Review of Taiwan SBT Fishery of 2022/2023

1. Introduction

In the 1970s, the main target species of the Taiwanese conventional tuna longline fishery was albacore. Since 1980s, some operators began to build new vessels equipped with super freezer for fishing tropical tuna and started fishing SBT seasonally in early 1990s. Generally, the authorized SBT fishing fleet comes from tropical tuna fishing vessels, which shift southward and mainly operate in the central south Indian Ocean (Area 2 and 14) for SBT from March to September with some operating in the high seas area off South Africa (Area 14 and 9) for SBT from October to February of following year.

The annual catches of SBT were less than 250 tons in early 1980s, and the catches of SBT increased to a range of about 900 tons to 1,600 tons from 1990 to 2002 with the increase of fleet size and the expansion of fishing grounds. 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 2022. In 2023, 64 fishing vessels were authorized to fish for SBT and the SBT catch was 1,135 tons for calendar year and 1,235 tons for quota year.

2. Catch and Effort

Taiwanese SBT longline fishery mainly operates in Area 2, Area 14, Area 8 and Area 9 (here after: major Areas) seasonally. The catch and efforts by calendar year are provided in Table 1 and Figure 1.

The annual catches of SBT ranged from 494 to 1,318 tons between 2002 and 2023 (Table 1) with the highest catch weight in 2022. The catch declined significantly to 533 tons in 2011 for the shared quota of 2010 and 2011, which had been mostly used in 2010 and less fishing vessels engaged in SBT in 2011. The low catch in 2012 was due to better catch rate in tropical area, so most of fishing vessels remained in tropical areas to target bigeye tuna instead of fishing for SBT. The annual catches of SBT resumed in 2013 for returning of fishing vessels for SBT out of poor revenue of harvesting tropical

tuna.

Figure 1 shows the variation of annual catches in number between 2002 and 2023. Most of the catches were made in Area 2 and 14. The aggregated number of SBT, which were caught in major Areas fluctuated between 28,000 and 41,000 during 2002-2010. After that, the total number declined rapidly in the following two years (2011-2012) and resumed to the level of 26,000-37,000 from 2013 to 2023.

The fishing efforts of 2002 and 2003 shown in Table 1 were aggregated all fishing efforts made by SBT fishing vessels, including the fishing efforts deployed in the tropical areas for bigeye tuna. Since 2004, only the fishing efforts of SBT vessels operated in the area south 20°S were included as fishing efforts for SBT.

The area-specific and monthly catches and fishing efforts of Taiwanese SBT longline fishing vessels in recent 5 years (2019-2023) are provided in Tables 2 and 3. It is observed that most of fishing efforts and catch were made in major Areas, and it should be noted that the fishing efforts made in Area 9 were mainly from the fishing vessels targeting oilfish or escolar in the Indian Ocean, and the fishing efforts made in Area 15 were mainly from fishing vessels targeting albacore with by-catch of SBT.

3. Nominal CPUE

The annual nominal CPUE of calendar years is shown in Table 1 and Figure 1. The nominal CPUE aggregated by the data from all areas reached the highest level in 2005, while the nominal CPUE aggregated by the data from major Areas reached the highest level in 2012.

It was noted that catches were mainly made in Areas 2 and 14 (Table 2), but it was noted there were significant fishing efforts deployed in Area 9 for oilfish or escolar (Table 3). The area-specific and monthly nominal CPUE in recent 5 years are provided in Table 4 and Figure 2. It was observed that the nominal CPUEs in Area 2 were generally higher than those in other areas.

4. Size composition

Before 2002, SBT fishing vessels were required to report their operation position, weights of SBT catches on weekly basis, afterwards they were requested to report the length of individual SBT catch between 2002 to 2009. With the implementation of catch

documentation scheme (CDS) in 2010, the length and weight of all individual SBT catch are collected through CDS scheme.

The annual area-specific size compositions are shown in Figure 3 and Figure 4. It was observed that the size composition mainly concentrated at the range of 110 cm to 125 cm among all areas of 2010s. However, the mode at 150 cm was observed in other areas with less number of catches comparing with that of the major Areas (Figure 3).

