National Report of China in IOTC waters in 2004

XU Liuxiong and DAI Xiaojie
Shanghai Fisheries University,
334 Jungong Road, Shanghai 200090, China

ABSTRACT

Longlining is the only fishing method used by Mainland China vessels to catch tuna and tuna-like species in the IOTC waters. There were 63 Chinese longliners fishing the area in 2004 including 32 deep frozen longliners over 30m LOA. Longliners manily target bigeye tuna, but also take significant catches of yellowfin tuna as by catch. There was a corresponding increase in catches of bigeye (8321MT in 2004 cf. 4569 MT in 2003) and yellowfin tuna (3781.2MT in 2004 cf. 2279 MT in 2003). The data collection and logbook submission system, scientific observer program and training programs have been established and operating under strong support by Fisheries Bureau of Ministry of Agriculture and Branch of Distant Water Fisheries of China Fisheries Association.

1. INTRODUCTION

Since 1995, longlining fishing method has been applied by Mainland China fishing fleets for tuna and tuna-like species in the IOTC waters (see table 1). 120 vessels were ever operating in longline fishing in Indian Ocean in 1998, most of them were small non-professional boats reconstructed from trawlers or gill-netters. After that time number of fishing boats reduced with year due to the bad management and low economic performance. Total number of tuna fishing boats registered with IOTC Secretariat reduced to 93 in 2001 and further reduced to 63 in 2002. After 2002 the scale of tuna fishing fleet remains stable. The number of the bigger size deep frozen longliners increased from 16 in 2003 to 32 in 2004. Fishing area of Mainland China fishing fleet in 2004 was 45-90ºE, 10ºN-15ºS.

2. CATCH STATISTICS

The total nominal catch of tuna and tuna-like species in the IOTC waters in 2004 is 13324.3MT in round weight, 69.24 percent increase compared with that in 2003(see table 2) due to following reasons: 1) the increase of fishing effort (21546 thousand of hooks have been deployed in 2004 compared with 15474 thousand of hooks in 2003) by higher proportion of large scale deep frozen longliners in tuna fleet and improvement of fishing technology by introducing Superspool longline system in small scale tuna longliners; 2) technical training of the fishing masters organized by the Branch of Distant Water Fisheries of China Fisheries Association; 3) fishing ground survey jointly conducted by fishing company and fisheries university and institutes. The catch of bigeye tuna (BET) increased from 4569 MT in 2003 to 8321 MT in 2004 and that of the yellowfin tuna (YFT) from 2279 MT to 3781MT accordingly. Catch of other species including swordfish (SWO) and albacore (ALB) are 1222 MT.

Approximately 89.4% of the Chinese total tuna catch came from the west part of Indian Ocean (Table 3). And 87.0% of the bigeye tuna catch was caught from the above area.

3. FISHERIES MANAGEMENT

Shanghai Fisheries University (SFU), as an associated institution with Fisheries Bureau of Ministry of Agriculture, China, is in charge of the training and data collection and compilation of Indian Ocean tuna fishery statistics. And the activities, such as data collection and training programs, are cooperated with the Branch of Distant Water Fisheries of China Fisheries Association too. The compiled data and number of fishing vessels have been routinely reported to the IOTC Secretariat.

SFU also run training courses on the data formulation and collection, regulation related with regional international fisheries management organizations, such as IOTC, and fishing technical related conservation, such as sea turtles and sharks.

A working group for tuna fishery in SFU is also in charge of the tuna scientific observer program in the Indian Ocean, as a part of the national tuna observer program which is supported by the Bureau of fisheries, Ministry of Agriculture. The scientific observer program has been carried out normally under the fully cooperation of the Branch of Distant Water Fisheries of China Fisheries Association and supported by Shanghai Fisheries University. So far, graduate students majoring in marine fisheries science & technology, marine fisheries resources from Shanghai Fisheries University have been chosen to act as tuna scientific observers. The first Indian Ocean tuna observer had been working on board the tuna longliners for 127 days in 2002-2003 covering the area of $8^{\circ}42'N-8^{\circ}06'S$, $40^{o}17'-69^{\circ}07'E$. 937 bigeye tuna, 644 yellowfin tuna and 89 albacore were measured by the observer during his mission. Length-frequency distribution of bigeye and yellowfin tuna are indicated at table 5 and 6. In September 2005, two observers began to conduct their missions in Indian Ocean, they will spend three month on board the tuna fishing boats and their survey area will cover 1ºN – 10ºN, 62ºE –69ºE according to our schedule.

