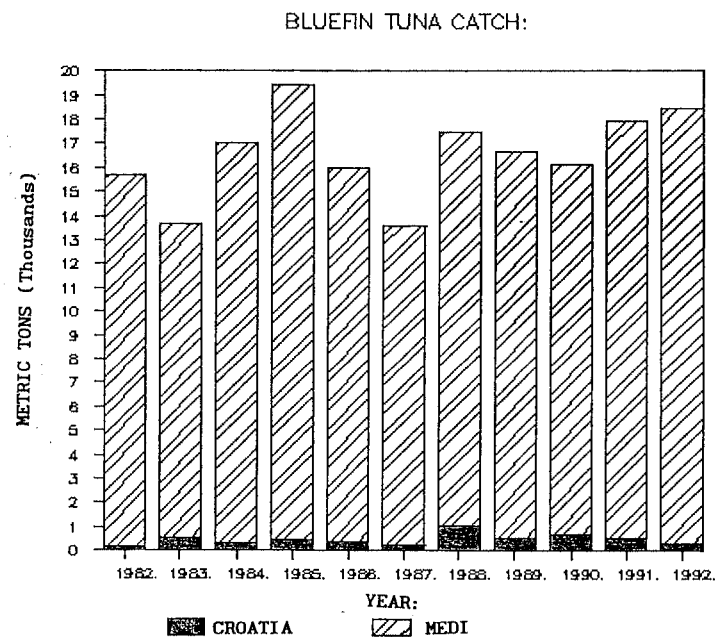


Figure 2.: The Croatian share in the total Mediterranean bluefin tuna (BFT) catch for period 1982.-1992. (ICCAT-Stat.Bull.,1993)

CPU data, available for the period from 1980. to 1995. year, varied between 26,65 and 214,17 with an average at 84,42 MT/year. Results of the linear regression analyses show an increment of CPU values of 1,59 MT/year (Fig.3.).

CPUE data are available only for recent period, from 1991. to 1995. year, and it is shown on Fig.4. Slow increment of CPUE values (0,11 MT/day at sea) can be noticed also.

All this data are shown in the Table 1.

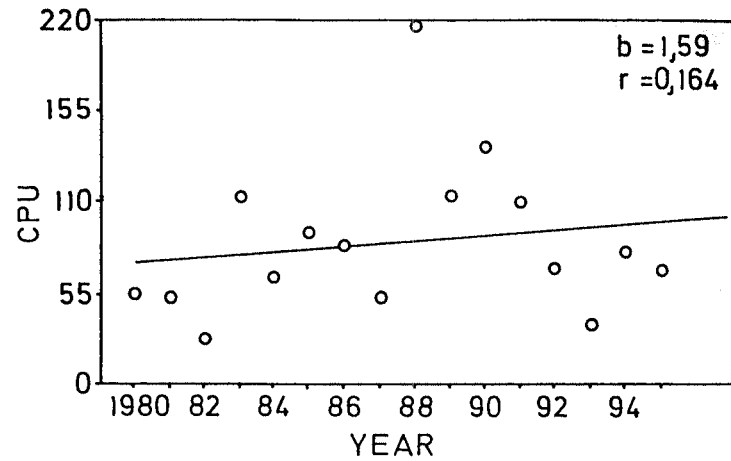


Figure 3.: Annual CPU values (MT/year/vessel) in purse-seine fisheries on bluefin tuna (*Thunnus thynnus* L.) in the period 1980.-1995. (Data from fishermen and "JADRAN RIBOLOV" statistics)

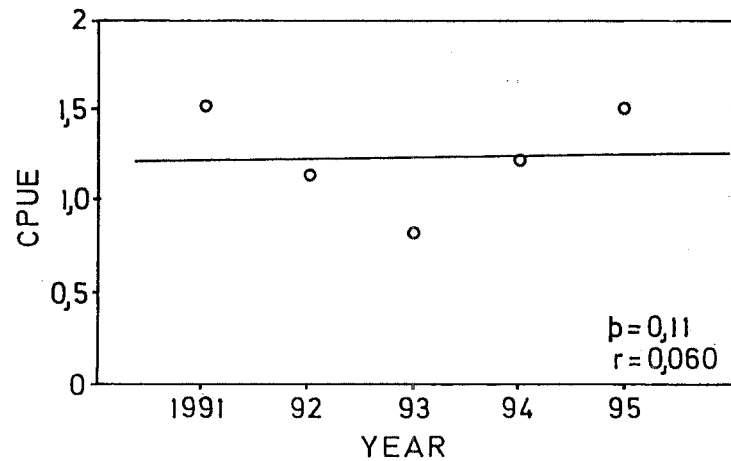


Figure 4.: CPUE values in purse-seine fisheries on bluefin tuna (*Thunnus thynnus* L.) from 1991. to 1995. year. (Data source: reports from fishing vessels)

Table 1.: Statistical data on bluefin tuna (BFT) purse-seine fisheries in the eastern Adriatic sea.

YEAR	Total catch (MT)	CPU (MT/vessel/year)	CPUE (MT/day at sea)
1980.	215.52	53.88	
1981.	204.83	51.21	
1982.	133.23	26.65	
1983.	554.12	110.83	
1984.	314.76	62.95	
1985.	450.19	90.04	
1986.	412.46	82.49	
1987.	255.41	51.08	
1988.	1070.84	214.17	
1989.	553.14	110.63	
1990.	698.50	139.70	
1991.	538.14	107.62	1.50
1992.	347.12	68.24	1.12
1993.	176.37	35.27	0.82
1994.	389.50	77.90	1.21
1995.	408.00*	68.00	1.51

*Estimated catch; statistical data are not completed.

CONCLUSIONS

Catch of bluefin tunas (*Thunnus thynnus* L.) in the period 1983.-1994. was obtained by 5 fishing vessels, equipped with purse seine. So, the fishing effort was more or less constant.

The average annual catch of BFT, on the eastern Adriatic coast, for this period was 480 MT. However, in the 1993. the smallest catch (176 MT) of BFT was obtained. This annual catch should not be taken as basis for regulation BFT fisheries for Croatia.

Bluefin tunas are caught only by purse-seine. The other fishing gears (driftnets, long-lines, ...) are not used.

Linear regression analyses results of CPU and CPUE available data shows very big fluctuations from year to year (small coefficient of correlation), but slow increments of these values also. However, we recommend that total catch of BFT in the Adriatic should be limited.

Limitation on the fishing bluefin tunas smaller than 70 cm (fork length), regarding at ICCAT recommendation, is acceptable.

REFERENCES

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 Tičina, V., 1993. Lov tunja u istočnom Jadranu. Morsko ribarstvo, 45(1): 20-22.
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