STATUS OF THE TAIWAN DEEP SEA TUNA FISHERY IN THE INDIAN OCEAN IN 1997

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SUMMARY

Taiwan caught about 92,000 t of tuna and tuna-like species in 1997 with 313 longliners (larger than 100 GRT), a decrease of about 7,000 t from 1996. The yellowfin catch decreased by about 9,500 t, albacore by 1,700 t, bigeye increased by 4,000 t, and swordfish remained at the same level. Major changes for catch statistics were carefully re-examined and reported. An observer programme, sampling programmes, and promotion of a Deep-sea Fisheries Real-time Monitoring and Transmitting System (DFRMTS) have supplemented the statistics system data. The DFRMTS was completed in 1996 and successfully used in 11 experimental trips, and has been extended to 60 vessels in the three major oceans.

Fishery Information

General overview

Taiwan's deep-sea longline fishery commenced in the mid-1950s, firstly in the northern and eastern Indian Ocean, and expanded extensively to the three major oceans. From the late 1960s to the early 1970s, the main catch was yellowfin tuna. Later, the main target species was albacore. Since the 1980s, some of the longliners, together with newly built larger boats with super cold freezers (below -60°C), started to shift targeting to bigeye and yellowfin tuna.

A gillnet fishery was also operated in the Indian Ocean during the mid-1980s, targeting on albacore on a seasonal basis. The fishery was banned in 1992 in accordance with the UN moratorium.

In 1997, there was an average of 313 longliners (larger than 100 GRT) operating in the Indian Ocean, an increase of about 20 boats from 1996 but similar to 1995 level (Table 1). Most of them (289 boats) were larger than 200 GRT. The total catches made by these longliners were preliminarily estimated as 92,000 t (Table 2), a decrease of about 7,000 t from 1996. The drop in yellowfin catch was the main cause of the decrease. In 1992 and 1993 where high yellowfin catch was observed, the total catch of tunas and billfishes was around 92,000-99,000 t.

Tropical tunas

Yellowfin tuna was the major catch in the early 1970s, but the bigeye catch became larger during 1980-1986. After 1986, yellowfin was again the dominant tropical species until 1994. In 1997, the estimated yellowfin catch (round weight) was 18,400 t, about 9,500 t less than in 1996. Estimated bigeye catch, on the other hand, was 34,000 t, about 4,000 t more than 1996.

The decrease of yellowfin catch was mainly due to the unfavourable fishing condition of recent years in the waters around Oman and Pakistan which led to fewer boats applying for licenses to fish there. The increase of bigeye catch, on the other hand, was mainly due to the increase of bigeye-targeting longliners. Many traditional albacore-targeting longliners were also refitted with super-cold freezers for keeping bigeye catches.

Albacore

The preliminary estimate of albacore catch in 1997 was about 1 5,000 t, a decrease of about 1,700 t from 1996. Albacore catch in 1994-1997 ranged between 14,000-17,000 t. Compared with 1986-1991, the catches have decreased by over 5,000 t (Table 2). The decrease was mainly due to the ban on the gillnet fishery which had caught a large part of the albacore in the Indian Ocean (Table 3). Albacore catches by longline fishery increased somewhat after the gillnet fishery was stopped.

Swordfish

The preliminary catch estimate for swordfish was 17,000 t in 1997, similar to the catch of 1996. Indian Ocean swordfish was a by-catch before 1990s and became increasingly important thereafter, with the catch increasing notably to 9,000 t in 1992 and over 10,000 t after 1993.

Statistics collecting system and research

Statistics

Taiwan reorganized the catch statistics compiling group in 1996. OFDC is now responsible for the data compilation and processing system and proposed changes in the data system in late 1996. Through the joint work between ICCAT experts and Taiwanese scientists, the system was carefully reviewed and verified, and has been applied to data from 1994 to the present. During the review, the need for revising the historical catch statistics was noted. The revision of Atlantic data has already been done and was accepted by ICCAT in 1997. Following the same procedure, the revision on Indian longline statistics was finished in 1997 and will be reported to the Seventh Expert Consultation on Indian Ocean Tunas of IPTP in November 1998.

Major changes for the total catches were due to the re-estimation of landings of bigeye and yellowfin tunas for six years, based on the Japanese import information, recovery of sales records of swordfish and application of conversion factors to processed weight reported previously. Major changes for catch/effort data were mainly due to detailed screening of the logbook data and recalculated new coverage rates. The size data of albacore, yellowfin, bigeye and

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swordfish were also carefully reviewed on a boat-time basis and adjusted new size data sets have been created.

