

Review of Taiwan SBT Fishery of 2013/2014

1. Introduction

Southern Bluefin Tuna (*Thunnus maccoyii*, SBT) was a bycatch tuna species of Taiwanese tuna longline fleet targeting albacore in the past; after the fishing vessels equipped with deep-frozen freezers, some fishing vessels operating in the Indian Ocean have started targeting SBT seasonally since 1990s. Some tropical tuna fishing vessels shift southward and mainly operate in the central south Indian Ocean (CCSBT statistical Area 2 and 14) for targeting SBT during April to September, while some fishing vessels shift to the waters off South Africa (Area 14 and 9) for targeting SBT during October to February of the following year.

The annual catches of SBT were less than 250 tons in early 1980s; after then, with the increase of fishing fleet size and the expansion of fishing grounds, the catches of SBT increased to over 1,000 tons until 2004, and of which the catches of drift net accounted for about 25% of the total catches in 1989 and 1990. The catches of SBT leveled off between 800 and 1,600 tons, from 1991 to 2001. Since 2002, Taiwan has become a member of the Extend Commission of CCSBT and its national allocation has been set at 1,140 tons. The annual catches of SBT fluctuated between 500 tons and 1,300 tons from 2002 to 2014. In 2014 quota years, Taiwan's national allocations were 1,045 tons. The SBT catch in 2014 was 952 tons for calendar year and 968 tons for quota year. According to the Resolution on Limited Carry-forward of Unfished Annual Total Allowable Catch of Southern Bluefin Tuna within Three Year Quota Blocks adopted in October 2014 by the CCSBT, if a Member's annual TAC is under-caught, that Member may carry forward this unfished quota to the next quota year. However, the total quota carried forward from one year to the next shall not exceed 20% of a Member's annual TAC. Taiwan's SBT quota for 2014 quota year was 1,045 MT, so that the unfished quota of 75.675 MT has been carried forward to 2015 quota year.

2. Catch and Effort

Taiwanese SBT longline fishery mainly operates in Area2, Area14, Area8 and Area9 seasonally. The catches and efforts by calendar year are provided in Table 1 and Fig. 1. Most of the SBT catches of Taiwanese SBT longline fishing vessels are processed into “GG” (gilled, gutted and tailed) form, and the weight of total catch weight shown in Table 1 has been raised from processed weight to whole weight with the conversion factors, 1.15. The catches of calendar year were 1,004 and 952 tons for 2013 and 2014 respectively (Table 1), while the catches of quota year (from April 1 to March 31) were 992 and 968 tons for 2013 and 2014 respectively, and the total catch in number was about 26 thousand with 100 discarded in 2014.

The annual catches of SBT fluctuated widely between 494 tons and 1,298 tons between 2002 and 2014 (Table 1). The catch declined significantly to about 530 tons in 2011 for the shared quota of 2010 and 2011 had been mostly used in 2010 and less fishing vessels engaging in SBT. The low catch in 2012 was because of good catch rate in tropical Indian Ocean, so most of fishing vessels shifted to target bigeye tuna. The annual catches of SBT resumed in 2013 and 2014.

Fig. 1 shows the variation of annual catches in number between 2002 and 2014. Most of the catches were made in Area 2 and 14. The aggregated number of SBT, which were caught in major areas including Areas2, Areas14, Areas8 and Areas9, fluctuated between 28 and 41 thousand during 2002-2010. After that, the total number declined rapidly in the next two years and resumed to the level of 26-33 thousand individuals from 2013 and 2014.

The fishing efforts of 2002 and 2003 shown in Table 1, which accumulated all of the hooks deployed by SBT vessels but after 2004 (inclusive) we just accumulated the hooks deployed by SBT vessels in the area of south 20°S. The fishing efforts had kept at around 20,000-40,000 thousand hooks during the period of 2004-2014 except 2012.

The annual catches and fishing efforts in recent 5 years (2010-2014) for Taiwanese SBT longline fishing vessels by month and by area are provided in Table 2 and Table 3. It is observed that most of fishing efforts and catch were made in Area 2, Area 14, Area 8 and Area 9, and it should be noted that the fishing efforts made in Area 9 were mainly from the fishing fleet targeting oil fish in Indian Ocean, and the fishing efforts made in Area 15 were mainly from fishing vessels targeting albacore and by caught SBT. In 2011, the sums of catches and efforts, which aggregated the

amount from June to September, had considerable decreases in Area 2, 8 and 14. As for Area 9, the sums of catches and efforts, which aggregated the amount from October to February, also experienced the similar situation to the former in the same year. In 2013, the sums of catches and efforts, which aggregated the amount from June to September, were phenomenal increases in major areas, which are Area 2 and 14. For major area in 2014, the amount of catch aggregated from June to September in 2014 were decreases obviously, and the effort were increases slightly, except in Area 9.

3. Nominal CPUE

The annual nominal CPUE of calendar years is shown in Table 1 and Fig.1. The nominal CPUE reached a peak in 2005 in major areas (i.e. Aggregated Area2, Area14 Area8 and Area9 in Fig.1), but after then showed a decreasing trend till 2011. Although CPUE in major areas only increased slightly in 2012, this value is the highest one in the last decade.

The annual nominal CPUE in recent 5 years by month and by area are provided in Table 4 and Fig. 2. It was noted that in Area2 and Area14 had higher catch rates and both of them in 2012 reached the highest values in recent five years. The nominal CPUE of Area2 reached monthly high in July of 2011, 2012 and 2013 and the nominal CPUE of Area14 reached monthly high in September of 2012 and 2013. In 2014, the nominal CPUE reached monthly high for Area2 and Area14 in September and August respectively.

4. Size composition

From 1996 to 2002, all Taiwanese SBT fishing vessels had to report the position, weights of SBT catches on weekly basis; between 2002 and 2009, the SBT fishing vessels were requested to report the length of individual SBT catch, and after 2010, the CDS scheme applied to Taiwanese SBT fishery and the length data are all collected through CDS scheme. The annual area-specific size compositions are shown in Fig.3 and Fig.4.

It was observed that the size composition mainly concentrated at the range of 110 cm to 125 cm among all area, and the mode at 150 cm was observed in other area

from 2000s to 2014 (Fig. 3).

In recent 5 years (2010-2014), the size composition concentrated steadily at the range of 110 cm to 125 cm among all area (Fig. 4). The size composition of Taiwanese longline catches had modes at 110-120cm for 2009 and at 130cm for 2010-2011. The modes in recent 3 years (2012-2014) were between 110 cm to 120 cm.

5. Fleet size and fishing efforts distributions

According to the records of weekly reports and trading documents collected, there were more than 100 fishing vessels having engaged in SBT fishery during 1998-2001. Since 2002, only authorized fishing vessels can engage in fishing for SBT and the authorization is reviewed and renewed by Fisheries Agency on an annual basis.

The numbers of fishing vessels engaged in SBT fishery were between 30 and 100 during 2002-2014 (Table 5). During 2005-2008, the number of fishing vessels decreased significantly because some of fishing vessels shifted to the waters off South Africa for targeting oil fish. Due to Somalia piracy, some fishing vessels, operating in tropical area, were authorized to shift southward and started targeting albacore as well as southern bluefin tuna in 2010. Because of that, the number of fishing vessels increased from 67 in 2009 to 82 in 2010. The number of vessels fishing for SBT decreased to 56 in 2011 as national SBT allocation was set at 578 tons, and the number of vessels decreased to 36 in 2012 because most of fishing vessels remained in tropical area for fishing bigeye tuna. Due to no more good catch rate of tropic tuna in 2013 and 2014, fishing vessels returned to engage in SBT fishery and the number of SBT longline fishing vessel increased substantially to 76 and 71 respectively.

Taiwanese SBT fishing vessels seasonally targeting SBT mainly operate in the waters of 20°S - 40°S in the Indian Ocean and the areas adjacent to the Atlantic Ocean. The mainly geographic distributions of fishing efforts and SBT catch in number are shown in Fig. 5 to Fig.8. There are two major fishing grounds in general: one is in the south central Indian Ocean around 50°E-105°E, 20°S-40°S, and the other one is located in the southeast waters off South Africa around 20°E-50°E, 25°S-45°S. The fishing season for Taiwanese SBT fishery in the south central Indian Ocean is from April to September, and the fishing season in the southwest Indian Ocean extend to

the eastern boundary of the Atlantic Ocean from October to February of the following year. From Fig. 5 to Fig. 8, it was observed that the fishing efforts and SBT catch were dramatically located in Area 2, Area14 and Area 9 from 2nd and 3rd quarters, but the catch and efforts in Area 2 and 14 reduced from 2011-2012. And it was noted that there are fishing efforts distributed in Area 9 for targeting oil fish.

6. Development and implementation of scientific observer programs

Appendix 1 provides the summary report on the implementation of scientific observer program.

7. Other relevant information

The collaboration between Taiwan and Australia on SBT archival tagging program had been conducted during 2004-2007. The observers deployed on Taiwanese SBT fishing vessels carried out the SBT tagging program. There were 37, 48, 25 and 50 archival tags successfully settled in the period mentioned above. The results were incorporated into the documents of CCSBT-ESC/0709/20 and CCSBT-ESC/0809/23.

Table 1 Statistics of annual SBT catches in weight and in number, fishing efforts and nominal CPUE of Taiwanese SBT longline fishery

Unit : Hooks_N : thousand hooks ;
 SBT_W: round weight in ton. ;
 CPUE : SBT catch in number /total hooks;

Calendar year	Hooks_N		SBT_N		SBT_W		CPUE	
	All Area	Area 2、 14、8、9						
2002	102,908	39,188	34,841	34,754	1,137	1,132	0.34	0.89
2003	144,620	44,570	31,606	28,768	1,129	1,045	0.22	0.65
2004	36,055	34,993	42,151	41,733	1,298	1,279	1.17	1.19
2005	20,471	19,375	33,319	33,266	941	937	1.63	1.72
2006	20,444	18,919	30,667	30,660	846	845	1.50	1.62
2007	26,185	25,532	33,776	33,772	841	841	1.29	1.32
2008	28,724	26,656	35,144	35,082	913	911	1.22	1.32
2009	37,236	32,380	31,801	31,639	921	913	0.85	0.98
2010	40,916	33,897	33,407	33,263	1,208	1,201	0.82	0.98
2011	27,062	20,327	15,156	14,884	533	520	0.56	0.73
2012	18,414	9,702	17,578	17,198	494	472	0.95	1.77
2013	34,817	25,188	33,583	33,186	1,004	980	0.96	1.33
2014	27,190	23,313	26,664	26,305	952	930	0.98	1.14

Table 2 SBT catch in number by area, by month and by year of Taiwanese SBT longline fishery

Year	Month	Area1	Area2	Area3	Area4	Area5	Area6	Area7	Area8	Area9	Area10	Area11	Area12	Area13	Area14	Area15
2010	Total	-	18453	-	37	-	-	31	2701	6554	0	1	0	-	5555	75
	1	-	-	-	-	-	-	-	2946	0	0	-	-	-	20	-
	2	-	-	-	-	-	-	-	0	263	0	0	-	-	62	-
	3	-	0	-	-	-	-	-	0	0	0	-	-	-	0	-
	4	-	17	-	0	-	-	18	728	40	0	-	-	-	0	0
	5	-	1243	-	37	-	-	13	1854	329	0	-	-	-	0	0
	6	-	3594	-	0	-	-	-	119	314	0	1	0	-	2002	0
	7	-	5542	-	-	-	-	-	-	1124	-	0	0	-	1645	6
	8	-	7203	-	0	-	-	-	-	1041	-	-	0	-	1669	63
	9	-	854	-	-	-	-	-	-	226	-	-	0	-	157	6
	10	-	-	-	-	-	-	-	-	2	-	-	-	-	0	0
	11	-	-	-	-	-	-	-	-	56	-	-	-	-	0	0
	12	-	-	-	-	-	-	-	-	213	-	-	0	-	0	0
2011	Total	-	8228	-	73	-	-	0	816	4357	0	0	0	-	1483	199
	1	-	-	-	-	-	-	-	597	-	-	0	-	-	0	-
	2	-	-	-	0	-	-	0	757	0	0	0	-	-	0	-
	3	-	0	-	0	-	-	-	0	0	0	0	-	-	0	0
	4	-	32	-	0	-	-	0	304	25	0	-	0	-	-	0
	5	-	1084	-	65	-	-	0	511	32	0	0	-	-	7	33
	6	-	1941	-	8	-	-	-	1	188	0	0	0	-	374	73
	7	-	3442	-	0	-	-	-	-	897	-	0	0	-	640	8
	8	-	1726	-	-	-	-	-	-	1099	-	-	0	-	296	57
	9	-	3	-	-	-	-	-	-	263	-	-	-	-	166	28
	10	-	-	-	-	-	-	-	-	91	-	-	-	-	-	0
	11	-	-	-	-	-	-	-	-	275	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	133	-	-	-	-	0	-
2012	Total	-	12192	-	110	-	-	10	50	1312	0	0	0	-	3644	260
	1	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0
	2	-	-	-	-	-	-	-	-	98	0	-	-	-	0	-
	3	-	-	-	-	-	-	-	-	0	8	0	0	-	0	-
	4	-	4	-	0	-	-	5	5	41	0	-	-	-	0	0
	5	-	352	-	48	-	-	5	43	5	0	0	-	-	11	26
	6	-	2122	-	26	-	-	-	2	89	-	0	0	-	0	29
	7	-	6347	-	36	0	-	-	-	261	-	0	0	-	263	43
	8	-	2894	-	0	0	-	-	-	27	-	-	0	-	2050	122
	9	-	473	-	-	-	-	-	-	72	-	-	-	-	1320	40
	10	-	-	-	-	-	-	-	-	0	-	0	-	-	-	0
	11	-	-	-	-	-	-	-	-	217	-	-	-	-	-	0
	12	-	-	-	-	-	-	-	-	494	-	0	-	-	-	0
2013	Total	-	19504	-	158	-	-	13	252	1284	0	42	0	-	12146	184
	1	-	-	-	-	-	-	-	-	386	0	-	-	-	-	0
	2	-	-	-	-	-	-	-	-	0	0	0	-	-	0	-
	3	-	-	-	-	-	-	-	0	0	0	0	-	-	0	-
	4	-	1	-	0	-	-	13	13	9	0	0	-	-	0	0
	5	-	442	-	30	-	-	0	207	87	0	0	0	-	177	0
	6	-	2905	-	98	-	-	-	32	136	0	6	0	-	1073	109
	7	-	7145	-	27	-	-	-	-	212	0	4	0	-	3641	0
	8	-	6775	-	3	-	-	-	-	262	-	14	0	-	4529	9
	9	-	2236	-	-	-	-	-	-	154	-	18	0	-	2726	44
	10	-	-	-	-	-	-	-	-	1	-	-	-	-	0	0
	11	-	-	-	-	-	-	-	-	22	-	-	-	-	0	21
	12	-	-	-	-	-	-	-	-	15	-	-	-	-	0	1
2014	Total	-	15872	-	151	-	-	68	453	1041	15	18	0	-	8939	107
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	2	-	-	-	-	-	-	-	-	0	-	0	-	-	0	-
	3	-	-	-	-	-	-	-	0	0	-	0	-	-	0	-
	4	-	0	-	18	-	-	21	74	38	0	-	-	-	0	-
	5	-	521	-	53	-	-	47	361	136	6	-	0	-	48	0
	6	-	2645	-	49	-	-	0	18	61	4	0	-	-	1145	26
	7	-	4275	-	30	-	-	-	-	16	5	11	0	-	1882	36
	8	-	6583	-	1	-	-	-	-	31	-	7	0	-	4030	5
	9	-	1785	-	-	-	-	-	-	0	-	-	-	-	1834	40
	10	-	63	-	-	-	-	-	-	0	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	388	-	-	-	-	0	-
	12	-	-	-	-	-	-	-	-	371	-	-	-	-	0	-

Table 3 Number of hooks (thousand hooks) deployed by area, by month and by year of Taiwanese SBT longline fishery