Additionally, logbook data submission system has been tried in order to obtain more detailed information about catch and fishing effort.

All data collection requirement, including submitting the logbook and filling the data as required format, are the conditions for the fishing fleets and the fishing companies to obtain the permission and licenses, which are strongly managed by Fisheries Bureau, Ministry of Agriculture.

Table 1. Number of Chinese Tuna Fishing Fleet in 1995-2004 in Indian Ocean

Year	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Number	12	52	89	120	96	98	93	63	63	63

Table 2. Catch of tuna and tuna-like species during 1995-2004 (round weight in MT)

Species	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
YET	138	494	750	402	2335	2362	1771	1325	2279	3781.2
BET	140	466	1652	2164	2182	2699	2994	2792	4569	8321.2
SWO	71	238	255	117	270	372	263	397	753	687.6
ALB	-	-	-	-	189	3	21	41	31	62
SBF	-	-	-	-	-	-	-	-	14	0
SHX	-	-	-	-	187	98	-	-	-	0
BIL	--	-	-	-	287	486	380	255	148	218
OTH	96	299	306	396	712	487	293	112	79	254.4
Total	444	1497	2964	3080	6162	6507	5722	4922	7873	13324.3

Table 3 Nominal Catch in Metric tons from Chinese Longline Fleet by Species and Fishing Areas between 1999 and 2004

Year	**Area**	**Total hooks (x1000)**	**BET**	**YFT**	**ALB**	**SWO**	**BIL**	**SHK**	**OTH**	**TOTAL**
1999	E	14,939	2113	2206	101	262	287	187	712	5,868
	W	317	69	129	88	8	0	0	0	294
	SUM	15,256	2182	2335	189	270	287	187	712	6,162
2000	E	17,627.7	1,822.1	2,055.2	0	293.6	343.8	94.8	308.5	4,918
	W	3,838.6	876.5	306.3	2.8	78.6	142.1	3.6	179.1	1,589
	SUM	21,466.3	2,698.6	2,361.5	2.8	372.2	485.9	98.4	487.6	6,507
2001	E	15,303.6	2,105.0	1,287.8	19.6	169.9	258.3	0	167.6	4,008.2
	W	4,690.8	889.3	483.5	1.6	92.7	121.3	0	125.2	1,713.6
	SUM	19,994.4	2,994.3	1,771.3	21.2	262.6	379.6	0	292.8	5,721.8
2002	E	4614.6	875.4	446.9	20.8	70.2	36.8	0	23.5	1473.6
	W	8728.5	1917	878	19.8	326.6	218.1	0	88.9	3448.4
	SUM	13343.1	2792.4	1324.9	40.6	333.8	252.9	0	112.4	4922
2003	E	1159	310.7	96.8	5.6	47.9	19.3	14.1(SBF)	12.0	506.4
	W	14315	4258.1	2182.3	25.1	705.2	129.2	0(SBF)	67.2	7367.1
	SUM	15474	4568.8	2279.1	30.7	753.1	148.5	14.1	79.2	7873.5
2004	E	3046	1084.2	208.4	5.7	73.7	34.1	0	28.4	1434.5
	W	18500	7237.1	3572.9	56.2	613.9	183.8	0	226.0	11889.9
	SUM	21546	8321.3	3781.3	61.9	687.6	217.9	0	254.4	13324.4

Table 4 Fishing Effort (x 1000 hooks) and CPUE (kg per 1000 hooks/month) in IOTC waters by month, 2000-2004

