

CATCH OF BLUEFIN TUNA IN THE ATLANTIC FOR TAIWANESE LONGLINE FISHERY

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SUMMARY

This document has two major objectives: (1) to clarify, from the total annual yield statistics by the Taiwan Fisheries Authority, whether the bluefin tuna caught by the Taiwanese fisheries are northern or southern bluefin tuna; and (2) to separate the northern bluefin catch in the Atlantic Ocean and Mediterranean Sea into the western or eastern stock components.

All the possible information sources show that the majority of the catches of bluefin tuna by the Taiwanese fisheries, in particular, by Taiwanese longliners operating in the Atlantic Ocean, are southern bluefin tuna for the years 1983-1992, except for the 1993 catch, which is from the Mediterranean Sea. Therefore, separation of the Taiwanese catch of northern bluefin tuna in the Atlantic Ocean into western and eastern stocks is not necessary because those catches, in any, are relatively minor. Also, the ICCAT catch records of northern bluefin for the Taiwanese longline fishery should be maintained as submitted regularly, and the southern bluefin tuna catches should be revised.

RESUME

Le présent document a deux objectifs, préciser les prises de thon rouge des pêcheries taiwanaises, qui sont soit du thon rouge du nord, soit du thon rouge du sud, à partir des statistiques sur la production annuelle de la Taiwan Fisheries Authority, et par ailleurs séparer la prise de thon rouge du nord de l'Atlantique et de la Méditerranée entre les stocks ouest et est.

D'après toutes les sources possible d'information, une forte majorité des prises de thon rouge des pêcheries taiwanaises, en particulier celles des palangriers taiwanais qui pêchent dans l'Atlantique, se composent de thon rouge du sud pour les années 1983-92; par contre, la prise de 1993 procède de la Méditerranée. Il n'est donc pas nécessaire de séparer la prise taiwanaise de thon rouge du nord dans l'Atlantique entre stock ouest et stock est, du fait que ces prises, si elles existent, sont relativement très minimes. Par ailleurs, le fichier ICCAT de capture de thon rouge du nord pour la pêcherie palangrière taiwanaise devrait être maintenu tel qu'il est remis de façon régulière, et celui de thon rouge du sud devrait être révisée.

RESUMEN

Este documento tiene dos propósitos: uno es el de aclarar las capturas de atún rojo obtenidas por pesquerías de Taiwan, que son de atún rojo del norte o del sur, a partir de las estadísticas anuales totales de rendimiento de "Taiwan Fisheries Authority", y el otro consiste en separar las capturas del atún rojo del norte en el Océano Atlántico y el Mar Mediterráneo para distinguir si pertenecen al stock oeste o este.

Mediante todas las fuentes posibles de información, una gran mayoría de las capturas de atún rojo obtenidas por las pesquerías taiwanesas, en particular por los palangreros que faenan en el Océano Atlántico, estaba compuesta por atún rojo del sur en los años 1983-1992, excepto en el año 1993, que provenía del Mar Mediterráneo. Por lo tanto, no es necesario separar la captura taiwanesa de atún rojo del Océano Atlántico en stock oeste o este porque esas capturas, si las hay, son relativamente de muy poca importancia. Asimismo, los registros de capturas de atún rojo del norte por la pesquería palangrera de Taiwan se presentan regularmente, y debería revisarse la captura de atún rojo del sur.

INTRODUCTION

Bluefin tuna (*Thunnus thynnus*) is an important exploited species of Taiwanese fisheries, although the total annual yield is low and none of the vessels were known as targeted directly on the species until 1992. For the bluefin tuna production (including northern and southern bluefin tuna) by Taiwanese Fisheries, there are apparently in significant yield recorded on the official production statistics, such as Fisheries Yearbook Taiwan Area (published by Taiwan Fisheries Bureau, Department of Agriculture and Forestry, Provincial Government of Taiwan).