Year	Month	Area1	Area2	Area3	Area4	Area5	Area6	Area7	Area8	Area9	Area10	Area11	Area12	Area13	Area14	Area15
2010	Total	-	12293	-	883	-	-	90	3137	12927	1494	596	1266	-	5540	2691
	1	-	-	-	-	-	-	-	-	999	40	324	-	-	122	-
	2	-	-	-	-	-	-	-	4	562	256	117	-	-	237	-
	3	-	4	-	-	-	-	-	219	1139	263	-	-	-	310	-
	4	-	55	-	33	-	-	38	1047	1907	429	-	-	-	29	4
	5	-	1092	-	407	-	-	52	1706	2002	383	-	-	-	77	111
	6	-	3310	-	422	-	-	-	161	2118	124	78	25	-	932	351
	7	-	3931	-	-	-	-	-	-	1839	-	77	500	-	1254	692
	8	-	3615	-	20	-	-	-	-	1099	-	-	476	-	1177	738
	9	-	286	-	-	-	-	-	-	392	-	-	249	-	564	584
	10	-	-	-	-	-	-	-	-	183	-	-	-	-	428	19
	11	-	-	-	-	-	-	-	-	298	-	-	-	-	261	7
	12	-	-	-	-	-	-	-	-	390	-	-	16	-	149	187
2011	Total	-	5303	-	1078	-	-	271	1716	12383	600	180	629	-	926	3977
	1	-	-	-	-	-	-	-	-	674	-	-	124	-	95	-
	2	-	-	-	76	-	-	8	-	547	83	76	12	-	17	-
	3	-	8	-	116	-	-	-	269	1007	100	4	-	-	6	4
	4	-	141	-	21	-	-	259	862	1962	188	-	4	-	-	39
	5	-	939	-	420	-	-	4	582	2180	191	4	-	-	62	415
	6	-	1525	-	297	-	-	-	3	1785	39	62	50	-	239	1053
	7	-	1659	-	149	-	-	-	-	1811	-	35	190	-	208	1082
	8	-	1012	-	-	-	-	-	-	1355	-	-	248	-	201	901
	9	-	18	-	-	-	-	-	-	362	-	-	-	-	83	393
	10	-	-	-	-	-	-	-	-	311	-	-	-	-	-	90
	11	-	-	-	-	-	-	-	-	241	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	147	-	-	-	-	13	-
2012	Total	-	1916	-	1671	16	-	243	397	6301	1364	285	676	-	1088	4459
	1	-	-	-	-	-	-	-	-	508	142	-	-	-	17	16
	2	-	-	-	-	-	-	-	-	798	343	-	-	-	19	-
	3	-	-	-	-	-	-	-	40	1222	215	11	-	-	37	-
	4	-	22	-	54	-	-	109	216	1283	330	-	-	-	14	8
	5	-	168	-	561	-	-	134	137	813	333	18	-	-	79	647
	6	-	420	-	691	-	-	-	4	490	-	245	13	-	36	768
	7	-	724	-	338	10	-	-	-	232	-	4	278	-	206	1293
	8	-	476	-	27	6	-	-	-	168	-	-	385	-	433	823
	9	-	106	-	-	-	-	-	-	177	-	-	-	-	247	703
	10	-	-	-	-	-	-	-	-	240	-	4	-	-	-	144
	11	-	-	-	-	-	-	-	-	179	-	-	-	-	-	7
	12	-	-	-	-	-	-	-	-	192	-	4	-	-	-	51
2013	Total	0	5554	0	2556	0	0	405	1102	12097	1186	1343	992	0	6436	3149
	1	-	-	-	-	-	-	-	-	561	165	-	-	-	-	4
	2	-	-	-	-	-	-	-	-	1048	75	125	-	-	18	-
	3	-	-	-	-	-	-	-	117	1346	73	165	-	-	12	-
	4	-	55	-	39	-	-	156	478	1655	353	58	-	-	50	3
	5	-	360	-	668	-	-	249	475	2042	471	17	4	-	551	94
	6	-	1170	-	1023	-	-	-	32	1086	46	237	9	-	1552	765
	7	-	1666	-	669	-	-	-	-	1180	3	309	493	-	1630	729
	8	-	1750	-	157	-	-	-	-	964	-	249	477	-	1763	441
	9	-	553	-	-	-	-	-	-	807	-	183	9	-	697	438
	10	-	-	-	-	-	-	-	-	656	-	-	-	-	25	328
	11	-	-	-	-	-	-	-	-	415	-	-	-	-	81	271
	12	-	-	-	-	-	-	-	-	337	-	-	-	-	57	76
2014	Total	0	7099	0	1859	0	0	688	2097	6539	423	338	242	0	7576	326
	1	-	-	-	-	-	-	-	-	280	-	-	-	-	58	-
	2	-	-	-	-	-	-	-	-	256	-	97	-	-	34	-
	3	-	-	-	-	-	-	-	56	696	-	3	-	-	87	-
	4	-	32	-	67	-	-	295	903	1048	137	-	-	-	195	-
	5	-	691	-	808	-	-	348	1124	867	213	-	4	-	611	20
	6	-	1647	-	631	-	-	45	14	696	58	112	-	-	1482	185
	7	-	2050	-	337	-	-	-	-	384	15	111	208	-	2165	103
	8	-	2124	-	16	-	-	-	-	383	-	15	30	-	1832	8
	9	-	536	-	-	-	-	-	-	426	-	-	-	-	900	10
	10	-	19	-	-	-	-	-	-	609	-	-	-	-	18	-
	11	-	-	-	-	-	-	-	-	489	-	-	-	-	80	-
	12	-	-	-	-	-	-	-	-	405	-	-	-	-	114	-

Table 4 Nominal CPUE by area, by month and by year of Taiwanese SBT longline fishery

Unit:CPUE=Numbers/Thousand hooks

Year	Month	Area1	Area2	Area3	Area4	Area5	Area6	Area7	Area8	Area9	Area10	Area11	Area12	Area13	Area14	Area15
2010	Total	-	1.50	-	0.04	-	-	0.35	0.86	0.51	0.00	0.00	0.00	-	1.00	0.03
	1	-	-	-	-	-	-	-	-	2.95	0.00	0.00	-	-	0.16	-
	2	-	-	-	-	-	-	-	0.00	0.47	0.00	0.00	-	-	0.26	-
	3	-	0.00	-	-	-	-	-	0.00	0.00	0.00	-	-	-	0.00	-
	4	-	0.31	-	0.00	-	-	0.48	0.70	0.02	0.00	-	-	-	0.00	0.00
	5	-	1.14	-	0.09	-	-	0.25	1.09	0.16	0.00	-	-	-	0.00	0.00
	6	-	1.09	-	0.00	-	-	-	0.74	0.15	0.00	0.01	0.00	-	2.15	0.00
	7	-	1.41	-	-	-	-	-	-	0.61	-	0.00	0.00	-	1.31	0.01
	8	-	1.99	-	0.00	-	-	-	-	0.95	-	-	0.00	-	1.42	0.09
	9	-	2.99	-	-	-	-	-	-	0.58	-	-	0.00	-	0.28	0.01
	10	-	-	-	-	-	-	-	-	0.01	-	-	-	-	0.00	0.00
	11	-	-	-	-	-	-	-	-	0.19	-	-	-	-	0.00	0.00
	12	-	-	-	-	-	-	-	-	0.55	-	-	0.00	-	0.00	0.00
2011	Total	-	1.55	-	0.07	-	-	0.00	0.48	0.35	0.00	0.00	0.00	-	1.60	0.05
	1	-	-	-	-	-	-	-	-	0.89	-	-	0.00	-	0.00	-
	2	-	-	-	0.00	-	-	0.00	-	1.38	0.00	0.00	0.00	-	0.00	-
	3	-	0.00	-	0.00	-	-	-	0.00	0.00	0.00	0.00	-	-	0.00	0.00
	4	-	0.23	-	0.00	-	-	0.00	0.35	0.01	0.00	-	0.00	-	-	0.00
	5	-	1.15	-	0.15	-	-	0.00	0.88	0.01	0.00	0.00	-	-	0.11	0.08
	6	-	1.27	-	0.03	-	-	-	0.31	0.11	0.00	0.00	0.00	-	1.56	0.07
	7	-	2.07	-	0.00	-	-	-	-	0.50	-	0.00	0.00	-	3.08	0.01
	8	-	1.70	-	-	-	-	-	-	0.81	-	-	0.00	-	1.47	0.06
	9	-	0.17	-	-	-	-	-	-	0.73	-	-	-	-	2.00	0.07
	10	-	-	-	-	-	-	-	-	0.29	-	-	-	-	-	0.00
	11	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	0.90	-	-	-	-	0.00	-
2012	Total	-	6.36	-	0.07	-	-	0.04	0.13	0.22	0.00	0.00	0.00	-	3.35	0.06
	1	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	0.00	0.00
	2	-	-	-	-	-	-	-	-	0.12	0.00	-	-	-	0.00	-
	3	-	-	-	-	-	-	-	0.00	0.01	0.00	0.00	-	-	0.00	-
	4	-	0.18	-	0.00	-	-	0.05	0.02	0.03	0.00	-	-	-	0.00	0.00
	5	-	2.10	-	0.09	-	-	0.04	0.31	0.01	0.00	0.00	-	-	0.14	0.04
	6	-	5.05	-	0.04	-	-	-	0.45	0.18	-	0.00	0.00	-	0.00	0.04
	7	-	8.77	-	0.11	0.00	-	-	-	1.13	-	0.00	0.00	-	1.27	0.03
	8	-	6.08	-	0.00	0.00	-	-	-	0.16	-	-	0.00	-	4.73	0.15
	9	-	4.48	-	-	-	-	-	-	0.41	-	-	-	-	5.34	0.06
	10	-	-	-	-	-	-	-	-	0.00	-	0.00	-	-	-	0.00
	11	-	-	-	-	-	-	-	-	1.21	-	-	-	-	-	0.00
	12	-	-	-	-	-	-	-	-	2.57	-	0.00	-	-	-	0.00
2013	Total	-	3.51	-	0.06	-	-	0.03	0.23	0.11	0	0.03	0	-	1.89	0.06
	1	-	-	-	-	-	-	-	-	0.69	0	-	-	-	0	-
	2	-	-	-	-	-	-	-	-	0	0	0	-	-	0	-
	3	-	-	-	-	-	-	-	0	0	0	0	-	-	0	-
	4	-	0.02	-	0	-	-	0.08	0.03	0.01	0	0	-	-	0	0
	5	-	1.23	-	0.04	-	-	0	0.44	0.04	0	0	0	-	0.32	0
	6	-	2.48	-	0.1	-	-	-	1	0.13	0	0.03	0	-	0.69	0.14
	7	-	4.29	-	0.04	-	-	-	-	0.18	0	0.01	0	-	2.23	0
	8	-	3.87	-	0.02	-	-	-	-	0.27	-	0.06	0	-	2.57	0.02
	9	-	4.04	-	-	-	-	-	-	0.19	-	0.1	0	-	3.91	0.1
	10	-	-	-	-	-	-	-	-	0	-	-	-	-	0	0
	11	-	-	-	-	-	-	-	-	0.05	-	-	-	-	0	0.08
	12	-	-	-	-	-	-	-	-	0.04	-	-	-	-	0	0.01
2014	Total	-	2.24	-	0.08	-	-	0.1	0.22	0.16	0.04	0.05	0	-	1.18	0.33
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	2	-	-	-	-	-	-	-	-	0	-	0	-	-	0	-
	3	-	-	-	-	-	-	-	0	0	-	0	-	-	0	-
	4	-	0	-	0.27	-	-	0.07	0.08	0.04	0	-	-	-	0	-
	5	-	0.75	-	0.07	-	-	0.14	0.32	0.16	0.03	-	0	-	0.08	0
	6	-	1.61	-	0.08	-	-	0	1.29	0.09	0.07	0	-	-	0.77	0.14
	7	-	2.09	-	0.09	-	-	-	-	0.04	0.33	0.1	0	-	0.87	0.35
	8	-	3.1	-	0.06	-	-	-	-	0.08	-	0.47	0	-	2.2	0.62
	9	-	3.33	-	-	-	-	-	-	0	-	-	-	-	2.04	4
	10	-	3.32	-	-	-	-	-	-	0	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	0.79	-	-	-	-	0	-
	12	-	-	-	-	-	-	-	-	0.92	-	-	-	-	0	-

Table 5 Number of fishing vessel engaged in SBT fishery during 2002-2013

Year	No. of seasonal target vessels	No. of by-catch vessels	Total vessels
2002	21	50	71
2003	76	24	100
2004	79	18	97
2005	49	8	57
2006	33	3	36
2007	27	3	30
2008	35	6	41
2009	34	33	67
2010	65	17	82
2011	28	28	56
2012	12	24	36
2013	39	37	76*
2014	37	34	71

* There was one vessel shipwreck.

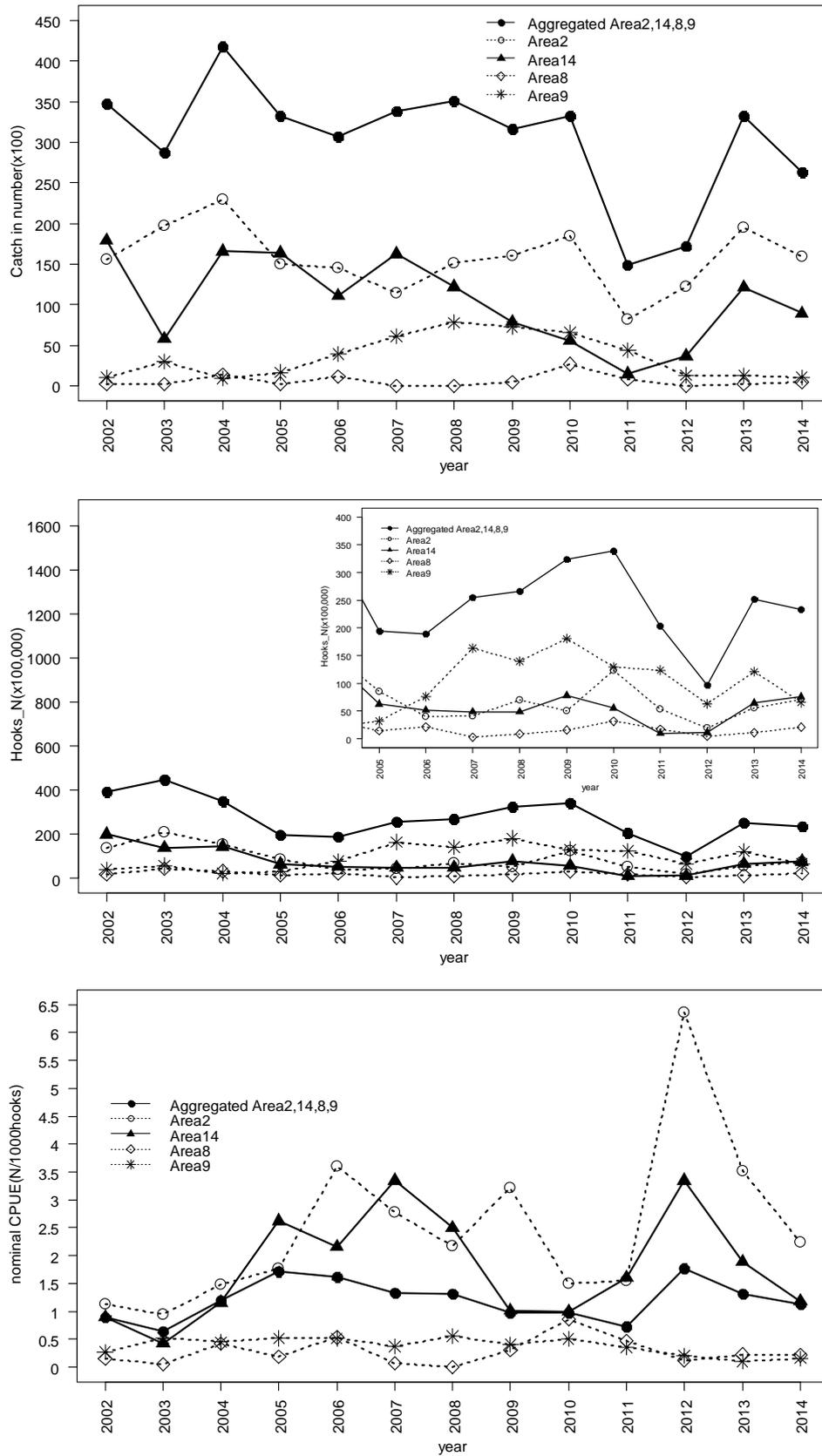


Fig. 1 The variation of annual SBT catch in number, fishing effort and nominal CPUE of Taiwanese SBT longline fishery in main fishing ground