In recent 5 years (2019-2023), the size composition generally concentrated at the range of 116 cm to 126 cm among all areas (Figure 4) with modes at 126 cm in 2023.

5. Fleet size and fishing efforts distributions

According to the weekly reports and trading documents, there were more than 100 fishing vessels engaging in SBT fishery during 1998 to 2001. Since Taiwan became a member of the Extend Commission of CCSBT in 2002, all SBT fishing vessels have to be authorized to access this fishery, and the authorizations are reviewed and renewed by Fishery Agency (FA) of Taiwan annually.

The numbers of fishing vessels engaging in SBT fishery ranged from 30 to 100 from 2002 to 2023 (Table 5). From 2005 to 2008, the number of fishing vessels decreased significantly for some fishing vessels shifted to the waters off South Africa to target oilfish or escolar. In 2009 and 2010, the number of fishing vessels increased for some tropical tuna fishing vessels shifted operations southward due to piracy. The number of fishing vessels decreased to 56 in 2011 as national SBT allocation was set at 578 tons and decreased further to 36 in 2012 for most fishing vessels remained in tropical area fishing for bigeye tuna. Owing to poor catch of tropical tuna in 2013, the fishing vessels returned to SBT fishing ground and the number of SBT longline fishing vessels increased substantially to 76 with a slight decrease to 71 and 72 in 2014 and 2015. In 2016, some fishing vessels remained in tropical area for targeting yellowfin tuna, so the number of SBT fishing vessels decreased to 60. On the contrary, the number of fishing vessel increased to 75 and 77 respectively in 2017 and 2018, due to the poor catch of tropical tuna. The number of SBT fishing vessel of 2019 and 2020 were 72 and 70 respectively. The number of SBT fishing vessels decreased to 58 in 2021 mainly because there were fewer by-catch fishing vessels in 2021 than in 2020 by 11vessels. The difference of the number of SBT fishing vessels between 2021 and 2022 was

caused by a decrease of 9 by-catch fishing vessels plus an increase of 6 seasonal target vessels. And the number of fishing vessels increased to 64 in 2023, driven by the rise in both by-catch fishing vessels and seasonal target vessels.

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 distributions of fishing efforts and SBT catch in number are shown in Figure 5 to Figure 8. There are two major fishing grounds in general with one in the southern central Indian Ocean around 50°E-105°E, 20°S-40°S, and the other one in the high seas area off South Africa around 20°E-50°E, 25°S-45°S. The fishing season for Taiwanese SBT fishery in the southern central Indian Ocean is from March to September, and the fishing season in the southwest Indian Ocean is from October to February of following year. It was observed that the fishing efforts and SBT catches were mainly made in Areas 2, 14 and 9 in the second and the third quarters. The fishing efforts deployed in Area 9 are mainly from the fishing vessels targeting oilfish or escolar with SBT bycatch in the fourth quarter and the first quarter of the following year.

6. Research and monitoring to improve estimates of attributable catch

The number of SBT discarded by fishing vessels were 1,229 and 866 in 2022 and 2023 respectively, and these figures had been provided to the Commission as non-retained catches of Taiwanese SBT fishery.

Based on the discard information recorded by Taiwanese scientific observer program and e-logbook collected from Taiwanese longline vessels, we processed a procedure similar to the bootstrap approach to estimate total amount of estimated discards of Taiwanese fleet were less than 10 tons (per year). The details of the methodology please refer to CCSBT-ESC/2008/31.

7. Development and implementation of scientific observer programs

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

8. Other relevant information

The collaboration between Taiwan and Australia on SBT archival tagging program had been conducted during 2004 to 2007. The observers dispatched to Taiwanese SBT

fishing vessels carried out the SBT tagging program. There were 37, 48, 25 and 50 archival tags successfully settled during 2004 to 2007. The results were incorporated into the documents of CCSBT-ESC/0709/20 and CCSBT-ESC/0809/23.