Taiwan has a catch statistics system using logbooks, report of chandlers and other related sources (Hsu and Lin 1994), but before 1993, there was not a separate category for the northern and southern bluefin tuna in the logbooks that were distributed to fishermen to be filled out as they fished and returned as they disembarked, therefore the process of fishery data of northern and southern bluefin tuna may only depends on the (1) interview of captains, and (2) locality where bluefin tuna was caught. Based on those two rules, Hsu (1993) has preliminarily classified the catches of bluefin tunas by Taiwanese fisheries in the three Oceans into northern bluefin tuna and southern bluefin tuna, this document is working for extending the classification to the recent years, i.e., 1992 and 1993, and further for investigating the Atlantic bluefin tuna catches and separation for western and eastern stocks of bluefin tuna.

MATERIAL AND METHOD

Hsu (1993) reviewed (1) Fisheries Yearbook, Taiwan Area, 1983-1991 (Anon. 1984a-1992b), published by Taiwan Fisheries Bureau, Department of Agriculture and Forestry, Provincial Government of Taiwan; (2) Annual Catch Statistics of Taiwanese Tuna Longline Fishery, 1983-1991 (Anon. 1984b-1992b), published by Institute of Oceanography, National Taiwan University; and (3) The imports of Commodity by Country by Japan, and classified the bluefin tunas in catches of Taiwanese fisheries into northern bluefin tuna and southern bluefin tuna. Those data sources and processing procedures were adopted in the present document to extend the classification until 1993.

RESULT AND DISCUSSION

The total bluefin tunas (northern and southern bluefin tuna) catches were tabulated in Table 1 by gear and by Ocean. For those bluefin tunas catches were almost imported by Japanese, therefore, the amount of imports of bluefin tuna in Japanese commodity by country should reflect the data in Table 1 whether are reliable (or reasonable) or not. The amount of bluefin tunas imported by Japanese were listed in Table 2 for 1983-1993.

Table 1. The classified catches of bluefin tuna, including northern bluefin tuna and southern bluefin tuna from three Oceans by Taiwanese fisheries, where catches from Atlantic in 1993 includes the bluefin tuna catch from Mediterranean.

		Unit: Metric Tons										
class*		1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Pac.	1	11	4	22	37	47	81	103	78	19	363	57
	2	157	472	786	110	365	108	220	280	342	464	471
Ind.	1	137	129	230	368	517	781	1109	904	620	349	619
	2											
Atl.	1	19	3	28	40	69	62	69	55	13	12	412
	2											
Sub.	1	167	136	280	445	633	924	1281	1037	652	724	1088
Tot.	2	157	472	786	110	365	108	220	280	342	464	471
Tot.		324	608	1066	555	998	1032	1501	1317	994	1188	1559

Where the data sources are: 1983-1991 data were abstracted from Hsu (1993; 1994); and 1992-1993 data were from Fisheries Yearbook, Taiwan Area (Anon. 1993; 1994).

* : The classes in the text: 1 indicates that catch of bluefin tuna were from distant waters fisheries, so the bluefin tuna were in the frozen type; and 2 indicates that catch of bluefin tuna were from coastal and off-shore fisheries, they are always in fresh or ice-chilled type.

Obviously, catches listed in class 2 of Table 1, (only catch from coastal waters off Taiwan) are fresh or chilled, and none are belonging to the Indian and Atlantic catches. If excluding those class 2 catch, the total catch of bluefin tuna by Taiwanese fishermen shown in subtotal class 1 of Table 1 are frozen and from distant waters fishery.

Also catch figures in subtotal class 1 of Table 1 from 1983 to 1992, Hsu (1993; 1994) has classified those catches as southern bluefin tuna in according to the fishing region and interviews of captains who always fished at those region.