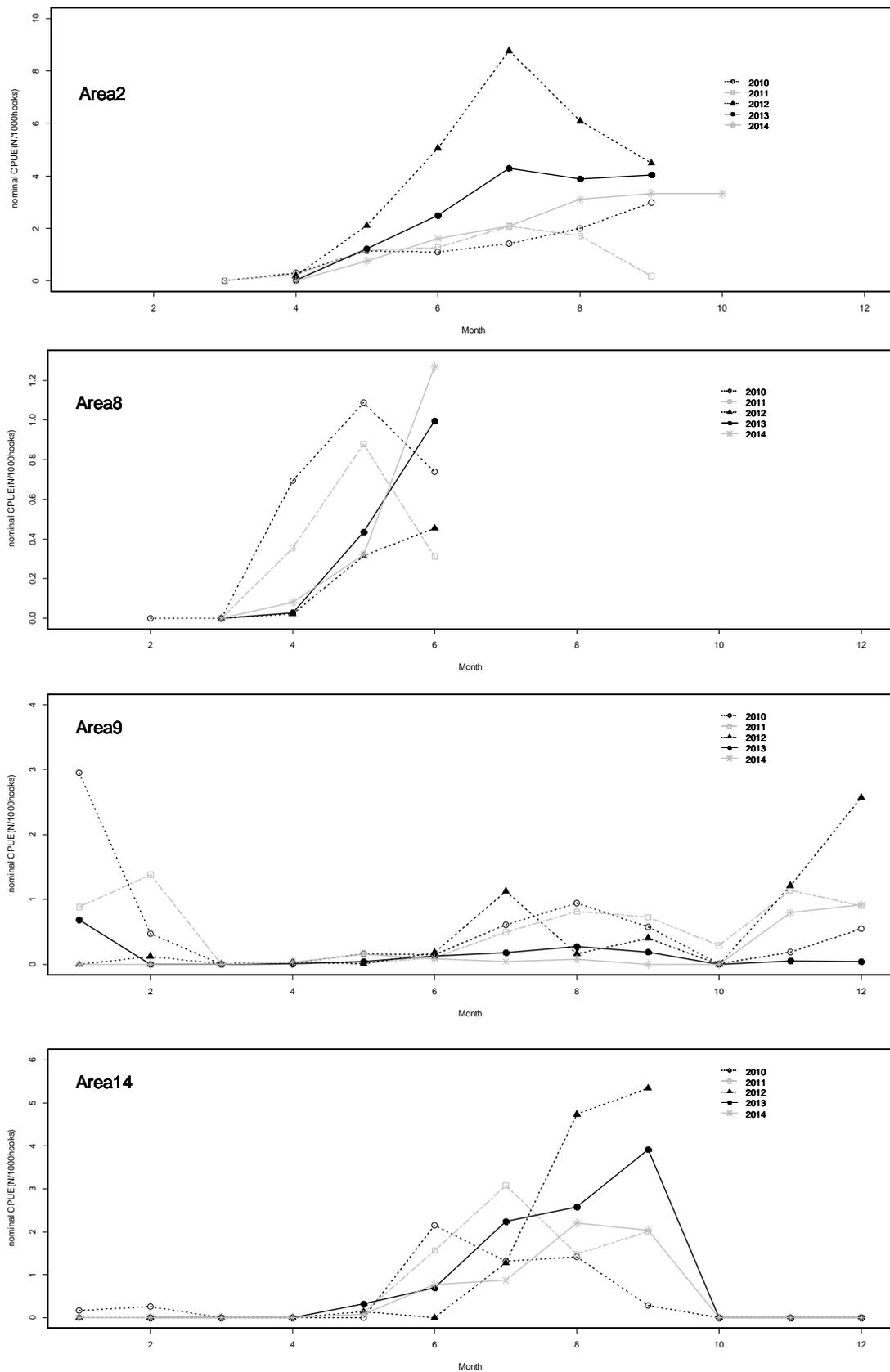


Fig. 2 The variation of annual nominal CPUE by area, by month and by year of Taiwanese SBT longline fishery in main fishing ground

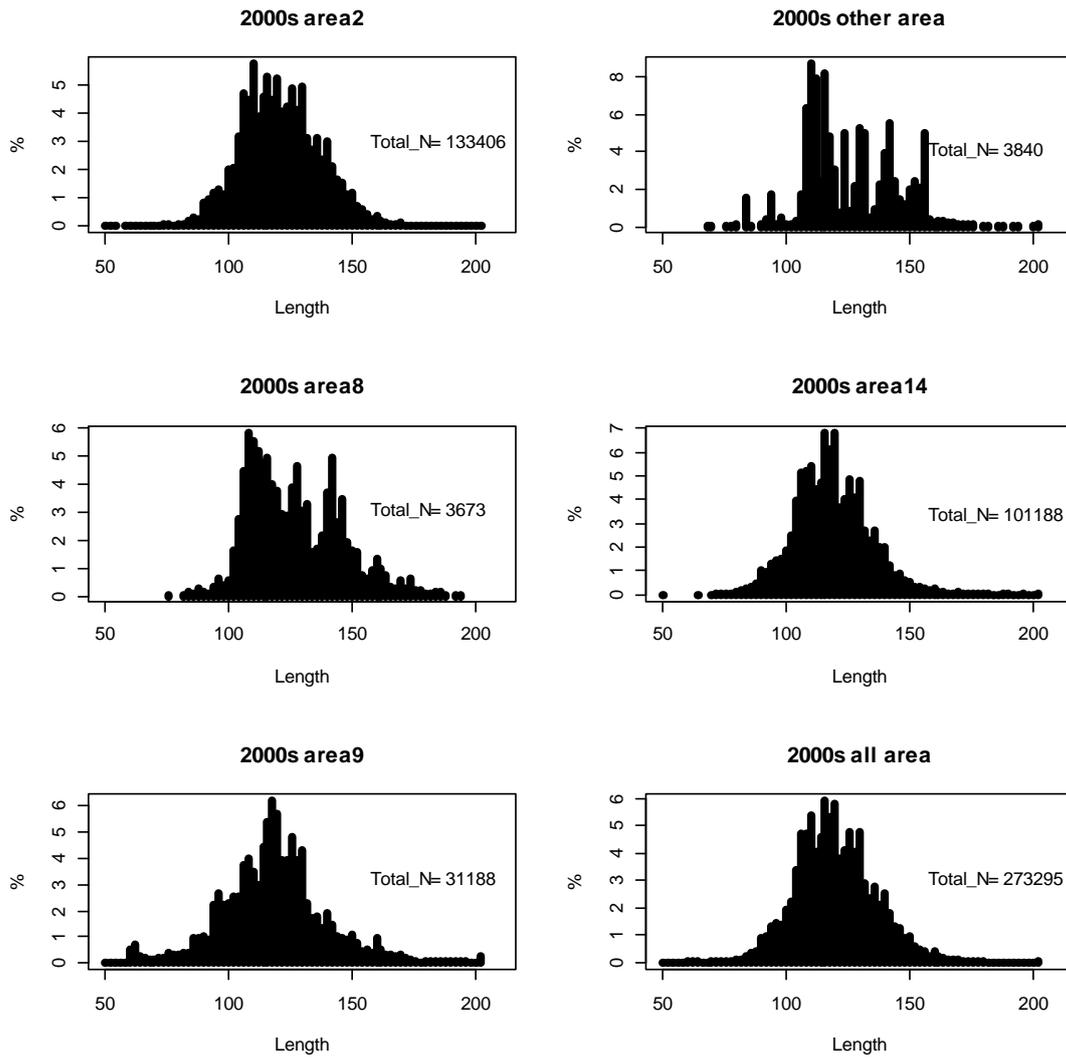


Fig.3 (1) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2000s

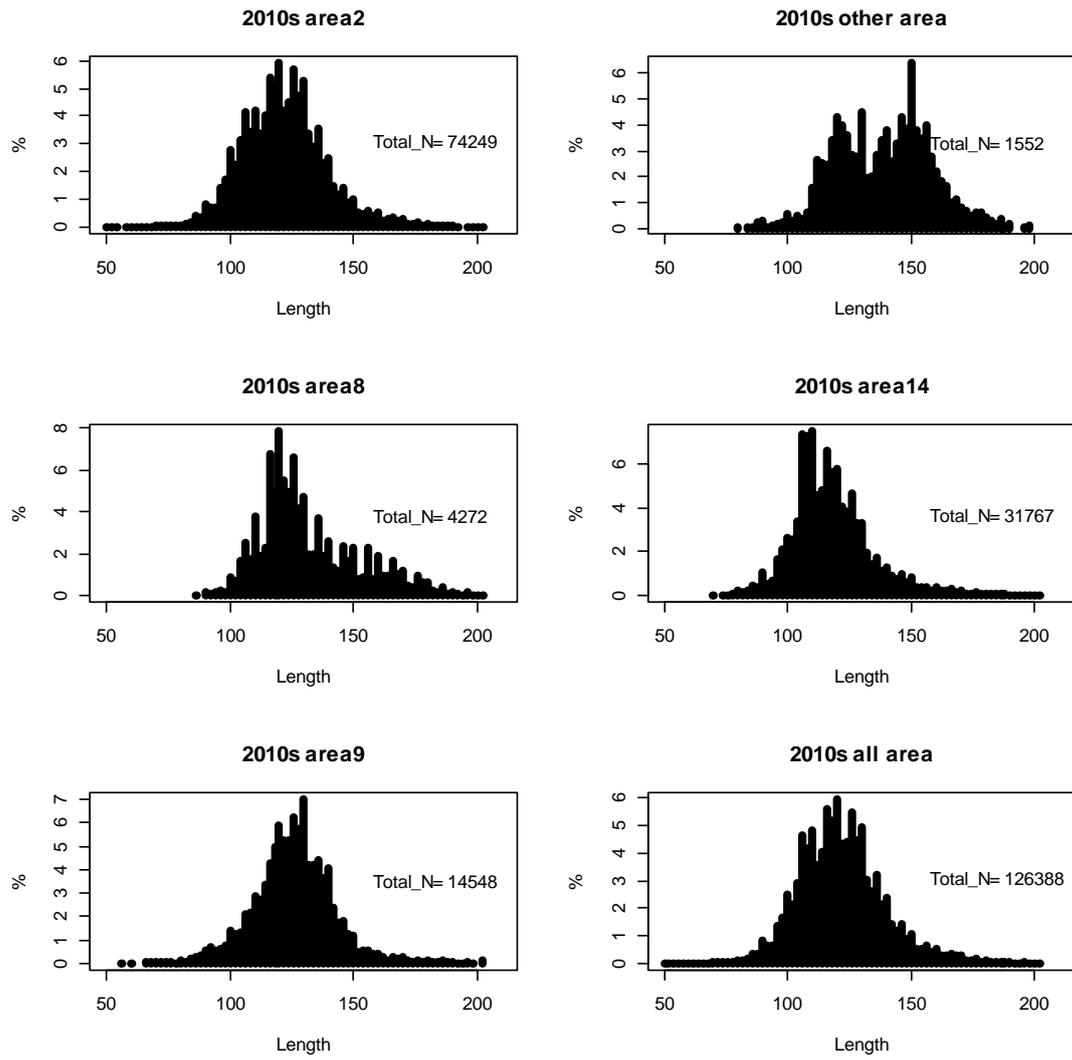


Fig.3 (2) SBT catch length frequency by area of Taiwanese SBT longline fishery during 2010-2014