Observer Programme

To increase the accuracy of the catch statistics and better understanding of the fishery, an observer programme was designed for the three Oceans. The first trip that was supposed to start in the beginning of this year in the Indian Ocean failed. A rearranged trip started in mid-October 1998, on a longliner with super-cold freezer operating in the Atlantic for bigeye tuna.

Shark Statistics

The shark statistics reported by fishermen on the logbook system were the aggregated catch of all possible species. To improve the statistics, a sampling programme was adopted this year. Shark catch statistics by species might be available in the future.

Deep-sea Fisheries Real-time Monitoring and Transmitting System (DFRMTS)

The Council of Agriculture (COA) established a project in 1994 for the development of a vessel monitoring system incorporating the function of logbook transmission. OFDC was commissioned to carry out the investigation, development, and promotion of the system in 1996. The system was designed not only for monitoring purposes but also for transmitting catch information (logbook) through a user-friendly and easy touch-monitor with Chinese interface. The development of the system was completed and experiments were carried out on 12 vessels operating in the high seas. Except for one vessel failing to send back its data due to hardware breakdown, the remaining 11 vessels successfully transmitted the real-time location information and daily catch/effort data through Inmarsat-C to the monitoring centre located in OFDC.

As from July 1997, the system has been extended to tuna and squid fisheries. Up to now, 60 vessels operating in the three Oceans have set up the system and about are 55 waiting for installation this year.

Management measures

The gillnet fishery was one of the biggest fisheries in the Indian Ocean. To implement the UN moratorium on large scale driftnet fishing on the high seas, the Taiwan government prohibited this fishery as from January 1993. Much effort has also been exerted to help fishermen shift to other fishing gears.

Although Taiwan is not a member country of FAO, Taiwan has zealously been joining the activities of IPTP and continuously provided catch statistics since the 1970s. Also, as one of the countries utilizing the tuna resources of the Indian Ocean, Taiwan has always been and will continue to be cooperative and endeavour to implement any regulations adopted by international fisheries organizations for the conservation of the tuna stocks. However, despite of our great efforts in fisheries scientific research and our responsibilities of fishery management as a major fishing nation, it is a deep regret that due consideration is not taken into account for the status of our participation in the forum for the conservation of the Indian Ocean tuna stocks. It is even more regrettable that Taiwan has been excluded from the First Session of Scientific Meeting and the Third Session of IOTC. For the purpose of proper management of tuna resources in the Indian Ocean, we would like to reiterate that Taiwan's participation in IOTC would be a great contribution, in the same role as we have been playing in other international fisheries organizations.

Table 1. Number of Taiwanese longliners by tonnage operated in the Indian Ocean during 1994-1997

TONNAGE	1994	1995	1996	1997
-200 GT	10	23	20	24
201 -500 GT	183	157	157	174
501-1000 GT	147	130	114	115
TOTAL	340	310	291	313

Table 2. Revised total catches (round weight, t) by species of Taiwanese longline and gillnet fisheries in the Indian Ocean, 1970-1997