Possibly, using suitable conversion factors (cf) to convert Table 2 import processed weight to live weight, because most of bluefin catches by Taiwan fisheries were treated as gilled and gutted (GG, cf=0.85) or dressed weight (DW, cf=0.75), and a very minor part as filleted (FL, cf=0.5), thus, a conversion factor 0.8 was used for converting all of processed weights in Table 2. Then, the possible live weights are estimated in Table 2 as 275,084kg, 477,250kg, 192,325kg, 174,251kg, 332,764kg, 369,098kg, 1,193,761kg, 1,033,175kg, 1,735,823kg, 479,864kg, and 1,235,509kg for the years from 1983 to 1993, respectively.

Table 2 The imports of bluefin tunas by Japanese from Taiwanese fisheries, where the data were abstracted from the Imports of Commodity by Country by Japan for the years 1983-1993.

Unit:

Kilogram

Year	Northern Fresh	bluefin tuna Frozen	Southern Fresh	bluefin tuna Frozen	Total imports	Live weight
1983	117,826	102,241			220,067	275,084
1984	170,357	211,443			381,800	477,250
1985	53,547	100,313			153,860	192,325
1986	78,267	61,134			139,401	174,251
1987	79,863	146,348			226,211	332,764
1988	51,858	243,420			295,278	369,098
1989	65,534	889,475			955,009	1,193,761
1990	112,043	714,497			826,540	1,033,175
1991	231,783	1,156,875			1,388,658	1,735,823
1992	165,670	218,221			383,891	479,864
1993	194,165	257,003	1,259	535,980	988,407	1,235,509

Data for 1992 and before include weight of southern bluefin tuna because of the separation for northern and southern bluefin tuna.

Those data are from official import statistics by Government of Japan, and figures are not converted to live weight from processed weight, such as gilled and gutted (GG), filleted (FL) or dressed weight (DW).

A very great discrepancies of catch records in Tables 1 and 2 appeared in 1991 and 1992, this may be the timing problem for estimating the amount of imports by Japanese and catches by Taiwanese. However, to looks at the total amount of both year, those two figures are reasonable.

And again, Taiwanese longliners always operate in the Indian, South Pacific and whole Atlantic Oceans, of those fishing regions, I supposed that the bluefin tuna catch from Indian, South Pacific and south Atlantic Oceans were all southern bluefin tuna, perhaps there were a very minor catches of northern bluefin tuna. Thus the possible northern bluefin tuna catch with frozen type is only from north Atlantic Ocean. This assumption could be applied to separate the 1993 bluefin tuna catch from Atlantic Ocean.

As Hsu (1994b) proposed that in 1993, Taiwanese longliners initiated their commercial operation in the Mediterranean Sea to target on bluefin tuna, and produce about 327 MT bluefin tuna in the Mediterranean Sea and 4.7 MT in the Eastern Atlantic Ocean. Hence, a separation of bluefin tuna in the Atlantic Ocean could be done by this basis. The total catch of bluefin tuna in the Atlantic Ocean in 1993 were 412 MT for both northern and southern bluefin tuna together. Then substrating 328 MT, which were caught in the Mediterranean Sea, and 4.7 MT from eastern Atlantic Ocean, there were the rest of about 79 MT for the catch of southern bluefin tuna from south Atlantic Ocean.

It is very clear that the Japanese imports of southern bluefin tuna from Taiwan in 1993 were 537 MT processed weight (Table 2), which was much similar to the figures submitted to the Thirteenth Meeting of Australian, Japanese and New Zealand Scientists on Southern Bluefin Tuna (Hsu 1994a). If raising the amount (537 MT) by conversion factor 0.8 conservatively, the 537 MT processed weight is almost equivalent to 670 MT live weight. Therefore adding up the total 1993 southern bluefin catches from the Indian (619 MT), South pacific (57 MT) and south Atlantic Oceans (79 MT) obtains 755 MT. This estimation is very reasonable. Also Taiwanese bluefin catch (northern) in the Atlantic Ocean should be minor from 1983 to 1992, and is significant only in the Mediterranean Sea.

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