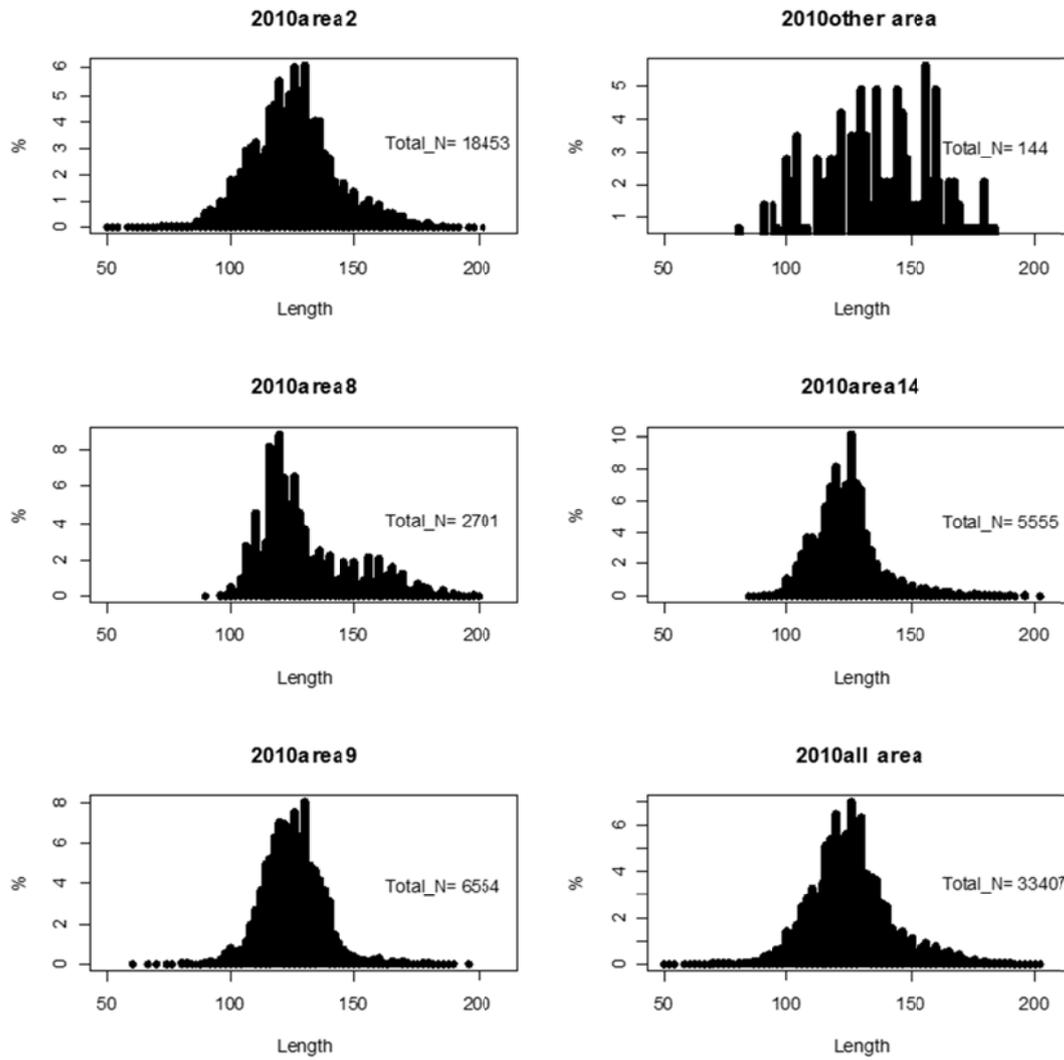


Fig.4 (1) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2010

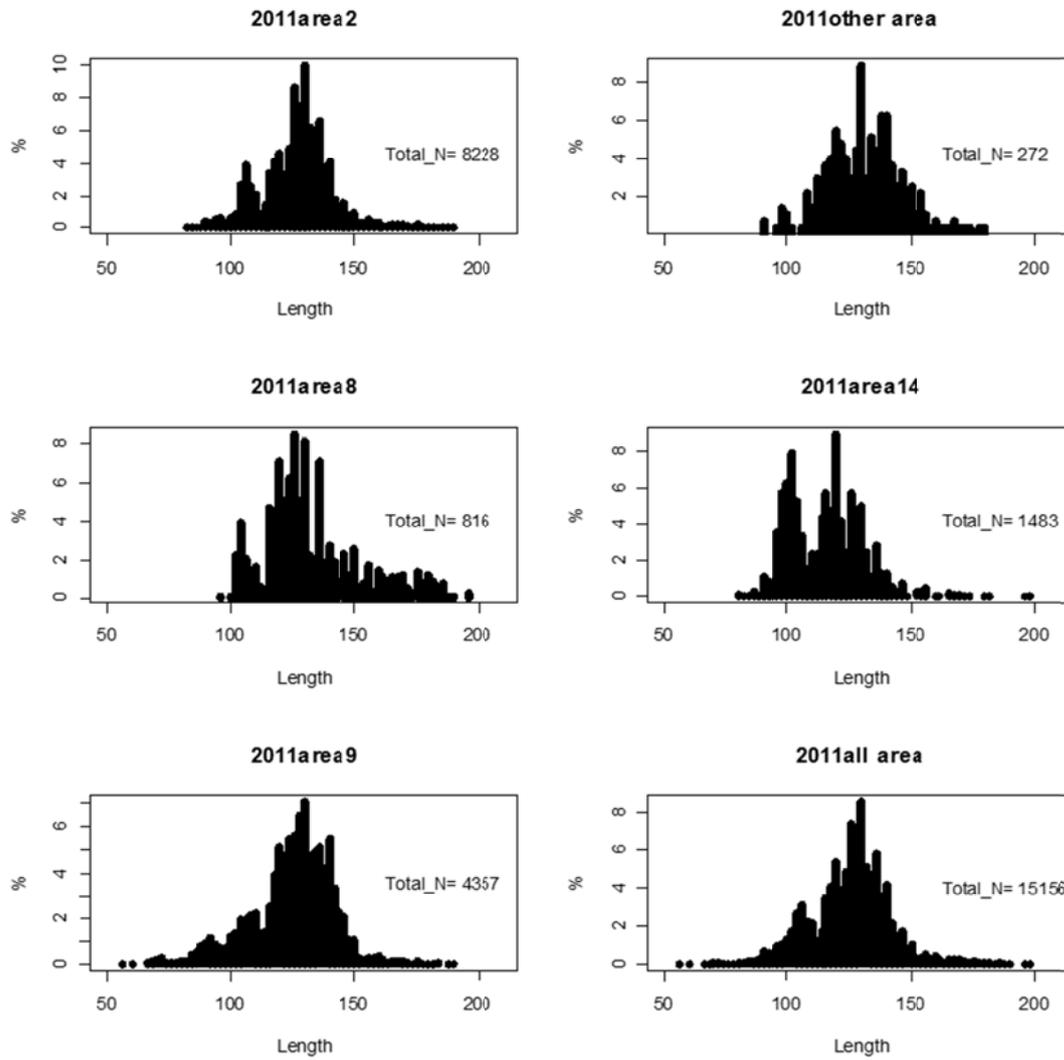


Fig.4 (2) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2011

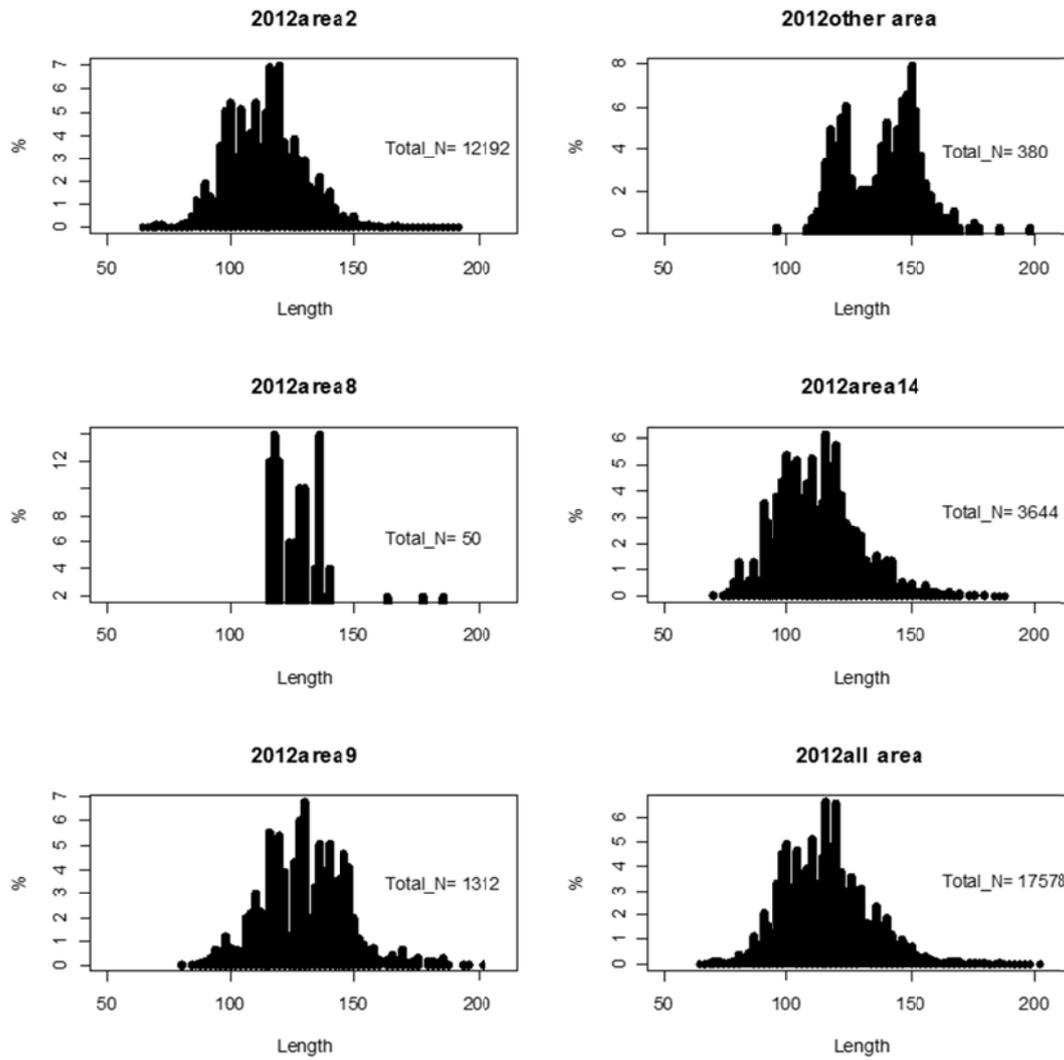


Fig.4 (3) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2012

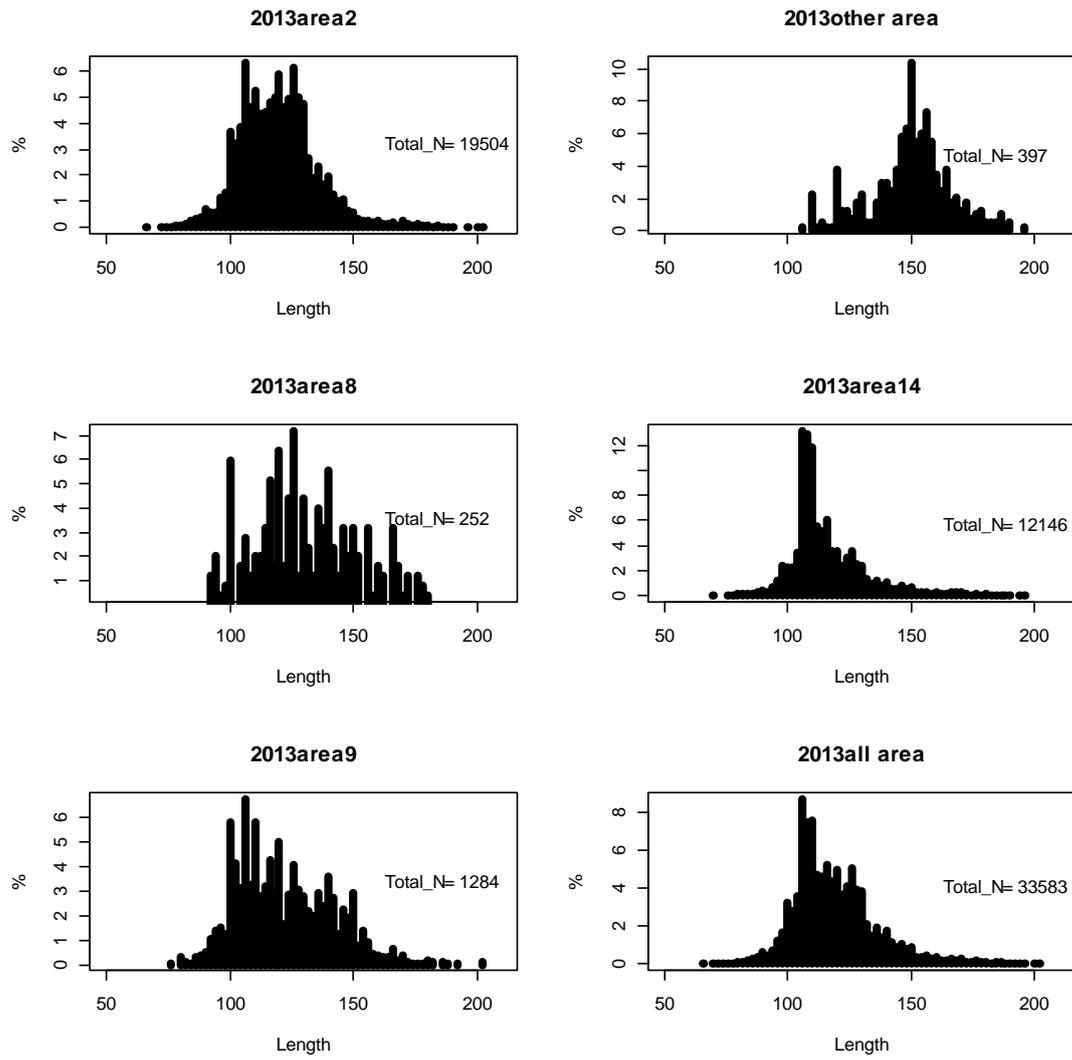


Fig.4 (4) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2013

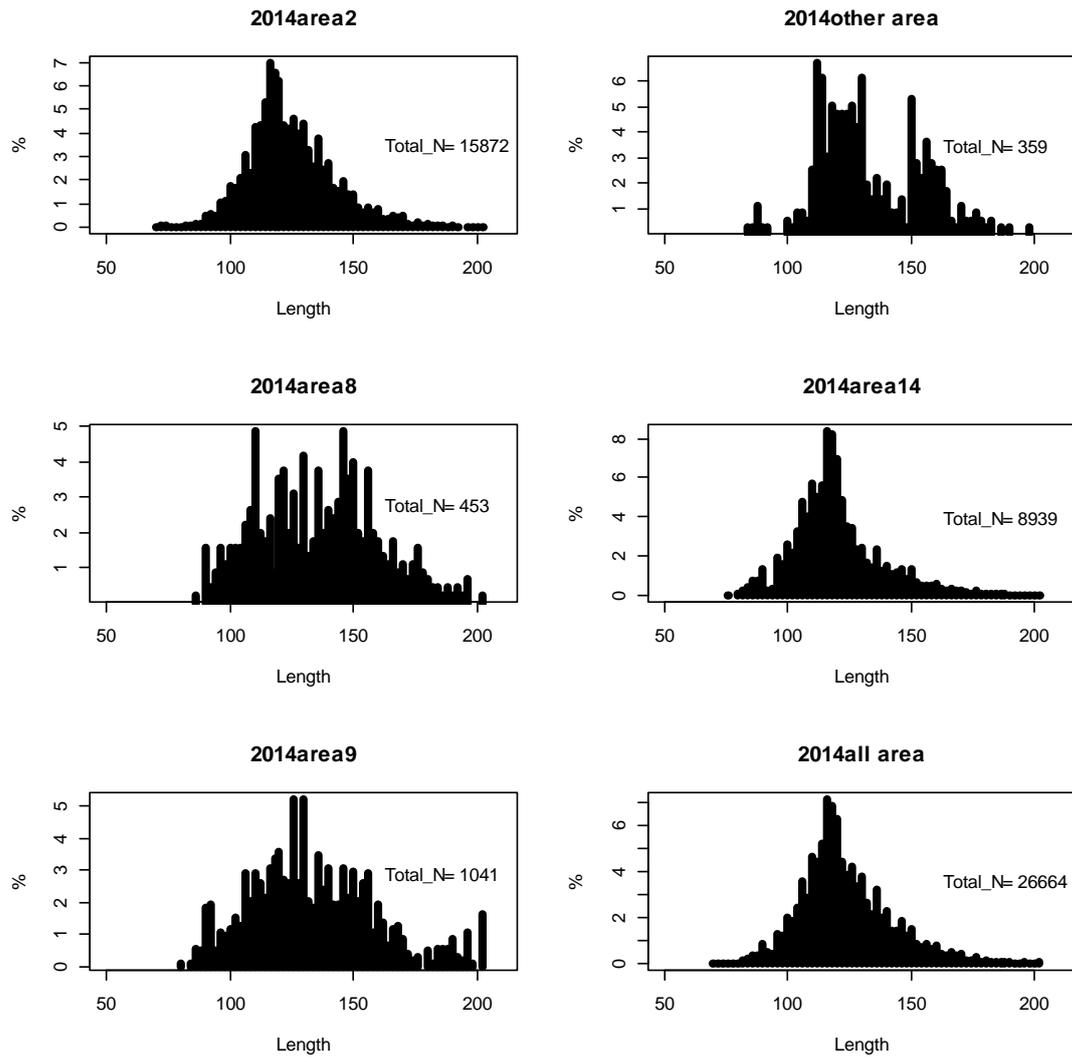


Fig.4 (5) SBT catch length frequency by area of Taiwanese SBT longline fishery in 2014