To understand if and how effective fishers' hand-made tori line is in Taiwan, the Royal Society of the Protection of Birds (RSPB), Taiwan Wild Bird Federation (TWBF) and the FA have cooperated to conduct an at-sea tori line experiment for both small- and large-scale longline vessels since 2021. By comparing the tori line made by Taiwanese captains and an international standard one, this experiment aims to identify a design that not only effective but also welcome by the fishers. Such an experiment is expected to strengthen seabirds bycatch mitigation during fishery operation activity.

Table 1 Annual catches of SBT 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 / number of hooks;

Calendar year	Hooks_N		SBT_N		SBT_W		CPUE	
	All Area	Area 2 、14 、8 、9	All Area	Area 2 、14 、8 、9	All Area	Area 2 、14 、8 、9	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	30,823	21,067	26,659	26,300	944	922	0.86	1.27
2015	31,753	22,875	33,004	32,663	1,162	1,143	1.04	1.44
2016	32,071	27,865	30,392	30,204	1,023	1,013	0.95	1.09
2017	40,858	38,197	32,864	32,809	1,171	1,168	0.8	0.86
2018	36,206	33,251	35,784	35,671	1,218	1,211	0.99	1.08
2019	37,274	35,212	34,615	34,560	1,229	1,226	0.93	0.98
2020	37,239	33,785	29,514	29,456	1,116	1,113	0.79	0.87
2021	24,857	23,979	37,878	37,837	1,274	1,272	1.52	1.58
2022	23,673	22,414	36,183	36,117	1,318	1,315	1.53	1.61
2023	30,507	28,892	28,023	27,939	1,135	1,129	0.92	0.97

* Including efforts deployed in the tropical areas for tropical tuna.

