

by

P. M. Miyake and A. Dujmusic

INTRODUCTION

In 1997, Croatia submitted a new Task I data series to ICCAT/SCRS, proposing substantial modifications to their bluefin tuna catches during the period 1991 through 1996 (SCRS/97/94: see Fig. 1). Neither the SCRS nor the Commission were able to determine whether such substantial changes were justified. Accordingly, they requested that the Secretariat investigate the new methodology applied by the Croatian scientists to estimate the historical catches. Dr. P. Miyake of the Secretariat visited Croatia, at the invitation of the Government of Croatia, and studied the situation with various Croatian administrators, scientists and representatives of the fishing industry.

In this document, catches reported retroactively by various fishing vessels were used as the basis for the revised estimates. However, there was no official data collection system in effect during the period because of the war in Croatia at the time.

Viewing Fig. 1, it seems that the proposed new Task I figures are a bit too high, considering the period covered is the wartime period. On the other hand, the lack of food may have encouraged increased fishing activities. Also, it should be remembered that the catch in the Mediterranean increased significantly during this period; the bluefin 1994 catch by French purse seiners was twice that of 1993, and Italy also claims that her 1994 catches are much higher than those of 1993. If these increases show a change in stock abundance or availability, rather than an increase in fishing effort, then it is possible that such a change may also be reflected in Croatian catches.

TOTAL BLUEFIN TUNA CATCH ESTIMATES

Before 1990

The data provided previously by Yugoslavia seem to be acceptable. With a few exceptions, almost all the boats were state owned and two major state-owned companies (Jadran and Adria) were handling these tuna catches. The statistics were provided by these two companies and also by private boat owners and reported by the Oceanographic Institute of Split to ICCAT. Therefore, it is considered that all the catches were fully covered. There is a slight possibility of underreporting, as catches by some of the private purse seiners might not have been reported. These boats change their target species from time to time from small pelagic fish to bluefin tuna.

1991-1995

During this study, it was found that the Task I data reported to ICCAT by the Oceanographic Institute in Split included only the bluefin tuna landings by a state-owned fishing company, Jadran Ribolov (JR), which used to have 5 major bluefin tuna seiners. The other state owned company, Adria d.d. Zada started selling or renting their 14 purse seiners to private fishermen, although the company has been buying fish from those vessels. However, these landings were not reported to the Oceanographic Institute and hence were not covered in the Task I data originally reported to the Secretariat. At the same time, two new purse seiners entered the fishery and those were not included in the Task I data either. Several boats changed target species during this period and some boats changed their names and passed to private ownership, which made the situation even more difficult. In general, it was considered that the overall size of the fleet fishing bluefin tuna did not change much during this period.

The Fishery Directorate investigated various possible sources for estimating these missing statistics. These were: National Bureau of Statistics, Customs Office, and Regional Tax Offices. However, these data sources were proved not to be useful for this purpose. The National Bureau Statistics, in particular, confirmed that its coverage of bluefin statistics was very low. After these investigations, the Fishery Directorate of the Croatian Government started to trace the ownership of all the bluefin fishing vessels. After vessels fishing bluefin tuna were identified and their ownership established, the Directorate carried out a two-part survey.

The first part of the survey involved getting information by telephone from all the owners of the bluefin tuna fishing vessels. These telephone enquiries were made without any previous prejudiced knowledge and without warning. The second step involved sending out questionnaires to all the owners of these vessels, requesting them to report the historical landings from 1991 through 1996. All fishermen with purse seiners larger than 15 GT responded and reported their estimated landings of bluefin with signature and seals. The data reported from the boat owners have been validated using the past catch history of each boat and general information for fishing season, abundance and area etc. Also, the figures reported on the returned questionnaires were checked against the telephone survey and re-confirmed. 100 MT was arbitrarily assumed to be caught by various fisheries (seiners, longliners and handliners) smaller than 15GT. (SCRS/97/94).

These findings are summarized in Table 1 and served as the basis for the new estimates presented in SCRS/97/94. However, there is still a strong possibility that the estimates thus made could be biased either downwards or upwards.