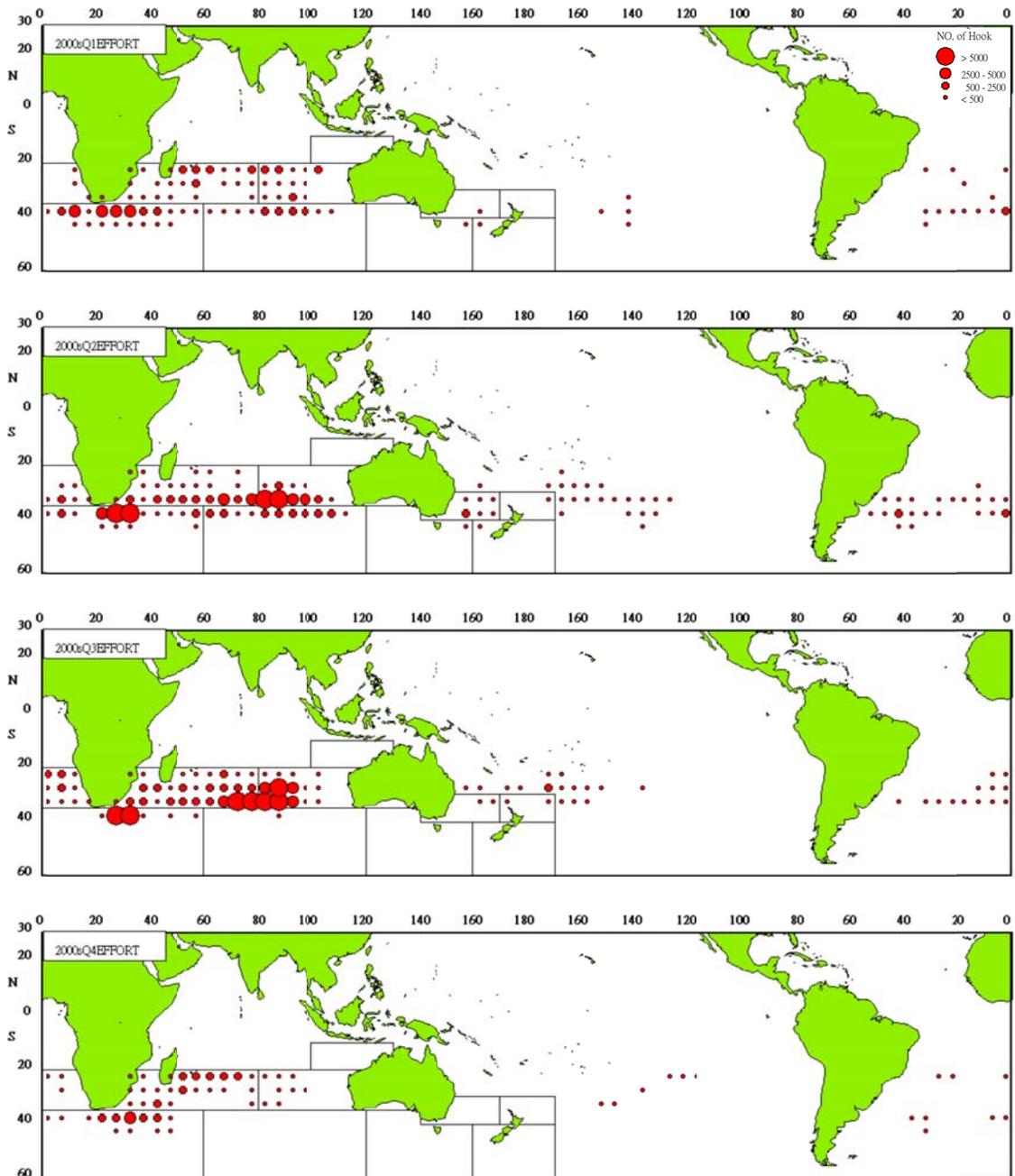


Fig.5 (1) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2000s

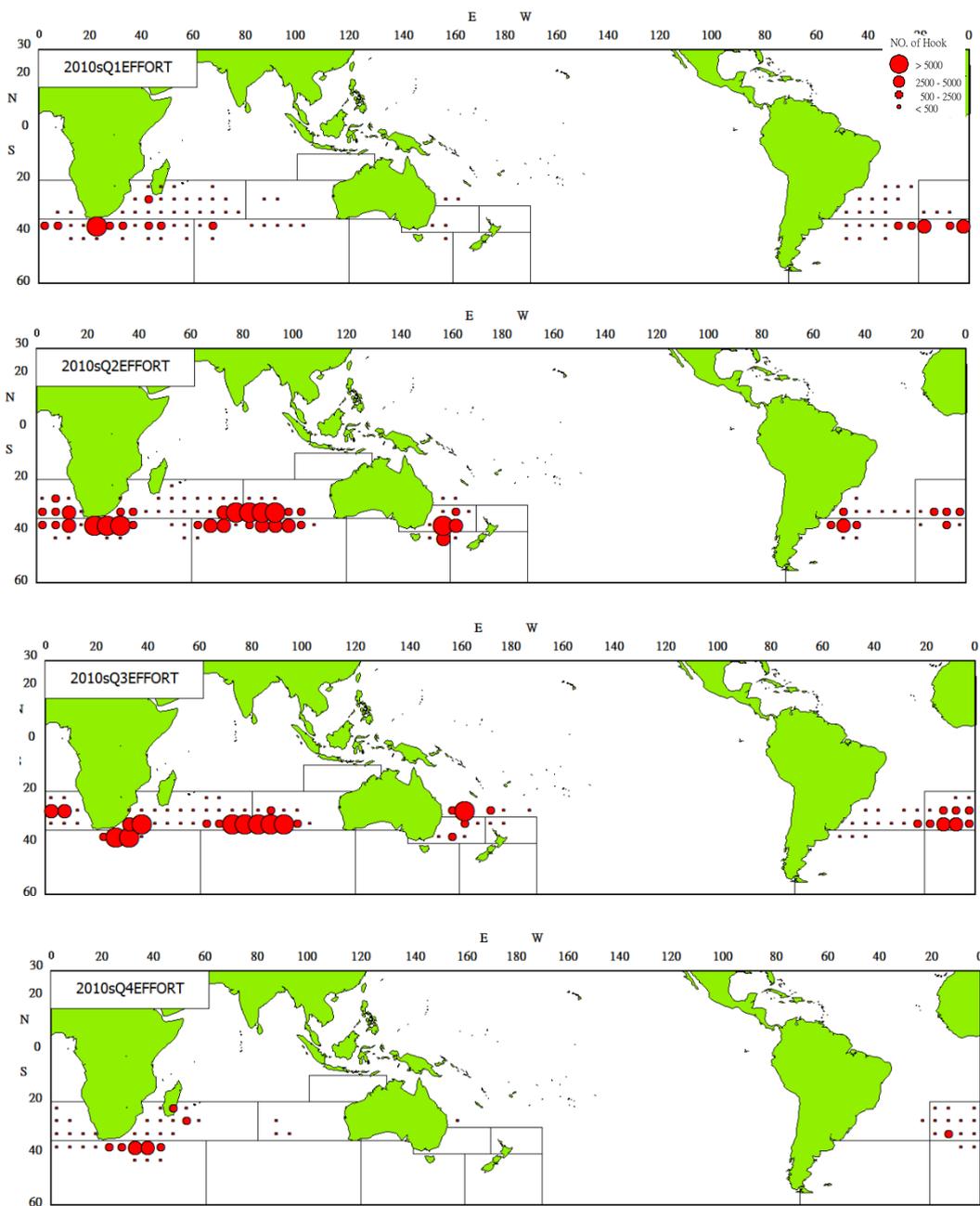


Fig.5 (2) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery during 2010-2014