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
2019	**Total**	**0**	**17511**	**0**	**0**	**0**	**0**	**0**	**3717**	**433**	**0**	**0**	**0**	**0**	**12899**	**55**
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0	-	-	-	-	-	1390	5	-	-	-	-	0	0
	4	-	65	-	-	-	-	-	1777	4	-	-	-	-	0	0
	5	-	1219	-	-	-	-	-	486	55	-	-	-	-	61	1
	6	-	4737	-	-	-	-	-	64	57	-	-	-	-	2351	0
	7	-	10323	-	-	-	-	-	-	53	-	-	-	-	6928	13
	8	-	1150	-	-	-	-	-	-	139	-	-	-	-	3418	41
	9	-	17	-	-	-	-	-	-	92	-	-	-	-	139	0
	10	-	-	-	-	-	-	-	-	28	-	-	-	-	2	0
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	0	0
	12	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
2020	**Total**	**0**	**12107**	**0**	**0**	**13**	**0**	**0**	**4507**	**841**	**0**	**0**	**0**	**0**	**12001**	**45**
	1	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-
	2	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	15	-	-	-	-	-	1357	0	-	-	-	-	0	0
	4	-	42	-	-	0	-	-	2681	11	-	-	-	-	0	1
	5	-	1329	-	-	8	-	-	320	28	-	-	-	-	587	1
	6	-	4424	-	-	5	-	-	149	57	-	-	0	-	2911	11
	7	-	4335	-	-	-	-	-	-	70	-	-	0	-	4282	13
	8	-	1955	-	-	0	-	-	-	143	-	-	0	-	3602	5
	9	-	7	-	-	-	-	-	-	385	-	-	-	-	619	13
	10	-	-	-	-	-	-	-	-	147	-	0	-	-	0	1
	11	-	-	-	-	-	-	-	-	0	-	0	-	-	0	0
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2021	**Total**	**0**	**14986**	**0**	**0**	**0**	**0**	**0**	**4115**	**604**	**0**	**0**	**0**	**0**	**18132**	**41**
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0	-	-	-	-	-	1168	0	-	-	-	-	0	-
	4	-	-	-	-	-	-	-	1136	47	-	-	-	-	0	0
	5	-	1316	-	-	-	-	-	1657	164	-	-	-	-	82	0
	6	-	4538	-	-	-	-	-	154	75	-	-	-	-	2373	8
	7	-	5988	-	-	-	-	-	-	122	-	-	-	-	9064	12
	8	-	2968	-	-	-	-	-	-	9	-	-	-	-	6479	21
	9	-	176	-	-	-	-	-	-	54	-	-	-	-	134	-
	10	-	-	-	-	-	-	-	-	133	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	**Total**	**0**	**8052**	**0**	**0**	**0**	**0**	**0**	**9192**	**491**	**0**	**0**	**0**	**0**	**18382**	**66**
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	64	-	-	-	-	-	632	0	-	0	-	-	-	0
	4	-	83	-	-	-	-	-	3281	0	-	-	-	-	0	-
	5	-	1157	-	-	-	-	-	4015	0	-	-	-	-	24	1
	6	-	3065	-	-	-	-	-	1180	207	-	-	-	-	3806	12
	7	-	2863	-	-	-	-	-	84	16	-	-	-	-	10138	7
	8	-	692	-	-	-	-	-	-	74	-	-	-	-	4384	34
	9	-	128	-	-	-	-	-	-	44	-	-	-	-	30	12
	10	-	-	-	-	-	-	-	-	150	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	**Total**	**0**	**6387**	**0**	**43**	**0**	**0**	**0**	**8632**	**637**	**0**	**0**	**1**	**0**	**12283**	**40**
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	23	-	-	-	-	-	438	0	-	-	-	-	0	-
	4	-	6	-	0	-	-	-	2148	100	-	-	-	-	0	-
	5	-	79	-	3	-	-	-	4939	121	-	-	-	-	2	0
	6	-	2716	-	40	-	-	-	901	59	-	-	-	-	870	0
	7	-	2542	-	0	0	-	-	-	123	-	-	1	-	5211	40
	8	-	902	-	0	-	-	-	206	40	-	-	0	-	6200	0
	9	-	119	-	-	0	-	-	-	38	-	-	0	-	0	-
	10	-	-	-	-	-	-	-	-	70	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	32	-	-	-	-	0	-