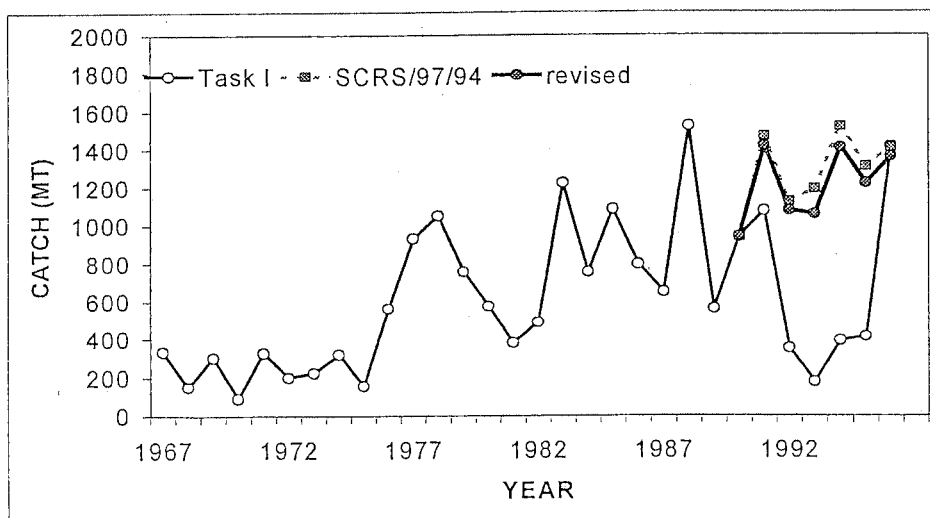


Figure 1. Comparison of estimated Croatian reported bluefin catches.

Table 1. Reported catches from various sources (SCRS/97/93).

		1991	1992	1993	1994	1995	1996
BFT Task I		1075	347	176	389	410	1414
SCRS/97/94		1470	1126	1190	1520	1310	1410
Jadran boats	Skusa	184	114	63	127	55	44
Jadran boats	Napredak	181	114	63	127	150	80
Jadran boats	Jastreb	183	114	61	167	90	40
Jadran total		548	342	187	421	295	164
Ex-Adria boats	Belicia	33		80 (0)	80 (20)	80 (40)	20
Ex-Adria boats	Eva II	12					
Ex-Adria boats	Sabljas	35					
Ex-Adria boats	Salpa	10					
Ex-Adria boats	Kali II				90	80	40
Sub-total		90	0	80 (0)	170 (110)	160 (120)	60
Ex-Jadran boatgs	Tuljan	258	356	295	325	250	244
Ex-Jadran boatgs	Lubin	287	258	336	294	265	243
Others	Marinero					120	70
Others	Preko	131	70	190	210	120	80
Others	Ne mirna						55
Others	Kalix-Aubia II	54					130
Others	Sin Kali						70
Others	Hidra II						135
Others	Centqar B						5
Others	Molo						4
Others	Eva I						50
ARTISANAL FISHERIES		50	50	50	50	50	50
GRAND TOTAL		1418	1076	1138 (1038)	1470 (1410)	1260 (1220)	1360

Firstly, the 100 MT for artisanal fisheries could be over-estimated for the period, considering current years catches (which are about 30-40 MT). On the other hand, during the war, due to the lack of food, artisanal fisheries for domestic consumption were very active. There were 30 licenced longliners and 45 handliners. Besides, there were over 1000 small boats fishing for domestic consumption only. Therefore, the catch could be somewhere between 50MT and 100 MT. As there are no concrete figures available, we have estimated the catches of those fisheries at 50MT.

Secondly, a downward bias (under-reporting) could have been caused because the fishermen were warned that the catch reported at this time would be transmitted to the tax office. Therefore, fearing that additional taxes might be charged based on their report, they might have reported less than the real catches.

An upward bias (over-reporting) could have occurred if the fishermen suspected that this report might be used as the base for the future vessel-specific quota. When the questionnaires were distributed, some fishermen were already aware of the ICCAT regulations concerning catch limits for east Atlantic bluefin tuna. It is not known whether fishermen associated the ICCAT regulations with an individual quota imposed by their country.

If these boats reported catches actually fished in these years, they must have been landed somewhere. In the hope of finding more background information, one of the co-authors, Mr. Dujmusic, visited the existing major bluefin

buyers in Croatia and investigated all the landing slips still existing for those earlier years. As the results, 128 sales records have been recovered for 1992 through 1994 from 8 vessels. The sum of these recorded landings account from a few percent to 80 percent of those reported previously by the boat owners.

It was not possible to validate all the reported catches in this way as many small buyers have not been surveyed; there are many buyers which were active during the war but no longer active; and during the war some catches were sold directly to local markets, not through brokers. However, it was considered that these sales slips are good evidence for confirming catches of the vessels, which were not covered in the original Task I data.

Following a careful review of these landing sheets, it was concluded that catches reported by Skusa, Napredak, Jastreb, Kali II, Marinero and Preko, were validated by these records. However, the catches reported by Belicia were not fully validated and hence the estimate was either reduced or deleted, depending on years. These new figures are shown in the Table 1 in parenthesis and in *italics* and in Figure 1 as "revised".

1997 catches

The catch estimates are made using the sales records and all have been confirmed. The catch sold to the fish farmers are included. The total was 1,105.466 MT (1009 MT for PS, 11MT for LL and 6 MT for handline). The reduction from the 1996 catch level is due to the strict implementation of the ICCAT regulation on minimum size of bluefin tuna. Most fishermen discarded those small tuna at sea, particularly those which sell their catches to fish farmers.