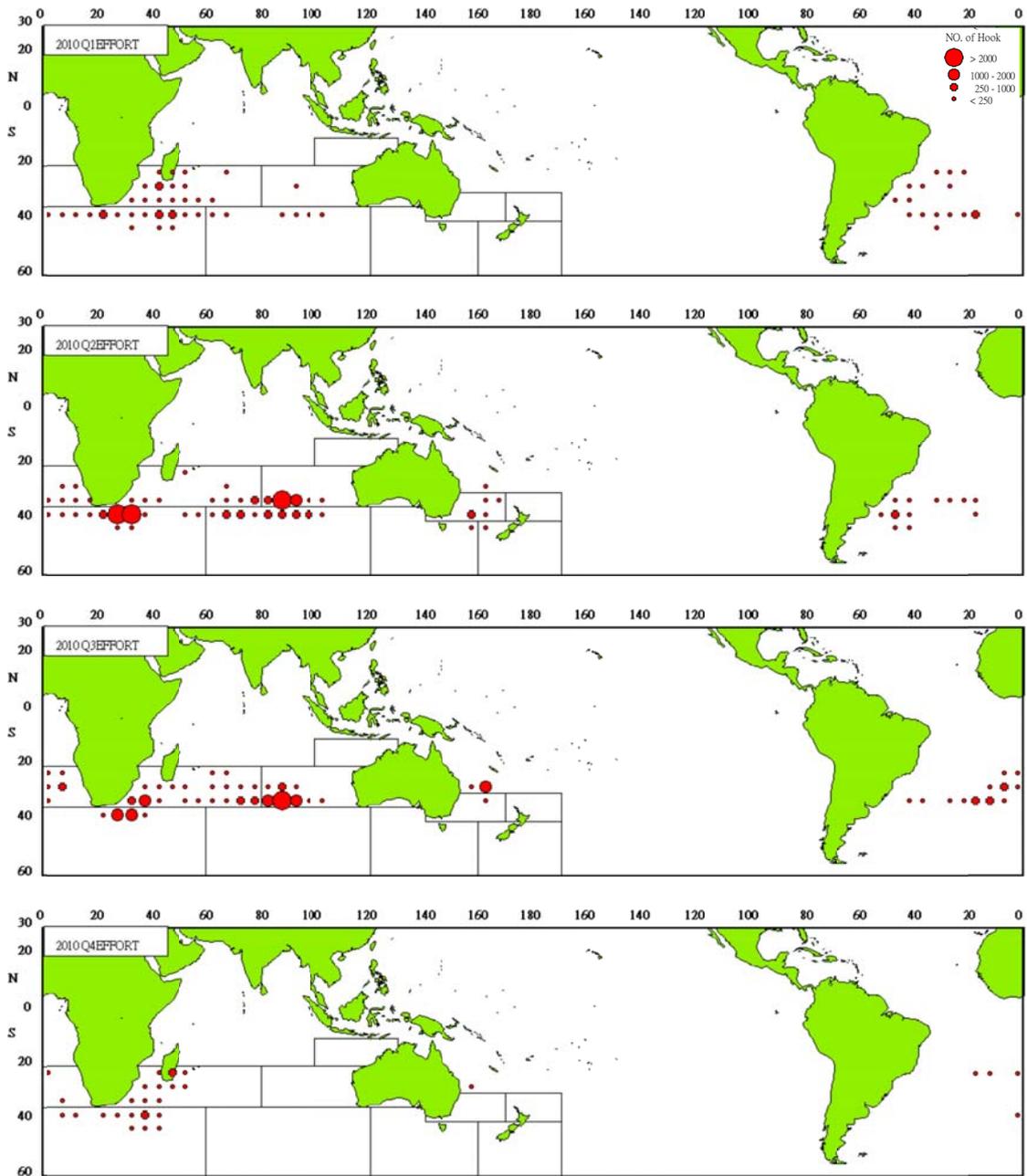


Fig.6 (1) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2010

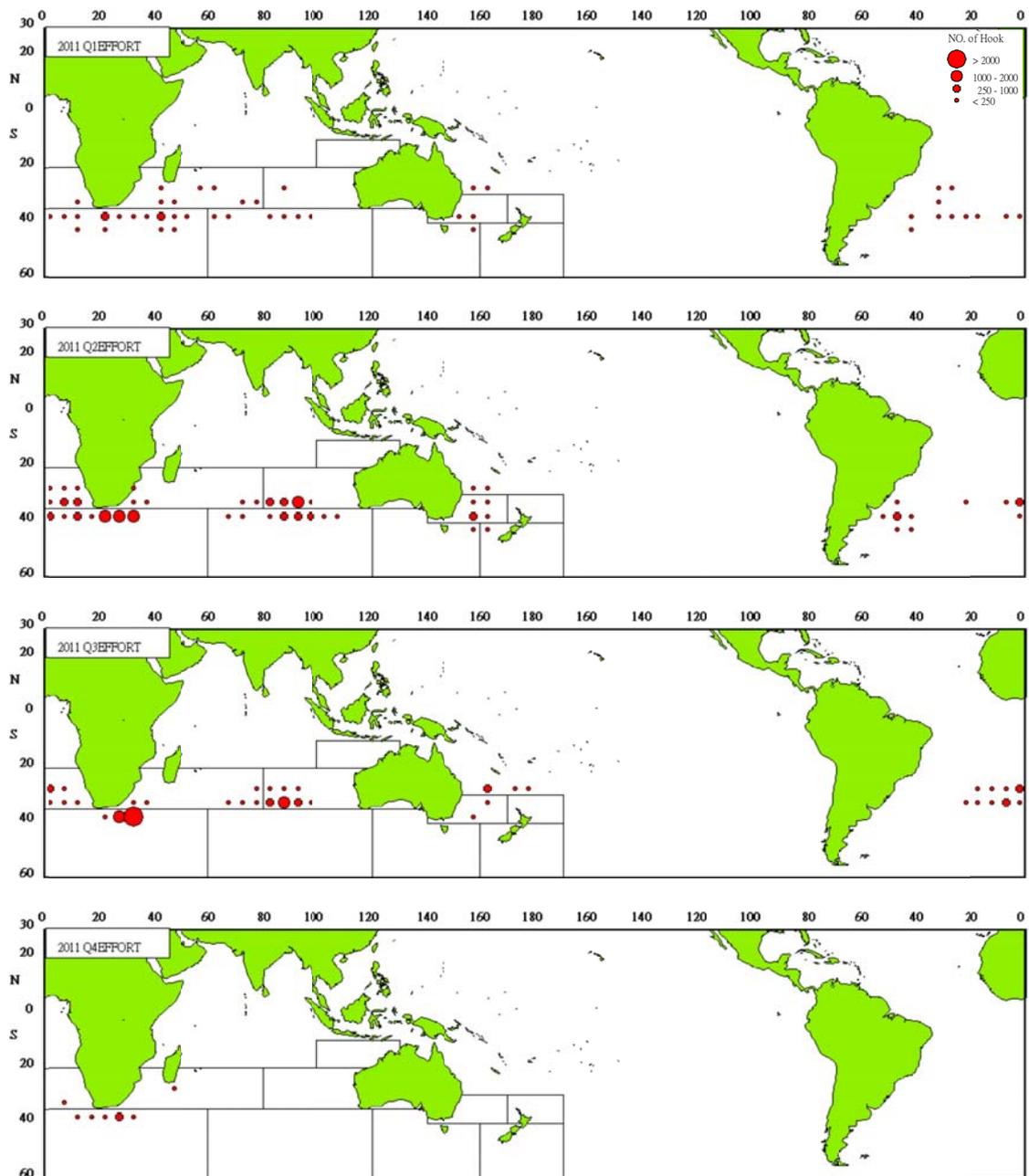


Fig.6 (2) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2011

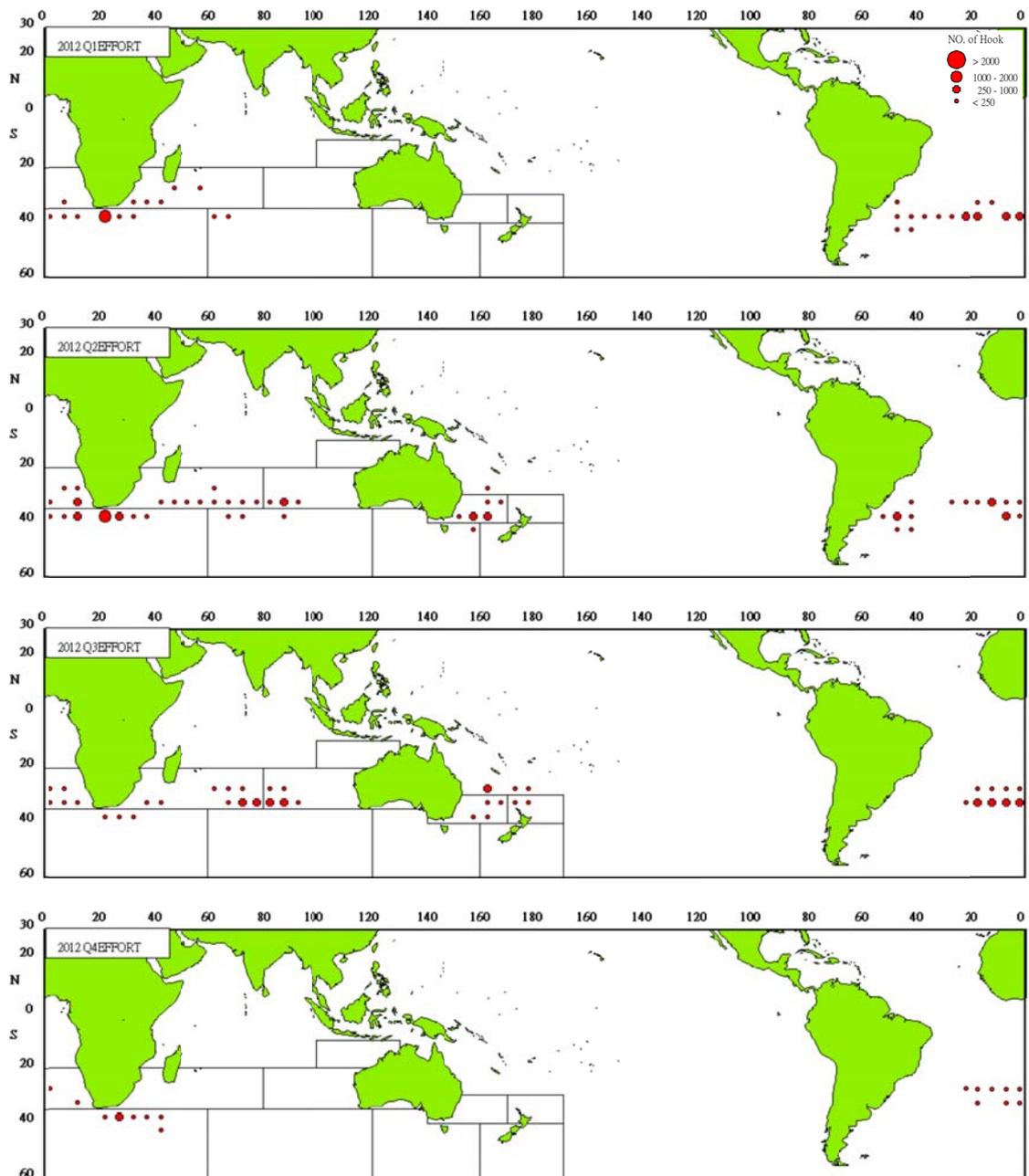


Fig.6 (3) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2012

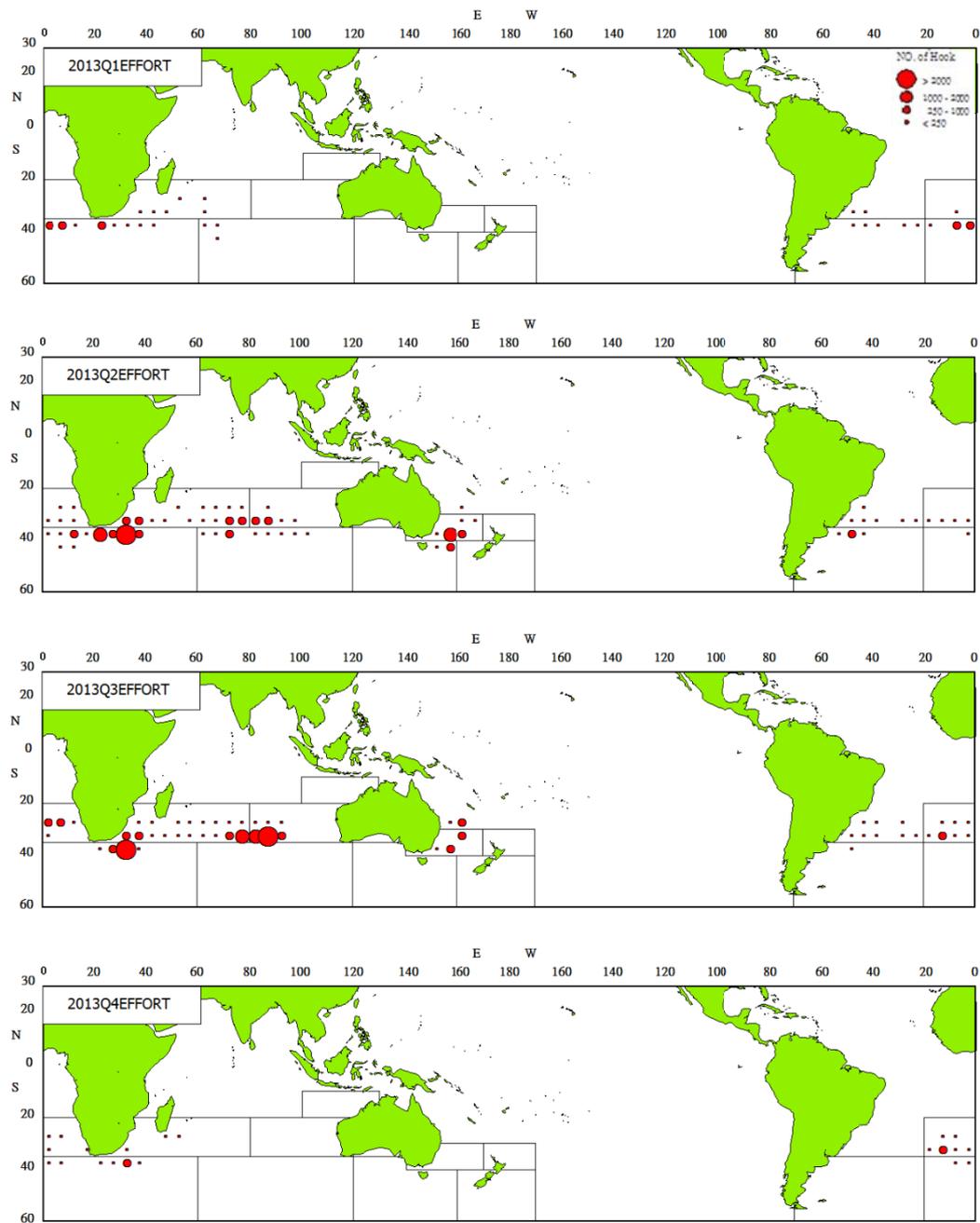


Fig.6 (4) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2013

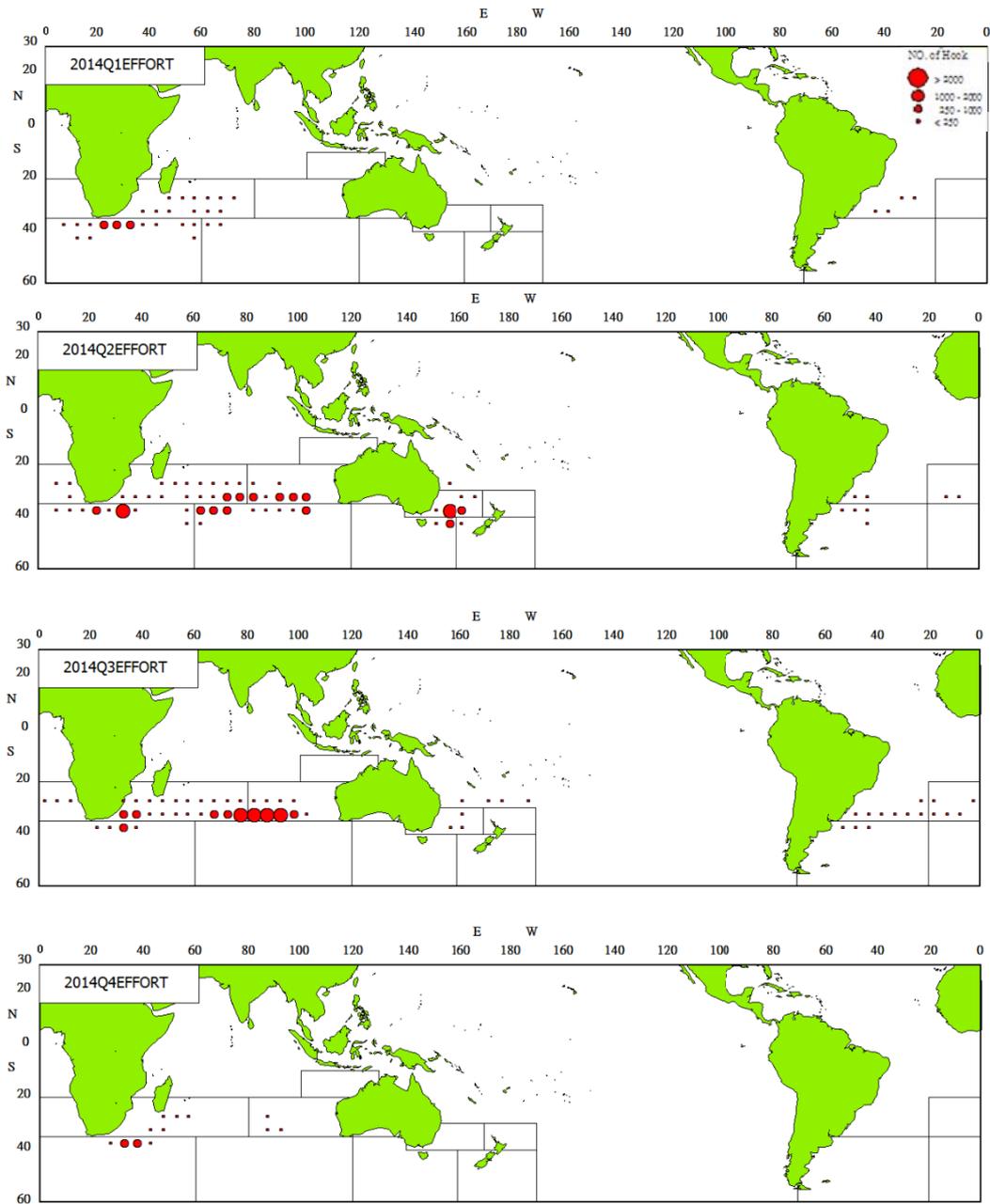


Fig.6 (5) Fishing efforts distribution by quarter of Taiwanese SBT longline fishery in 2014

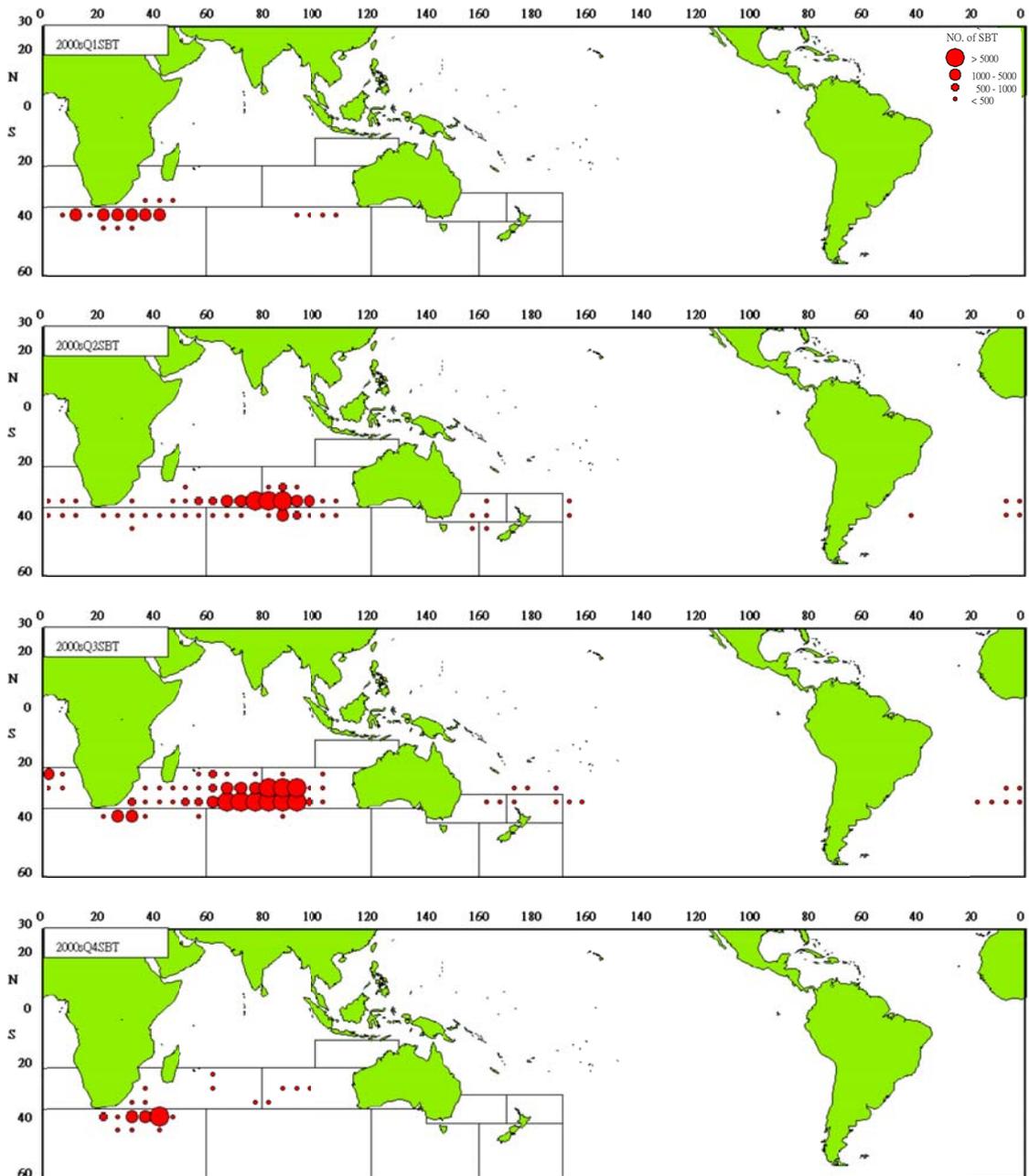


Fig.7 (1) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2000s

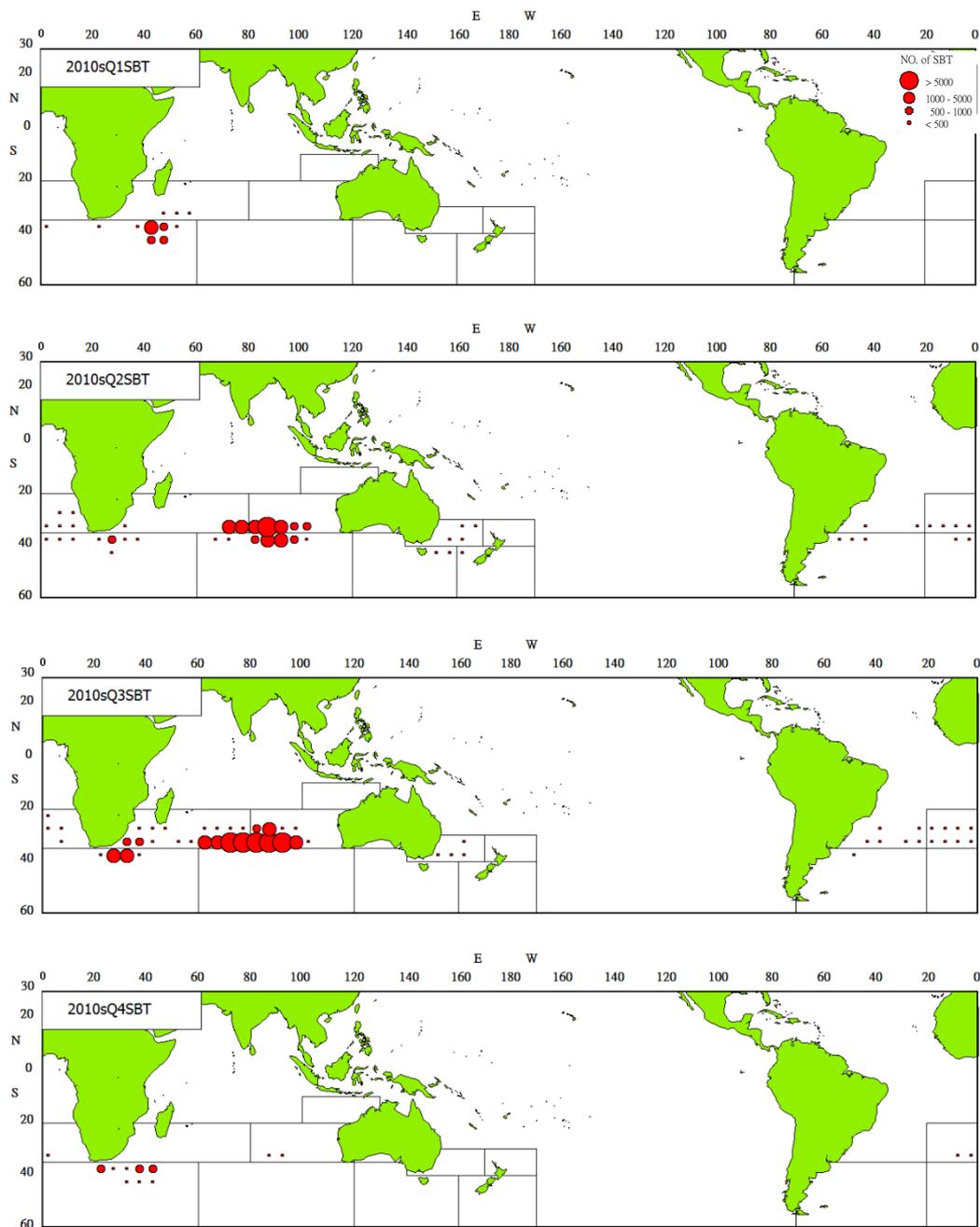


Fig.7 (2) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery during 2010-2014

