

## **Review of Taiwan's SBT Fishery of 2009/2010**

### **1. INTRODUCTION**

Taiwan has been fishing for southern bluefin tuna (SBT) since 1970s. The SBT is being caught partly by seasonal target fishery and partly by the albacore fishery as by-catch. Seasonal target fishery is conducted mainly by longliners equipped with super-low temperature freezers, in two heavy seasons, i.e. one from June to September in the waters of 20°S-40°S in the central Indian Ocean, and the other from November to February of the following year in the waters around 35°S-45°S off the southeast coast of Africa. However, no year-round target SBT fishing has been conducted. The total annual catch in 2009 quota year (from 1 April 2009 to 31 March 2010) was estimated as 934 mt, for calendar year preliminarily estimated to be 916 mt.

### **2. OPERATIONAL CONSTRAINTS ON EFFORT**

#### *Regulatory Measures*

Taiwan became a member of the Extended Commission of CCSBT in 2002, and agreed to limit its annual catch of SBT to 1,140 mt. Fishing vessels for seasonal target and by-catch are separated. Individual quota has been allocated to each of seasonal target SBT vessel, and the dynamic quota balancing mechanism has been established since 2002. Any vessel which changed their fishing schedule and fail to get to the SBT fishing ground in time as our regulation demand or which cannot use up their quota, would be reviewed and its quota would be reallocated to those vessels which fished in the fishing ground and needed more quota. By-catch SBT vessels are allowed to have a maximum of 1 ton by-catch SBT per vessel.

Every vessel is required to register with the Taiwan Tuna Association whether target or by-catch SBT, and shall be approved by the government prior to fishing season commencing every year. According to the regulation, in 2009, about 96% of the annual catch limit was allocated to the seasonal target vessels, while the remaining 4% to the by-catch vessels.

In order to collect SBT catch information in a timely manner so as to monitor the total SBT catch not to exceed the catch limit, since 1996, every vessel caught SBT shall submit weekly report on

its catch of SBT by weight as well as its fishing location to the fisheries authorities. This system was refined in 2002 to obtain more accurate catch information, including the length measurement of each SBT caught.

Since June 2000, Taiwan had implemented Trade Information Scheme (TIS) for the export of SBT in accordance with the resolution adopted by CCSBT. According to the regulation, all SBT export shall be accompanied by CCSBT statistical document validated by officials of Fisheries Agency of Taiwan. Besides, Taiwan has imposed the CCSBT Catch Documentation Scheme (CDS) since 1 January 2010 for replacing TIS. Any SBT caught shall be attached an SBT tag, measured for its weight and length, and recorded in a Catch Tagging Form. All SBT export, whether landing at domestic port/ foreign port, or transshipment at sea/ at foreign port shall be accompanied by a Catch Monitoring Form.

Since 2002, all vessels fishing for SBT have been required to install satellite-based Vessel Monitoring System (VMS) for transmitting the positions of vessels to the fisheries monitoring center in a timely manner. Fishing in the spawning area of SBT has been prohibited and SBT statistical document/ CDS will not be validated for any fish caught from the spawning area so as to protect the spawning stock.

According to the resolution on establishing a program for transshipment by large scale fishing vessels adopted by the CCSBT in 2008, Taiwan has conducted at sea transshipment program since 1 April 2009. Taiwan has joined IOTC, ICCAT, and WCPFC's regional observer program. Any vessel authorized to fish for SBT and to transship SBT at sea shall carry an IOTC, ICCAT, or WCPFC observer on board of carrier vessel during each transshipment operation in the Convention area of IOTC, ICCAT or WCPFC.

### **3. CATCH AND EFFORT**

In 2009 quota year, the actual catch was estimated as 934 mt caught by 66 active vessels, including 33 seasonal target and 33 by-catch vessels. About 73.7% of the Taiwanese SBT catch occurred mainly in the southern and central Indian Ocean (25°S~40°S/55°E~105°E), and about 25.4% distributed in water off the southeast coast of Africa (30°S~45°S/20°E~55°E). Others were sporadically by-catch by vessels operating in the southern Pacific or Atlantic Ocean.