	12	-	-	-	-	-	-	-	-	54	-	-	-	-	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
2019	Total	0	5987	0	0	0	0	0	5152	12750	0	0	0	0	11321	2062
	1	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-
	2	-	10	-	-	-	-	-	-	19	-	-	-	-	27	-
	3	-	10	-	-	-	-	-	1548	1013	-	-	-	-	39	61
	4	-	394	-	-	-	-	-	2375	1997	-	-	-	-	92	378
	5	-	1378	-	-	-	-	-	1185	2448	-	-	-	-	719	136
	6	-	1600	-	-	-	-	-	44	1258	-	-	-	-	3092	331
	7	-	2214	-	-	-	-	-	-	1005	-	-	-	-	2777	436
	8	-	363	-	-	-	-	-	-	1557	-	-	-	-	2927	353
	9	-	18	-	-	-	-	-	-	1494	-	-	-	-	1107	285
	10	-	-	-	-	-	-	-	-	953	-	-	-	-	324	67
	11	-	-	-	-	-	-	-	-	653	-	-	-	-	126	15
	12	-	-	-	-	-	-	-	-	339	-	-	-	-	91	-
2020	Total	0	3892	0	0	253	0	0	3600	13467	0	23	181	0	12828	2997
	1	-	-	-	-	-	-	-	-	-	-	4	-	-	150	-
	2	-	-	-	-	-	-	-	-	4	-	-	-	-	16	-
	3	-	7	-	-	-	-	-	1303	903	-	-	-	-	14	158
	4	-	169	-	-	42	-	-	1902	2195	-	-	-	-	294	284
	5	-	739	-	-	111	-	-	383	2415	-	-	-	-	1789	469
	6	-	1290	-	-	92	-	-	12	2244	-	-	12	-	1622	573
	7	-	1197	-	-	-	-	-	-	1440	-	-	100	-	3431	473
	8	-	465	-	-	8	-	-	-	1010	-	-	69	-	3374	364
	9	-	25	-	-	-	-	-	-	2001	-	-	-	-	1400	269
	10	-	-	-	-	-	-	-	-	1112	-	4	-	-	717	287
	11	-	-	-	-	-	-	-	-	143	-	15	-	-	21	116
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
2021	Total	0	3723	0	0	0	0	0	2458	8102	0	0	0	0	9694	880
	1	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	107	-	-	-	-	4	-
	3	-	18	-	-	-	-	-	460	868	-	-	-	-	15	-
	4	-	-	-	-	-	-	-	1089	2009	-	-	-	-	45	50
	5	-	492	-	-	-	-	-	793	2212	-	-	-	-	697	268
	6	-	1406	-	-	-	-	-	116	1251	-	-	-	-	1963	293
	7	-	1138	-	-	-	-	-	-	885	-	-	-	-	3344	209
	8	-	581	-	-	-	-	-	-	181	-	-	-	-	3433	60
	9	-	88	-	-	-	-	-	-	269	-	-	-	-	193	-
	10	-	-	-	-	-	-	-	-	173	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	56	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	Total	0	3245	0	0	0	0	0	6337	5701	0	20	0	0	7134	1239
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	30	-	-	-	-	-	-	73	-	-	-	-	10	-
	3	-	144	-	-	-	-	-	1058	283	-	20	-	-	-	37
	4	-	71	-	-	-	-	-	2586	1050	-	-	-	-	7	-
	5	-	845	-	-	-	-	-	2105	1151	-	-	-	-	165	247
	6	-	1116	-	-	-	-	-	541	1028	-	-	-	-	1570	284
	7	-	742	-	-	-	-	-	47	935	-	-	-	-	2919	207
	8	-	243	-	-	-	-	-	-	814	-	-	-	-	1500	311
	9	-	54	-	-	-	-	-	-	232	-	-	-	-	873	153
	10	-	-	-	-	-	-	-	-	131	-	-	-	-	90	-
	11	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	Total	0	2792	0	950	54	0	0	6977	10592	0	0	279	0	8532	333
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	108	-	-	-	-	-	-	60	-	-	-	-	75	-
	3	-	75	-	-	-	-	-	1234	667	-	-	-	-	15	-
	4	-	40	-	112	-	-	-	2477	1242	-	-	-	-	38	-
	5	-	108	-	240	-	-	-	2791	1568	-	-	-	-	246	26
	6	-	1395	-	331	-	-	-	399	874	-	-	-	-	1663	136
	7	-	643	-	205	14	-	-	-	887	-	-	69	-	3468	129
	8	-	331	-	62	-	-	-	76	1176	-	-	163	-	2587	42
	9	-	92	-	-	40	-	-	-	908	-	-	47	-	421	-
	10	-	-	-	-	-	-	-	-	1141	-	-	-	-	4	-
	11	-	-	-	-	-	-	-	-	1051	-	-	-	-	3	-
	12	-	-	-	-	-	-	-	-	1018	-	-	-	-	12	-