Year	ALB	BET	YFT	SKJ	TUN	BLZ	BLM	MLS	SFA	BIL	SWO	SKX	0TH	KGX
1970	7,191	9,966	14,867	19	38	2,376	1,146	1,702	-	852	1,217	-	-	-
1971	6,976	5,522	11,840	-	209	1,964	844	865	-	668	918	-	-	-
1972	6,976	5,522	11,840	-	2	1,964	844	865	-	668	916	-	-	-
1973	11,959	3,962	5,702	-	13	1,277	505	624	-	132	638	-	-	-
1974	17,421	6,023	4,397	-	-	1,247	835	1,173	-	214	963	-	-	-
1975	6,378	5,341	4,630	-	26	1,055	467	821	-	1,261	935	-	-	-
1976	9,748	4,181	3,355	-	3	735	188	1,885	-	645	867	-	-	-
1977	9,803	6,183	8,079	-	-	999	266	3,159	-	72	878	-	-	-
1978	12,808	4,942	4,245	7	1	1,190	157	3,959	-	145	562	-	-	-
1979	14,990	7,379	3,704	15	3	1,398	200	2,378	-	120	1,110	-	-	-
1980	10,971	8,928	3,806	10	2	1,358	436	3,867	-	165	1,257	-	-	-
1981	12,326	6,840	4,101	24	2	1,281	350	4,366	-	37	1,092	-	-	-
1982	21,930	11,313	4,715	15	1	1,341	286	1,845	-	186	1,452	-	-	-
1983	16,958	11,322	5,580	9	1	1,717	711	2,583	-	46	1,910	-	-	-
1984	13,932	10,862	5,812	26	4	2,270	482	2,087	-	26	1,725	-	-	-
1985	6,876	12,201	7,321	44	2	2,050	628	3,025	-	126	1,988	-	-	-
1986	26,228	17,111	16,249	32	2	3,622	759	4,757	11	189	3,231	-	-	-
1987	25,316	17,740	22,365	13	21	4,169	955	4,270	-	271	3,831	-	-	-
1988	25,489	21,284	22,765	59	-	2,835	736	2,902	-	235	5,401	-	-	-
1989	21,454	20,399	22,425	96	1	1,935	565	2,157	-	1,490	4,070	-	-	-
1990	26,898	20,915	31,638	105	32	1,182	271	910	-	328	3,844	-	-	-
1991	22,103	29,075	30,713	34	80	1,415	313	1,862	-	1,244	4,715	-	-	42
1992	12,425	24,024	55,988	76	37	2,741	930	1,697	-	970	8,993	-	-	-
1993	11,890	39,542	88,026	218	505	3,251	242	4,729	1,275	-	15,345	1,031	-	-
1994	14,407	27,732	33,984	88	193	1,420	422	2,815	675	-	12,454	668	349	-
1995	14,209	32,645	23,069	106	118	2,162	570	3,637	531	-	18,261	1,353	696	-
1996	16,930	29,820	27,850	59	40	1,943	368	2,966	171	-	17,620	1,001	370	-
1997*	15,204	34,027	18,390	59	40	1,943	368	2,966	109	-	17,163	825	423	-

*preliminary

Table 3. Total catches (round weight, t) of Albacore, bigeye, and yellowfin tunas by Taiwanese longline and gillnet fisheries in the Indian Ocean, 1970-1997

	Longline			Gillnet			Longline + Gillnet		
Year	ALB	BET	YET	ALB	BET	YET	ALB	BET	YET
1970	7,191	9,966	14,867				7,191	9,966	14,867
1971	6,976	5,522	11,840				6,976	5,522	11,840
1972	6,976	5,522	11,840				6,976	5,522	11,840
1973	11,959	3,962	5,702				11,959	3,962	5,702
1974	17,421	6,023	4,397				17,421	6,023	4,397
1975	6,378	5,341	4,630				6,378	5,341	4,630
1976	9,748	4,181	3,355				9,748	4,181	3,355
1977	9,803	6,183	8,079				9,803	6,183	8,079
1978	12,808	4,942	4,245				12,808	4,942	4,245
1979	14,990	7,379	3,704				14,990	7,379	3,704
1980	10,971	8,928	3,806				10,971	8,928	3,806
1981	12,326	6,840	4,101				12,326	6,840	4,101
1982	21,930	11,313	4,715	.			21,930	11,313	4,715
1983	16,958	11,322	5,580				16,958	11,322	5,580
1984	13,932	10,862	5,812				13,932	10,862	5,812
1985	6,155	12,185	7,321	721	16	-	6,876	12,201	7,321
1986	11,052	16,836	16,216	15,176	275	33	26,228	17,111	16,249
1987	13,137	17,637	22,313	12,179	103	52	25,316	17,740	22,365
1988	11,048	19,365	22,730	14,441	1,919	35	25,489	21,284	22,765
1989	7,097	19,934	22,388	14,357	465	37	21,454	20,399	22,425
1990	5,756	20,747	31,550	21,142	168	88	26,898	20,915	31,638
1991	13,102	28,958	30,707	9,001	117	6	22,103	29,075	30,713
1992.	11,103	24,007	55,987	1,322	17	1	12,425	24,024	55,988
1993	11,890	39,542	88,026				11,890	39,542	88,026
1994	14,407	27,732	33,984				14,407	27,732	33,984
1995	14,209	32,645	23,069				14,209	32,645	23,069
1996	16,930	29,820	27,850				16,930	29,820	27,850
1997*	15,204	34,027	18,390				15,204	34,027	18,390

*preliminary