#### **4. HISTORICAL CATCH AND EFFORT**

In the early 1980s, the annual catch of SBT was relatively small, with a catch of less than 250 mt. Following the expansion of tuna long-line fleet and exploitation of fishing grounds, there has been a prominent increase in the annual catches. A significant increase in the annual catch of SBT was observed from 1989 to 1992, with a record catch exceeding 1,100 mt, 1/4 of which was from drift net fishery. Following the prohibition of drift-net fishery on the high seas in 1993 in compliance with the United Nations General Assembly Resolution 46/215 calling for global moratorium on all large-scale pelagic drift-net fishing on the high seas of the world's oceans and seas by 31 December 1992, the annual catch of SBT decreased to a stable level, with fluctuation between 840 and 1,600 mt during the last decade (Table 1).

#### **5. ANNUAL FLEET SIZE AND DISTRIBUTION**

In 2009 quota year, there were 66 longline vessels fishing for SBT, among which 33 seasonally targeted SBT and 33 bycaught SBT. The fishing grounds were mainly in the waters of 25°S - 40°S, seasonally distributed in the southern and central Indian Ocean from April to September, and in the southwestern Indian Ocean extending to the eastern boundary of the Atlantic Ocean from November to February of the following year. The catch distribution of 2006-2009 was mapped in Figure 1.

#### **6. HISTORICAL FLEET SIZE AND DISTRIBUTION**

Following the prohibition of drift-net fishing in 1993, SBT was caught only by longline fishery in the three oceans, but mainly in the Indian Ocean. According to the weekly report and trade information, there were more than 100 vessels fishing for SBT during 1998-2001. The number of active vessels fishing for SBT from 2002 to 2009 was shown as Table 2. Since 2005, partial vessels shifted to target oilfish in southern and western Indian Ocean so that the number of vessels fishing for SBT decreased significantly. In 2009, due to Somalia piracy, some vessels move to southern Indian Ocean so that SBT active vessels increased.

#### **7. FISHERIES MONITORING**

Intensive efforts have been continuously exerted for monitoring the SBT fishery through the

following measures:

- I. Weekly report for SBT catch is required for submission to Fisheries Agency through Taiwan Tuna Association. From 2002, provision of such information as daily catch, daily fishing location and daily discards is required in the weekly report when applying for SBT statistical document. Since 1 January 2010, the CCSBT SBT statistical document was replaced by CCSBT CDS. When fishers apply for validation on CDS, the officials authorized by Fisheries Agency of Taiwan shall check all of the above information consistent with physical inspection of the catch.
- II. Taiwan has designated two foreign ports (Port Louis and Cape Town) for SBT transshipment of its flagged vessels since March 2010 and has prohibited transshipment at other foreign ports. Government officials stationed at Port Louis and Cape Town are responsible for inspecting all SBT catch. Any catch without inspection by its officials shall not obtain validated catch document.
- III. As for catch unloading at port in Taiwan by carrier vessels or fishing vessels, since September 2009, Fisheries Agency of Taiwan designates officials to inspect all of SBT catch. Only for those catch are verified, the officials of Fisheries Agency of Taiwan shall validate catch documents.
- IV. In case of transshipment at sea, regional observer of IOTC, ICCAT boarding on carrier vessel shall observe if all of SBT transshipped quantities consistent with the reported catch in the transshipment declaration since 1 April 2009.
- V. Besides, catch data were also verified by scientific observers on board. The coverage rate was all above 10% in terms of effort from 2005 to 2007. In 2008, due to high fuel price, fishing vessels reduced visiting ports and meeting with carrier vessels, thus it is difficult to dispatch observer onboard, so that the observer coverage rate by effort was 6.65%. In 2009 quota year, 5 scientific observers were deployed on 6 fishing vessels. The observer coverage rate by efforts was about 15.01%.
- VI. In addition to catch data, observers also collect and record ecologically related species (ERS) data, such as sea birds, sea turtles, marine mammals, and sharks data. Besides, mitigation

measures adopted by fishing vessels shall be recorded.