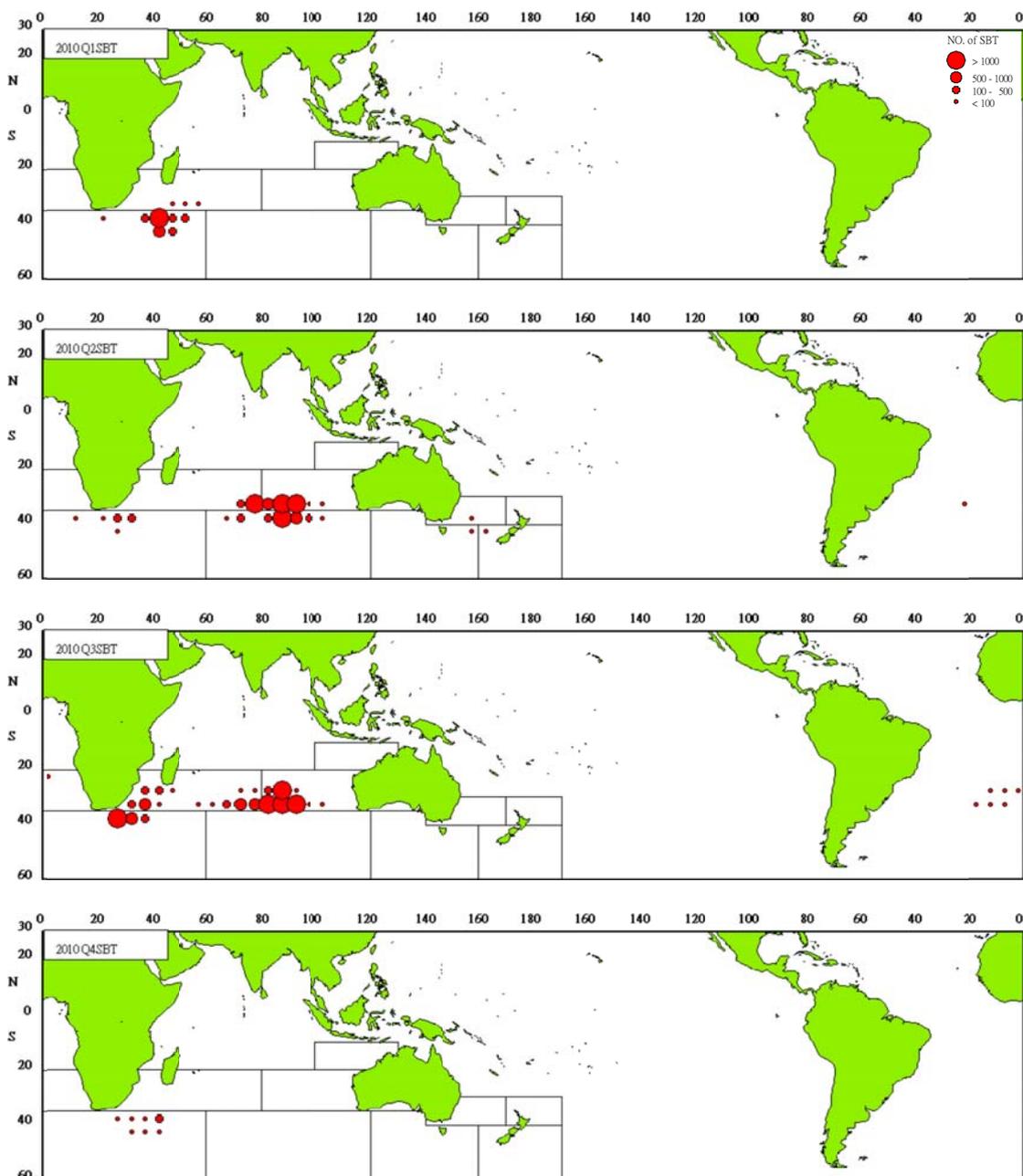


Fig.8 (1) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2010

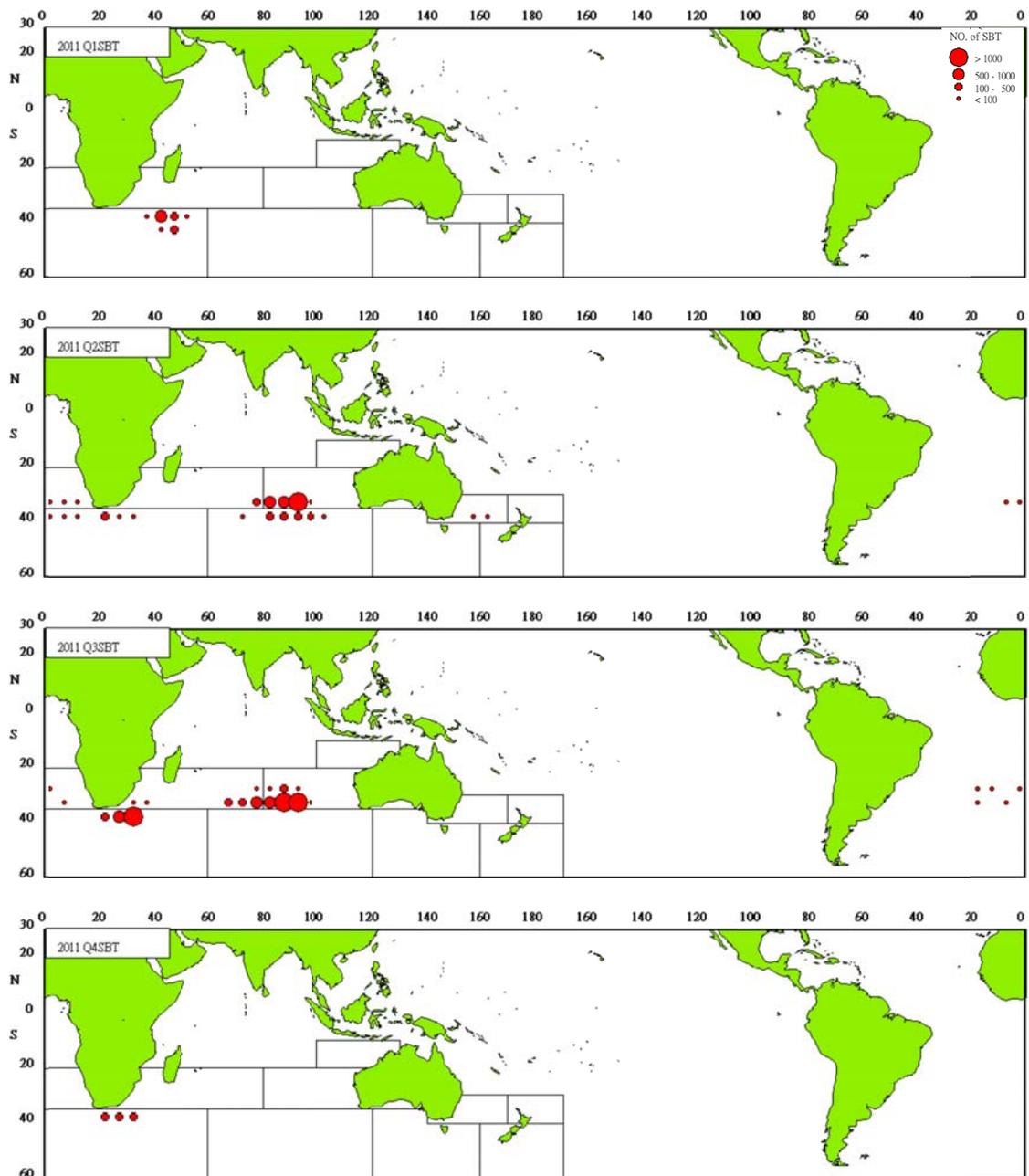


Fig.8 (2) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2011

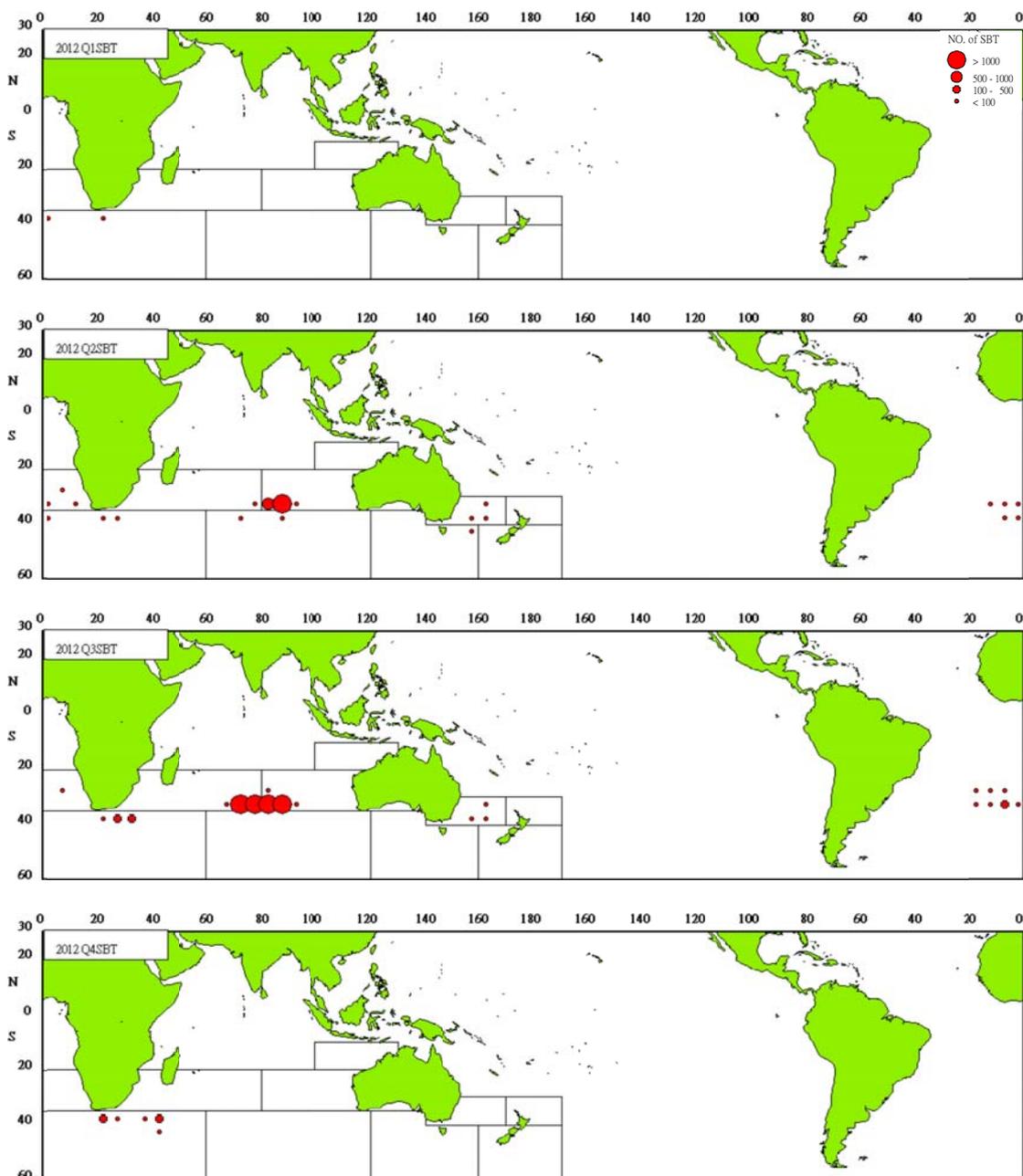


Fig.8 (3) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2012

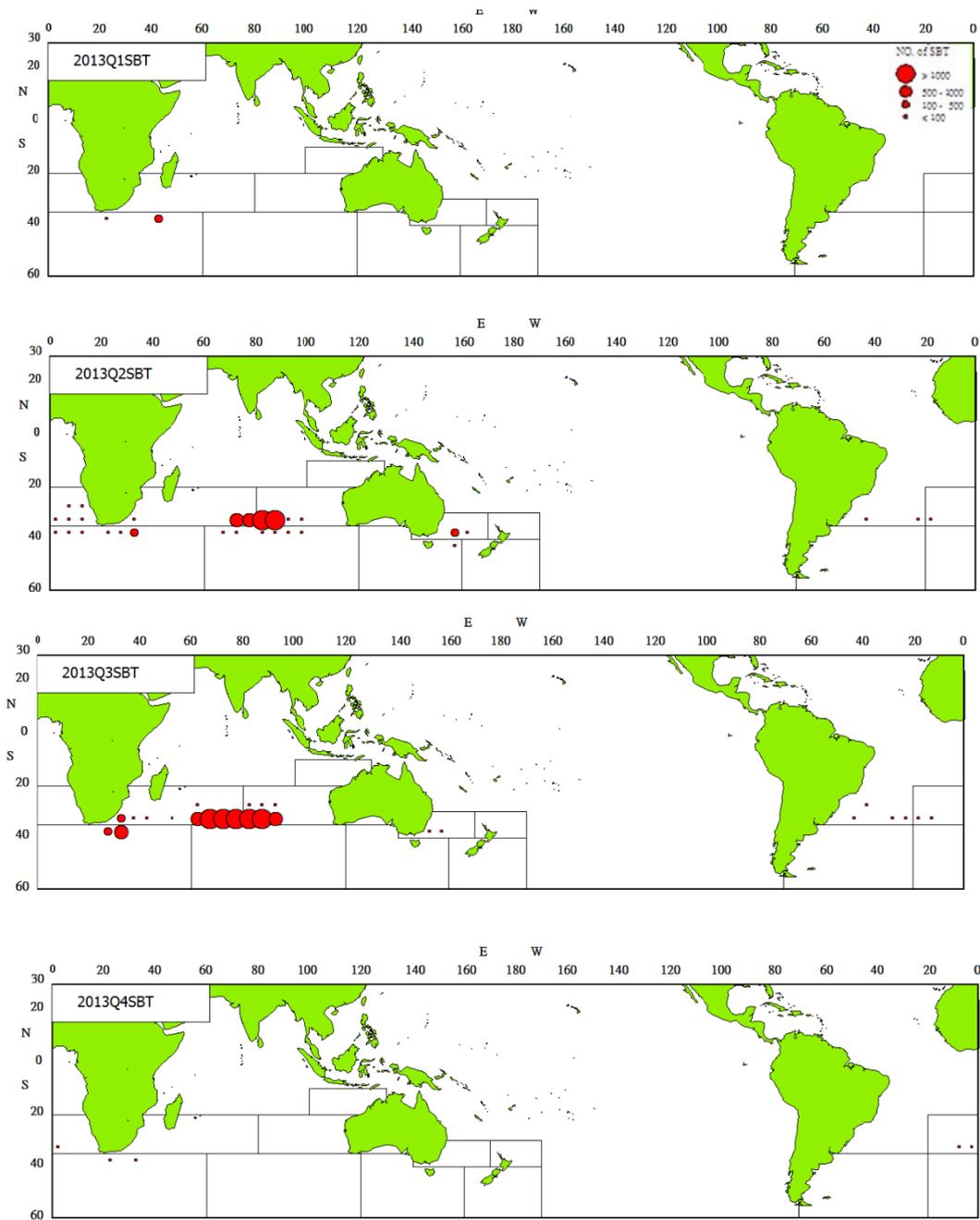


Fig.8 (4) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2013

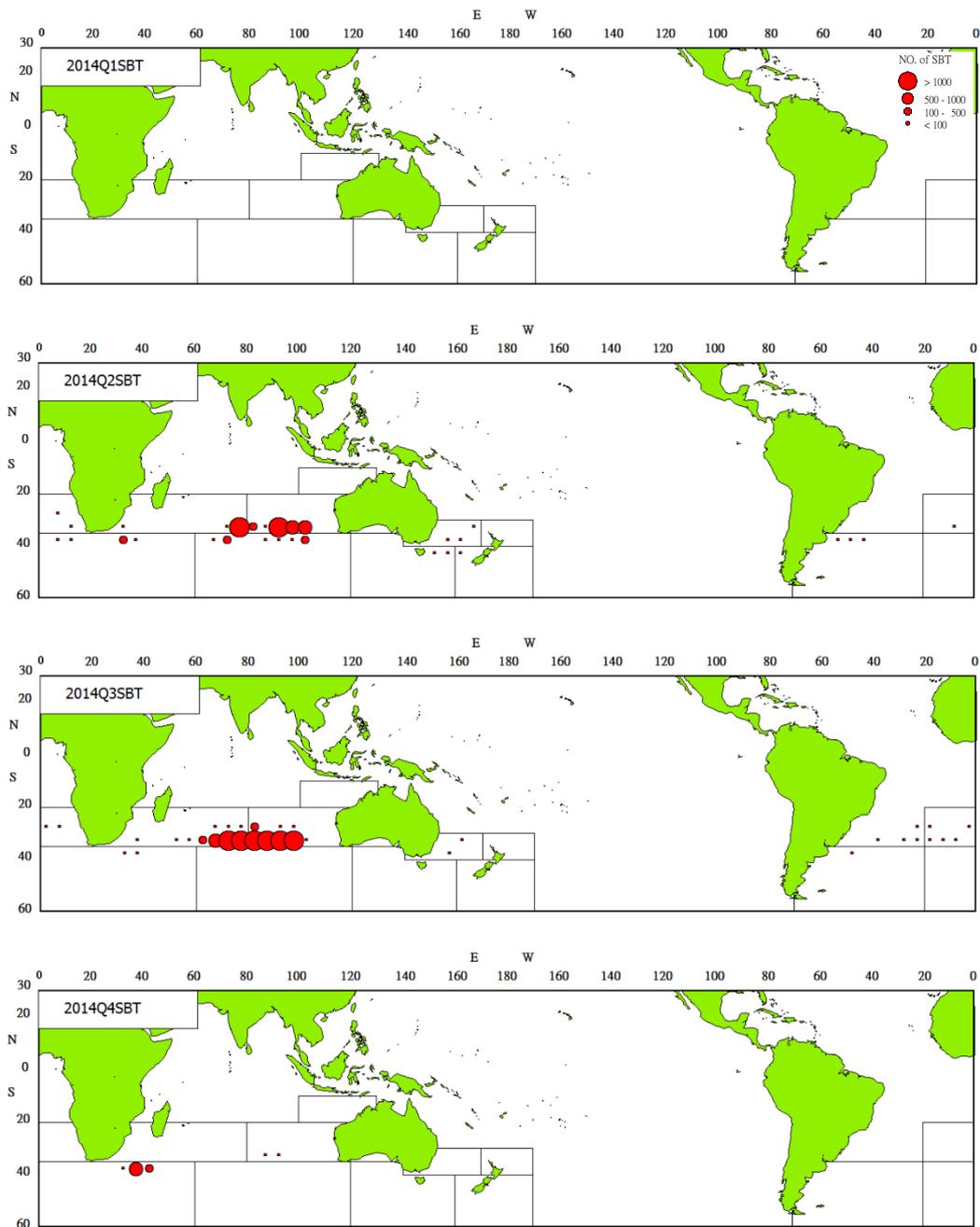


Fig.8 (5) SBT catch (in number) distribution by quarter of Taiwanese SBT longline fishery in 2014

Appendix 1

Scientific observer program

Observer Training

To collect scientific information of tuna longliners, the scientific observer program of large scale tuna longline fishery of Taiwan was launched in 2001. However, observers started being deployed on board and conducting the observation program of SBT in the next year.