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
2019	**Total**	-	**2.92**	-	-	-	-	-	**0.72**	**0.03**	-	-	-	-	**1.14**	**0.03**
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0	-	-	-	-	-	0.9	0	-	-	-	-	0	0
	4	-	0.16	-	-	-	-	-	0.75	0	-	-	-	-	0	0
	5	-	0.88	-	-	-	-	-	0.41	0.02	-	-	-	-	0.08	0.01
	6	-	2.96	-	-	-	-	-	1.45	0.05	-	-	-	-	0.76	0
	7	-	4.66	-	-	-	-	-	-	0.05	-	-	-	-	2.49	0.03
	8	-	3.17	-	-	-	-	-	-	0.09	-	-	-	-	1.17	0.12
	9	-	0.94	-	-	-	-	-	-	0.06	-	-	-	-	0.13	0
	10	-	-	-	-	-	-	-	-	0.03	-	-	-	-	0.01	0
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	0	0
	12	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
2020	**Total**	-	**3.11**	-	-	**0.05**	-	-	**1.25**	**0.06**	-	**0**	**0**	-	**0.94**	**0.02**
	1	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-
	2	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	2.14	-	-	-	-	-	1.04	0	-	-	-	-	0	0
	4	-	0.25	-	-	0	-	-	1.41	0.01	-	-	-	-	0	0
	5	-	1.8	-	-	0.07	-	-	0.84	0.01	-	-	-	-	0.33	0
	6	-	3.43	-	-	0.05	-	-	12.42	0.03	-	-	0	-	1.79	0.02
	7	-	3.62	-	-	-	-	-	-	0.05	-	-	0	-	1.25	0.03
	8	-	4.2	-	-	0	-	-	-	0.14	-	-	0	-	1.07	0.01
	9	-	0.28	-	-	-	-	-	-	0.19	-	-	-	-	0.44	0.05
	10	-	-	-	-	-	-	-	-	0.13	-	0	-	-	0	0
	11	-	-	-	-	-	-	-	-	0	-	0	-	-	0	0
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2021	**Total**	-	**4.03**	-	-	-	-	-	**1.67**	**0.07**	-	-	-	-	**1.87**	**0.05**
	1	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0	-	-	-	-	-	2.54	0	-	-	-	-	0	-
	4	-	-	-	-	-	-	-	1.04	0.02	-	-	-	-	0	0
	5	-	2.67	-	-	-	-	-	2.09	0.07	-	-	-	-	0.12	0
	6	-	3.23	-	-	-	-	-	1.33	0.06	-	-	-	-	1.21	0.03
	7	-	5.26	-	-	-	-	-	-	0.14	-	-	-	-	2.71	0.06
	8	-	5.11	-	-	-	-	-	-	0.05	-	-	-	-	1.89	0.35
	9	-	2	-	-	-	-	-	-	0.2	-	-	-	-	0.69	-
	10	-	-	-	-	-	-	-	-	0.77	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	**Total**	-	**2.48**	-	-	-	-	-	**1.45**	**0.09**	-	**0**	-	-	**2.58**	**0.05**
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0.44	-	-	-	-	-	0.6	0	-	0	-	-	-	0
	4	-	1.17	-	-	-	-	-	1.27	0	-	-	-	-	0	-
	5	-	1.37	-	-	-	-	-	1.91	0	-	-	-	-	0.15	0
	6	-	2.75	-	-	-	-	-	2.18	0.2	-	-	-	-	2.42	0.04
	7	-	3.86	-	-	-	-	-	1.79	0.02	-	-	-	-	3.47	0.03
	8	-	2.85	-	-	-	-	-	-	0.09	-	-	-	-	2.92	0.11
	9	-	2.37	-	-	-	-	-	-	0.19	-	-	-	-	0.03	0.08
	10	-	-	-	-	-	-	-	-	1.15	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	**Total**	-	**2.29**	-	**0.05**	**0**	-	-	**1.24**	**0.06**	-	-	**0.0003**	-	**1.44**	**0.12**
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	0	-	-	-	-	-	-	0	-	-	-	-	0	-
	3	-	0.31	-	-	-	-	-	0.35	0	-	-	-	-	0	-
	4	-	0.15	-	0	-	-	-	0.87	0.08	-	-	-	-	0	-
	5	-	0.73	-	0.01	-	-	-	1.77	0.08	-	-	-	-	0.01	0
	6	-	1.95	-	0.12	-	-	-	2.26	0.07	-	-	-	-	0.52	0
	7	-	3.95	-	0	0	-	-	-	0.14	-	-	0.01	-	1.5	0.31
	8	-	2.73	-	0	-	-	-	2.71	0.03	-	-	0	-	2.4	0
	9	-	1.29	-	-	0	-	-	-	0.04	-	-	0	-	0	-
	10	-	-	-	-	-	-	-	-	0.06	-	-	-	-	0	-
	11	-	-	-	-	-	-	-	-	0.03	-	-	-	-	0	-
	12	-	-	-	-	-	-	-	-	0.05	-	-	-	-	0	-