- VII. Besides, patrol boats were also dispatched to inspect Taiwanese fishing vessels operating in three oceans. In 2008, 2 SBT fishing vessels were boarded and inspected by patrol boat. It accounts for 4.9% of Taiwanese SBT fishing vessels. In 2009 quota year, 5 SBT fishing vessels were boarded and inspected. It accounts for 7.5% of Taiwanese SBT fishing vessels.
- VIII. There are penalties for over catch, transshipment or unloading catch at any other non-designated foreign ports.
- IX. Since April 2002, vessels authorized to fish for SBT are required to install VMS equipments in order to monitor the positions of the vessels.
- X. Considering catch data measured at sea, waves may cause deviation of weight. Fishers shall submit transaction record validated by verification firm to Fisheries Agency for further verification of catch statistics after the first sale of SBT.

## **8. MARKETS**

In 2009 quota year, about 79% of SBT catch were exported which mainly exported to Japan and very minor exported to South Africa. For the purpose of promotion, since 2006 Fisheries Agency of Taiwan has required industries to transship partial catch back to Taiwan for domestic consumption. In 2009 quota year, the amount of domestic consumption was approximated as 21%.

## **9. ECOLOGICALLY RELATED SPECIES**

Table 4 shows the information of incidental catches of seabirds, and turtles, along with bycatch of shark species recorded by observers deployed on SBT vessels in 2009 fishing season.

Table 1. Annual SBT catches by Taiwanese deep-sea longline and drift net fisheries during 1972-2009. Unit: MT

Calendar Year	Catch		Quota year	Catch	
	Deep-Sea Longline	Drift Net		Deep-Sea Longline	Drift Net
1972	70		1972	70	
1973	90		1973	90	
1974	100		1974	100	
1975	15		1975	15	
1976	15		1976	15	
1977	5		1977	5	
1978	80		1978	80	
1979	53		1979	53	
1980	64		1980	64	
1981	92		1981	92	
1982	171	11	1982	171	11
1983	149	12	1983	149	12
1984	244	0	1984	244	0
1985	174	67	1985	174	67
1986	433	81	1986	433	81
1987	623	87	1987	623	87
1988	622	234	1988	622	234
1989	1,076	319	1989	1,076	319
1990	872	305	1990	872	305
1991	1,353	107	1991	1,353	107
1992	1,219	3	1992	1,219	3
1993	958		1993	958	
1994	1,020		1994	1,020	
1995	1,431		1995	1,431	
1996	1,467		1996	1,467	
1997	872		1997	872	
1998	1,446		1998	1,446	
1999	1,513		1999	1,513	
2000	1,448		2000	1,448	
2001	1,580		2001	1,580	
2002	1,137		2002	1,137	
2003	1,128		2003	1,128	
2004	1,298		2004	1,298	
2005	941		2005	941	
2006	846		2006	846	
2007 <sup>1</sup>	841		2007 <sup>1</sup>	823	
2008	913		2008	926	
2009*	916		2009*	934	

\*Preliminary estimation

<sup>1</sup> Since 2007, Taiwan changes its quota year from calendar year (1 January-31 December) to 1 April -31 March.