Year		**Jan.**	**Feb.**	**March**	**Apr.**	**May**	**June**
2000	Effort	1,924.5	2,003.9	2,254.3	2,355.1	2,244.6	1,897.5
	CPUE	311.7	288.9	266.5	299.9	271.9	291.0
2001	Effort	1733.7	1723.4	1752.3	1736.6	1713.1	1667.6
	CPUE	277	302.5	293	272.3	307.2	258.4
2002	Effort	1100.1	891.9	1033.1	875.1	1291.7	941.9
	CPUE	392.6	344	358.7	372.8	286.8	265.5
2003	Effort	1263	1196	1341	1269	1258	1117
	CPUE	514	516	417	526	719	568
2004	Effort	1588	1426	1638	3004	1497	1355
	CPUE	758	780	687	508	738	585
Year		July	Aug.	Sep.	Oct.	Nov.	Dec.
2000	Effort	1,005.3	993.4	957.4	1,458.4	2,086.5	2,285.4
	CPUE	338.0	351.0	327.8	346.3	314.1	304.2
2001	Effort	1263.1	1118.8	1927.7	1630.7	1794.6	1932.8
	CPUE	231.9	294.7	248	255.7	268.3	402.2
2002	Effort	1204.6	1074.8	1019.2	1317.4	1312.4	1280.9
	CPUE	329.5	343.5	352.1	211.7	457.3	509
2003	Effort	1253	1275	1381	1305	1361	1456
	CPUE	440	319	442	461	579	608
2004	Effort	1605	1556	1577	1652	2256	2391
	CPUE	500	636	486	466	580	76

Table 5 Length-frequency distribution of bigeye tuna (in 5mm interval) from observer data (Jan-June, 2003)

FL class	Jan.	Feb.	Mar.	Apr.	May	Jun.
66-70	0	0	0	0	0	1
71-75	0	0	0	0	1	1
76-80	0	1	0	0	0	0
81-85	0	1	2	0	3	4
86-90	0	0	2	2	1	6
91-95	0	0	2	2	6	15
96-100	1	0	3	1	9	23
101-105	6	0	4	4	13	8
106-110	1	1	3	3	5	7
111-115	5	1	5	1	2	8
116-120	3	3	9	11	15	12

121-125	7	2	5	14	11	10
126-130	3	2	11	16	20	9
131-135	6	2	14	20	9	6
136-140	5	6	10	19	12	5
141-145	4	5	8	14	26	7
146-150	6	7	19	24	23	8
151-155	4	7	17	23	18	13
156-160	4	7	16	22	15	16
161-165	3	11	9	19	16	14
166-170	3	5	16	12	9	6
171-175	0	3	9	6	3	6
176-180	3	3	4	4	3	1
181-185	1	2	3	1	0	2
186-190	1	0	1	1	0	0
191-195	0	0	0	0	0	1
196-200	0	1	0	0	0	1
201-205	0	1	0	0	0	0
	66	71	172	219	220	189

Table 6 length-frequency distribution of Yellowfin tuna (in 5mm interval) from observer data (Jan-June, 2003)

FL class	Jan.	Feb.	Mar.	Apr.	May	Jun.
75-80	1	1	0	0	0	0
81-85	3	4	0	0	0	0
86-90	7	1	1	0	0	0
91-95	2	1	1	1	0	0
96-100	0	2	1	10	8	3
101-105	0	0	2	16	5	4
106-110	0	2	9	19	14	9
111-115	1	1	9	13	44	7
116-120	0	0	2	7	60	5
121-125	0	2	1	6	28	0
126-130	1	4	1	8	9	1
131-135	1	3	5	16	23	10
136-140	1	5	5	11	25	16
141-145	1	7	14	12	16	17
146-150	3	3	6	6	12	19
151-160	1	3	3	10	10	12
161-165	1	0	2	1	5	19
166-170	0	2	1	2	2	12
171-175	1	0	1	0	0	5
180-185	0	0	0	0	0	1
Total number	0	41	64	138	261	140