Fisheries Agency (FA) is responsible for implementing the program and recruiting scientific observers. FA also invited researchers on fishery sciences and senior observers (with 2-years' experience) to form a special panel for designing the observer training program, items of observation, biological and by-catch information to be collected for scientific researches and the format of data records.

The qualification for observers is college graduated or senior high school graduated with at least 5-year experience on-board, and they are required the competence to live and work at sea. Candidate observers who have passed the oral examination will have to take a 3-week training program, and only those who pass the training program and medical check will be qualified and deployed on board as scientific observers.

Observer training program includes basic safety training for seafaring, operations of navigation devices, mini-log thermometer and VMS system, identification of tunas, tuna-like species, sea turtles, seabirds, sharks and marine mammals, sampling skill for muscle tissue, otolith, stomach content and gonad, and data collection for fishing activities, catches and locations. Besides, there would be a reeducation program for observers to support the scientific investigation. After the training program, they are required to undergo at sea training on a training ship for one week and have a test in identifying tuna and tuna-like species at local fish market. In 2013 and 2014, 58 and 66 employed observers have finished the program respectively.

Scientific Observer Program Design and Coverage

At the initial stage, for the purpose of encouraging industries to join the observer program, the observed vessels were offered reward catch quota after completing the observation cruise, if they fully cooperated with the observer's duties. However, this measure has been put an end since 2007. It is regarded as the obligation of industries to accept observer on board and the vessels were selected to carry observer by lotting. Since 2008, observers have been requested to accept a debriefing after completing the trip.

Table 1 shows the summary of observed catch and effort by area and month during 2013-2014. The threat of Somalia piracy still exists in the tropical Indian Ocean. For the safety of observer, most of our observers deployed on fishing vessels which operate in the southern Indian Ocean, so that the observer coverage rate for SBT fishing vessels increased significantly. In 2013 calendar year, 10 observers were deployed on 11 fishing vessels authorized to target SBT seasonally and there were 1,564 fishing days and observed days were 1,541. There were 11 observers being deployed on 11 fishing vessels authorized in 2014 and there were 1,737 fishing days and observed days were 1,696. In 2013, the coverage rates by vessels accounted for 13.33% by hooks and 17.01% by catch. The coverage rates by vessels increased to 15.49% in 2014, hooks made up 11.88%, and 13.14% was taken up by catch.

Observer Data Collected

The data recorded by observer on board includes 3 categories: vessel and gear attributes, set details and by-catch/incidental catch information (including sighting of marine mammals, sea turtles and sea birds).

The biological samples, including measurement of weight, length of all fishes during observed time, and collection of otoliths, muscle tissues, stomach and gonads of SBT, were carried out by observers on board. Table2 shows the summary of biological samples by species collected by observers from 2013 to 2014. Total number of measurements for SBT in 2013 and 2014 were 5,543 and 3,313 respectively. Number of otolith collected for SBT by observer was decreased to 148 in 2014. In 2013 and 2014, numbers of the length measured for per species were summarized by area and month as Table3.

Tag Return Monitoring

Since 2008, there was no tagged SBT recaptured during the presence of observer on board except in 2012. In 2012, there was one tagged SBT recaptured during the presence of observer on board and there was no tagged SBT recaptured in 2013 and 2014. The tags returned by Taiwanese fishing vessels are 777 in total among which 691 were released by the CCSBT and 86 tagged by CSIRO during 2002-2014. The details of tag recaptures for each year are shown in Table 4. The returned tags and the related information were sent to the CCSBT Secretariat.

Problems Experienced

Although the program was fully supported by boat owners and skippers of SBT observed vessels, there are still some difficulties that could not be resolved technically. Since the homeport is far from the fishing ground, it will take more than 1 month to transport the supplies and equipments needed for sampling from Taiwan to fishing ground, and sometimes the supplies could not reach to observers on board in time. Besides, samples collected by observers are sometimes lost when they are transferred by transshipping vessels. In addition, it is also difficult to arrange interviews with skippers for collecting information on fishing activities since these SBT fishing vessels seldom return to Taiwan when they finished SBT fishing.

Table 1 Summary of observed catch and effort by area and by month

(a) 2013 (calendar year)

Area	Month	Number s of vessels observed	Number s of all vessels	Cover rate for the number of vessels	Number of hooks used by observed vessels	Number of hooks by all vessels	Cover rate for the number of hooks	Number of SBT observed	Number of SBT by all vessels	Cover rate for the number of SBT
Area2	Total	9	21	42.86%	954970	3662230	26.08%	3567	12153	29.35%
	4	-	1	-	-	31500	-	-	0	-
	5	2	2	100.00%	15292	89360	17.11%	51	23	221.74%
	6	4	12	33.33%	162738	768020	21.19%	403	1488	27.08%
	7	9	14	64.29%	330975	875900	37.79%	1800	3115	57.78%
	8	7	17	41.18%	315431	1378760	22.88%	1094	5458	20.04%
	9	3	8	37.50%	130534	518690	25.17%	219	2069	10.58%
Area8	Total	4	13	30.77%	99249	1101620	9.01%	6	252	2.38%
	3	-	2	-	-	117300	-	-	0	-
	4	1	7	14.29%	57720	477610	12.09%	1	13	7.69%
	5	4	12	33.33%	41529	474530	8.75%	5	207	2.42%
	6	-	2	-	-	32180	-	-	32	-
Area9	Total	2	20	10.00%	447182	6794025	6.58%	29	1200	2.42%
	1	-	2	-	-	109000	-	-	386	-
	2	-	4	-	-	202225	-	-	0	-
	3	1	7	14.29%	14415	529890	2.72%	0	0	-
	4	2	12	16.67%	82491	892300	9.24%	0	5	-
	5	2	13	15.38%	125298	1005610	12.46%	1	7	14.29%
	6	2	14	14.29%	56670	732560	7.74%	12	136	8.82%
	7	1	15	6.67%	50708	772600	6.56%	2	212	0.94%
	8	1	14	7.14%	57652	693650	8.31%	7	262	2.67%
	9	1	13	7.69%	59948	633200	9.47%	7	154	4.55%
	10	-	6	-	-	549290	-	-	1	-
	11	-	6	-	-	415350	-	-	22	-
	12	-	3	-	-	258350	-	-	15	-
Area14	Total	7	47	14.89%	967332	6997338	13.82%	2028	19497	10.40%
	2	-	1	-	-	17500	-	-	0	-
	3	-	1	-	-	11730	-	-	0	-
	4	-	3	-	-	73860	-	-	1	-
	5	5	19	26.32%	158064	809150	19.53%	117	596	19.63%
	6	7	33	21.21%	275168	1648209	16.69%	350	2490	14.06%
	7	6	32	18.75%	197521	2036904	9.70%	745	7671	9.71%
	8	6	33	18.18%	189660	1640565	11.56%	652	5846	11.15%
	9	5	22	22.73%	146919	595460	24.67%	164	2893	5.67%
	10	-	4	-	-	25360	-	-	0	-
	11	-	1	-	-	81200	-	-	0	-
	12	-	2	-	-	57400	-	-	0	-
Grand Total		10	75	13.33%	2468733	18555213	13.30%	5630	33102	17.01%

*The areas which had observer deployed were appeared.

(b) 2014 (calendar year)

Area	Month	Number s of vessels observed	Number s of all vessels	Cover rate for the number of vessels	Number of hooks used by observed vessels	Number of hooks by all vessels	Cover rate for the number of hooks	Number of SBT observed	Number of SBT by all vessels	Cover rate for the number of SBT
Area2	Total	7	19	36.84%	1032278	5292700	19.50%	2263	12201	18.55%
	4	1	1	100%	2025	3412	59.35%	0	0	-
	5	6	12	50%	158349	647178	24.47%	157	514	30.54%
	6	6	13	46.15%	276660	1353175	20.45%	507	2208	22.96%
	7	6	15	40%	286649	1204641	23.80%	793	2831	28.01%
	8	6	18	33.33%	302479	1568110	19.29%	778	4976	15.64%
	9	1	8	12.50%	6116	497184	1.23%	28	1609	1.74%
	10	-	1	-	-	19000	-	-	63	-
Area8	Total	10	23	43.48%	437689	2097338	20.87%	106	453	23.40%
	3	-	2	-	-	56080	-	-	0	-
	4	8	17	47.06%	206519	902631	22.88%	13	74	17.57%
	5	10	23	43.48%	231170	1124443	20.56%	93	361	25.76%
	6	-	2	-	-	14184	-	-	18	-
Area9	Total	2	13	15.38%	42995	5210402	0.83%	9	962	0.94%
	1	-	3	-	-	207044	-	-	0	-
	2	-	2	-	-	198760	-	-	0	-
	3	1	7	14.29%	17520	522916	3.35%	0	0	-
	4	1	6	16.67%	7440	585456	1.27%	0	0	-
	5	1	8	12.50%	1935	570158	0.34%	0	95	-
	6	1	10	10%	16100	659178	2.44%	9	61	14.75%
	7	-	7	-	-	284510	-	-	16	-
	8	-	6	-	-	254550	-	-	31	-
	9	-	4	-	-	425640	-	-	0	-
	10	-	5	-	-	608530	-	-	0	-
	11	-	5	-	-	488950	-	-	388	-
	12	-	4	-	-	404710	-	-	371	-
Area14	Total	8	40	20%	1024450	8766171	11.69%	1067	12610	8.46%
	1	-	1	-	-	58358	-	-	0	-
	2	-	2	-	-	33970	-	-	0	-
	3	-	8	-	-	87162	-	-	0	-
	4	1	14	7.14%	1890	223895	0.84%	0	0	-
	5	6	19	31.58%	112405	649123	17.32%	10	55	18.18%
	6	6	28	21.43%	284652	1739817	16.36%	241	1582	15.23%
	7	7	33	21.21%	306592	2768715	11.07%	308	3326	9.26%
	8	7	33	21.21%	247001	2152199	11.48%	488	5637	8.66%
	9	4	23	17.39%	71910	855176	8.41%	20	2010	1%
	10	-	1	-	-	3101	-	-	0	-
	11	-	3	-	-	80498	-	-	0	-
	12	-	3	-	-	114157	-	-	0	-
Grand Total		11	71	15.49%	2537412	21366611	11.88%	3445	26226	13.14%

*The areas which had observer deployed were appeared.

Table 2 Number of biological samples collected by observers in 2013 and 2014

Year	SBT catch data recorded	SBT length measured	Otolith	Gonad	Head	Muscle					Vertebra		First dorsal fin spine	clasper	Scales
			SBT	SBT	SBT	SBT	Albacore	marlin	Sharks	Sharks	Albacore	Albacore	Sharks	Albacore	
2013	5630	5543	283	32	20	4	87	2	41	86	108	108	-	-	
2014	3445	3313	148	162	83	0	130	0	12	51	145	165	7	24	

Table 3 Number of the length measured for per species by area and by month

(a) 2013

Area Month	Area 2				Area 8		Area 9							Area 14				
	5	6	7	8	4	5	3	4	5	6	7	8	9	5	6	7	8	9
Albacore	89	1403	2715	3208	1445	924	3	49	45	11	20	70	69	2183	3550	2527	2478	1560
Bigeye tuna	18	133	150	75	95	96	-	9	17	2	6	6	12	528	1186	554	496	333
Black marlin	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pomfrets	5	27	26	30	-	-	-	-	-	-	-	2	1	2	-	-	-	-
Blue shark	-	11	60	84	-	-	23	61	31	4	-	8	24	9	24	3	22	70
Butterfly kingfish	-	1	6	6	6	4	-	-	-	-	-	-	-	3	4	3	-	-
Blue marlin	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1
Rudderfish	-	-	-	3	-	-	-	-	1	1	-	-	-	14	24	1	1	-
Common dolphinfish	-	-	15	46	18	8	-	1	3	-	-	-	-	25	26	6	7	24
Silky shark	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Seerfishes nei	-	-	-	-	-	-	-	-	-	-	-	-	-	23	27	1	1	-
Opah	25	472	866	595	100	112	-	1	2	-	5	1	2	168	275	57	99	64
Escolar	4	95	204	108	41	32	336	376	476	107	90	157	175	111	326	134	144	63
Striped marlin	-	6	3	1	-	-	-	-	-	-	-	-	-	7	13	4	-	-
Ocean sunfish	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oilfish	1	17	20	26	1	2	216	2166	3326	1391	1218	1290	1357	2	569	3	70	2
OTH	-	-	-	-	3	4	-	-	-	-	-	-	-	1	-	-	2	-
Rainbow runner	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
SBT	51	364	1800	1094	1	5	-	-	1	12	2	7	7	116	340	745	615	164
Indo-Pacific sailfish	1	3	-	-	1	-	-	-	-	-	-	-	-	6	1	-	-	-
Skipjack tuna	-	-	-	-	-	-	-	2	-	-	-	-	-	1	1	-	-	-
Shortfin mako	-	2	5	4	-	2	3	6	7	2	1	4	10	-	3	5	2	-
Shortbill spearfish	-	-	4	-	-	-	-	-	-	-	-	-	-	8	17	-	2	1
Swordfish	-	27	45	33	11	2	1	12	11	5	-	1	2	50	102	47	43	19
Tunas nei	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	1	-
Wahoo	9	37	15	5	-	1	-	2	-	-	-	-	-	97	109	20	1	6
Yellowfin tuna	14	27	5	6	-	2	1	9	9	4	-	-	-	153	324	34	14	48

*The areas which had observer deployed were appeared.

(b) 2014

Area Month	Area 2						Area 8		Area 9				Area 14					
	4	5	6	7	8	9	4	5	3	4	5	6	4	5	6	7	8	9
Albacore	25	3182	5352	4130	2718	40	6048	7821	370	163	37	812	12	2727	6335	7509	3473	719
Bigeye tuna	-	39	87	224	263	6	76	133	8	6	-	17	-	372	917	740	389	123
Black marlin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Pomfrets	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-
Blue shark	-	13	18	34	44	-	59	51	13	4	1	-	1	15	18	10	11	25
Butterfly kingfish	-	5	5	1	-	-	6	3	1	-	-	-	-	-	4	-	-	-
Rudderfish	-	-	1	-	-	-	7	6	-	-	-	-	-	1	4	3	2	-
Common dolphinfish	3	1	6	1	1	-	41	1	2	-	-	-	-	6	5	3	1	2
Opah	-	503	515	700	671	27	535	731	18	7	3	143	-	113	208	188	99	20
Escolar	-	69	105	124	83	-	28	85	4	3	-	6	1	36	160	254	130	21
Longfin mako	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Striped marlin	-	-	-	-	1	-	1	-	-	-	-	-	-	-	3	2	-	-
Ocean sunfis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Oilfish	-	1	2	3	-	-	3	1	2	1	-	2	-	1	10	13	18	3
OTH	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Southern bluefin tuna	-	156	507	791	778	28	13	93	-	-	-	9	-	10	111	312	485	20
Skipjack tuna	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shortfin mako	-	5	4	11	6	-	4	4	1	-	-	-	-	-	-	-	-	-
Longbill Spearfish	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Shortbill Spearfish	-	-	3	-	5	-	2	4	1	-	1	-	-	9	3	7	9	-
Swordfish	-	18	45	45	33	1	4	21	-	-	-	2	-	7	36	45	13	2
Tunas nei	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-	1	3	-
Wahoo	-	-	7	1	7	-	2	24	-	-	-	-	-	68	46	30	57	6
Yellowfin tuna	-	-	1	-	-	-	3	7	3	1	1	1	-	31	21	51	11	3

*The areas which had observer deployed were appeared.

Table 4 Number of SBT tag returned during 2002-2014

Year	Total	
	CCSBT	CSIRO
2002	18	16
2003	42	18
2004	133	21
2005	229	25
2006	259	6
2007	40	0
2008	5	0
2009	0	0
2010	27	0
2011	13	0
2012	5	0
2013	5	0
2014	1	0
Grand Total	777	86