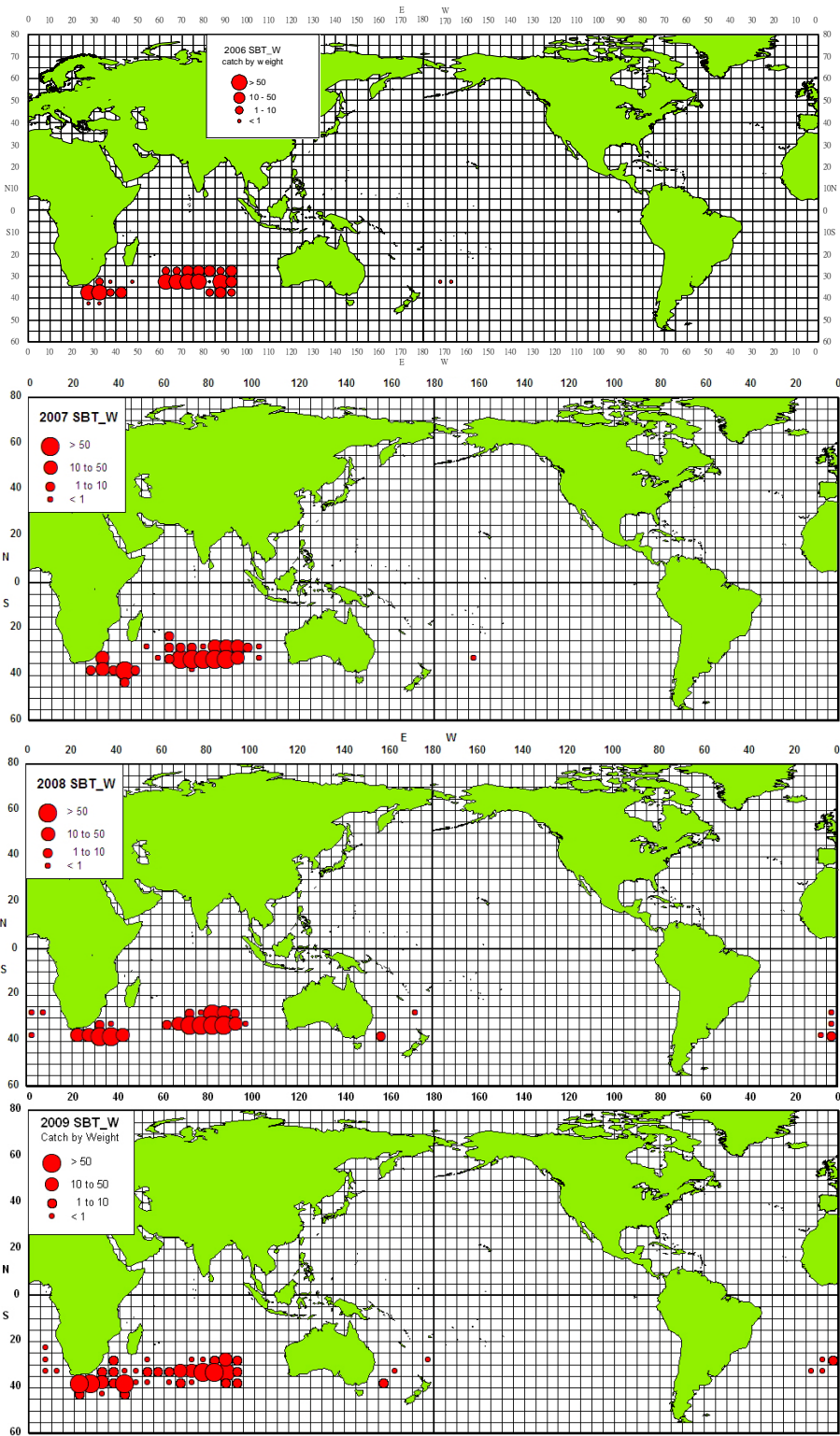


Fig 1. The SBT catch distribution of Taiwanese longline fishery during 2006-2009 (Data of year 2009 is preliminary and may be revised.)

Table 2. The number of active vessels fishing for SBT during 2002-2009 calendar year.

Year	2002	2003	2004	2005	2006	2007	2008	2009
Number of Vessels	61	100	92	57	36	30	41	67

Table 3. Summary of results for scientific observer programs during 2002-2009.

Year	Observers Deployed	Observed Trips	Sea Days	Set Observed	Observer Vessels (%)	Observed Effort (%)	Observed Catch (%)
2002	1	1	202	126	4.76	6.57	1.44
2003	2	2	177	133	2.63	2.43	0.86
2004	3	5	263	165	3.8	4.17	3.10
2005	4	4	681	444	8.16	11.57	9.62
2006	3	3	296	253	9.09	10.46	6.08
2007	4	4	441	394	14.81	14.84	13.72
2008	2	2	252	227	5.71	6.65	3.63
2009*	5	6	531	457	18.18	15.01	12.75

\*Data in 2009 was for quota year.

Table 4. Summary of observed ERS mortality by observers deployed on SBT vessels in 2009 quota year

Item	Year
	2009*
Total effort (hooks)	9,922,298
Observed effort (hooks)	1,489,950
Percentage of hooks observed	15.01%
Total number of observed seabird interactions (mortality)	6(42)
Total number of observed shark interactions(mortality)	(1,855)
Total number of observed sea turtle interactions (mortality)	1 (0)

\*Preliminary estimation.