Table 5 Number of fishing vessel engaged in SBT fishery during 2002-2023

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
2015	45	27	72
2016	34	26	60
2017	43	32	75
2018	46	31	77
2019	44	28	72
2020	38	32	70
2021	37	21	58
2022	43	12	55
2023	47	17	64

[*] There was one vessel shipwrecked.
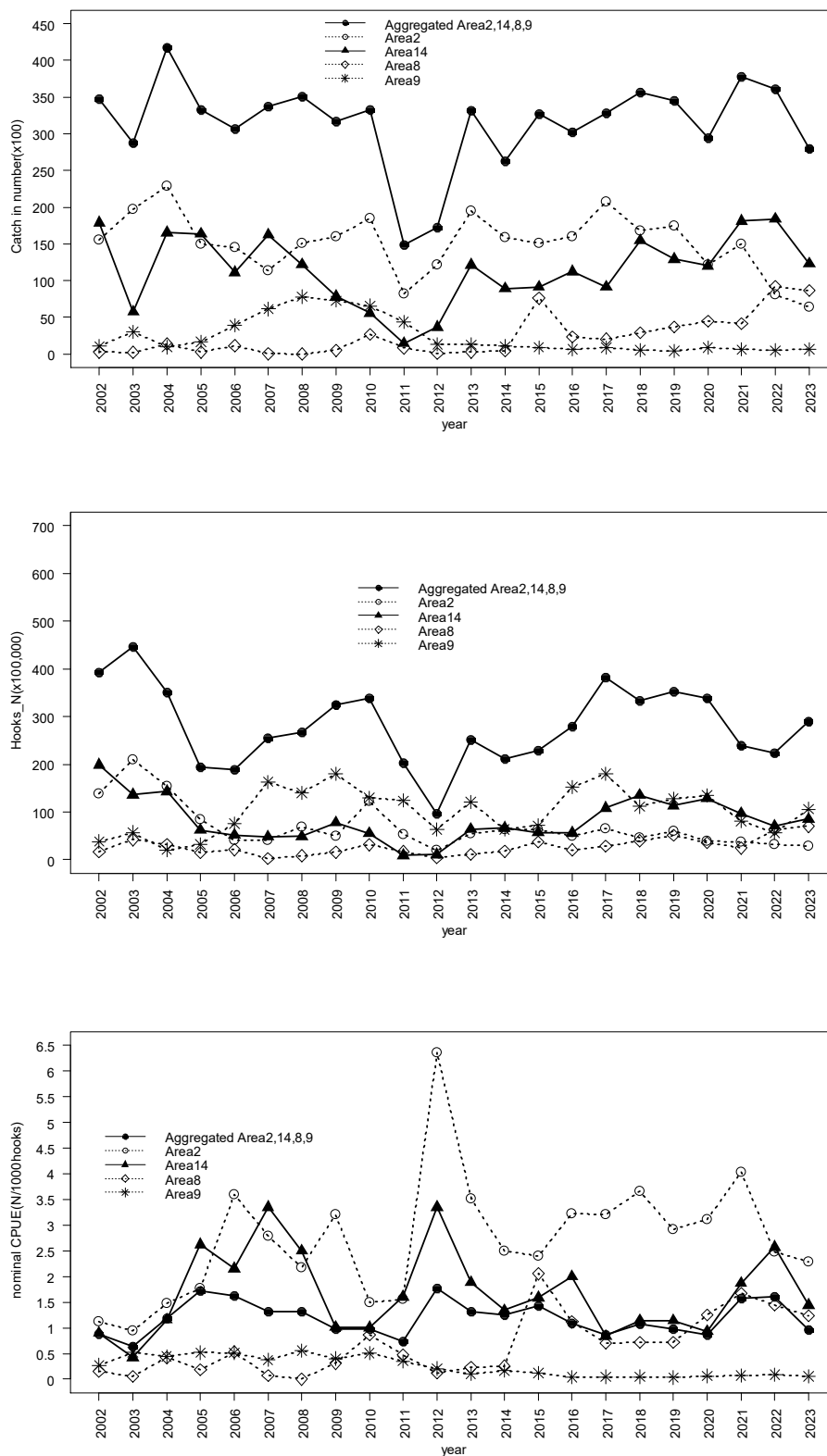
Fig. 1 Annual SBT catches in number, fishing effort and nominal CPUE of Taiwanese
SBT longline fishery in main fishing grounds.
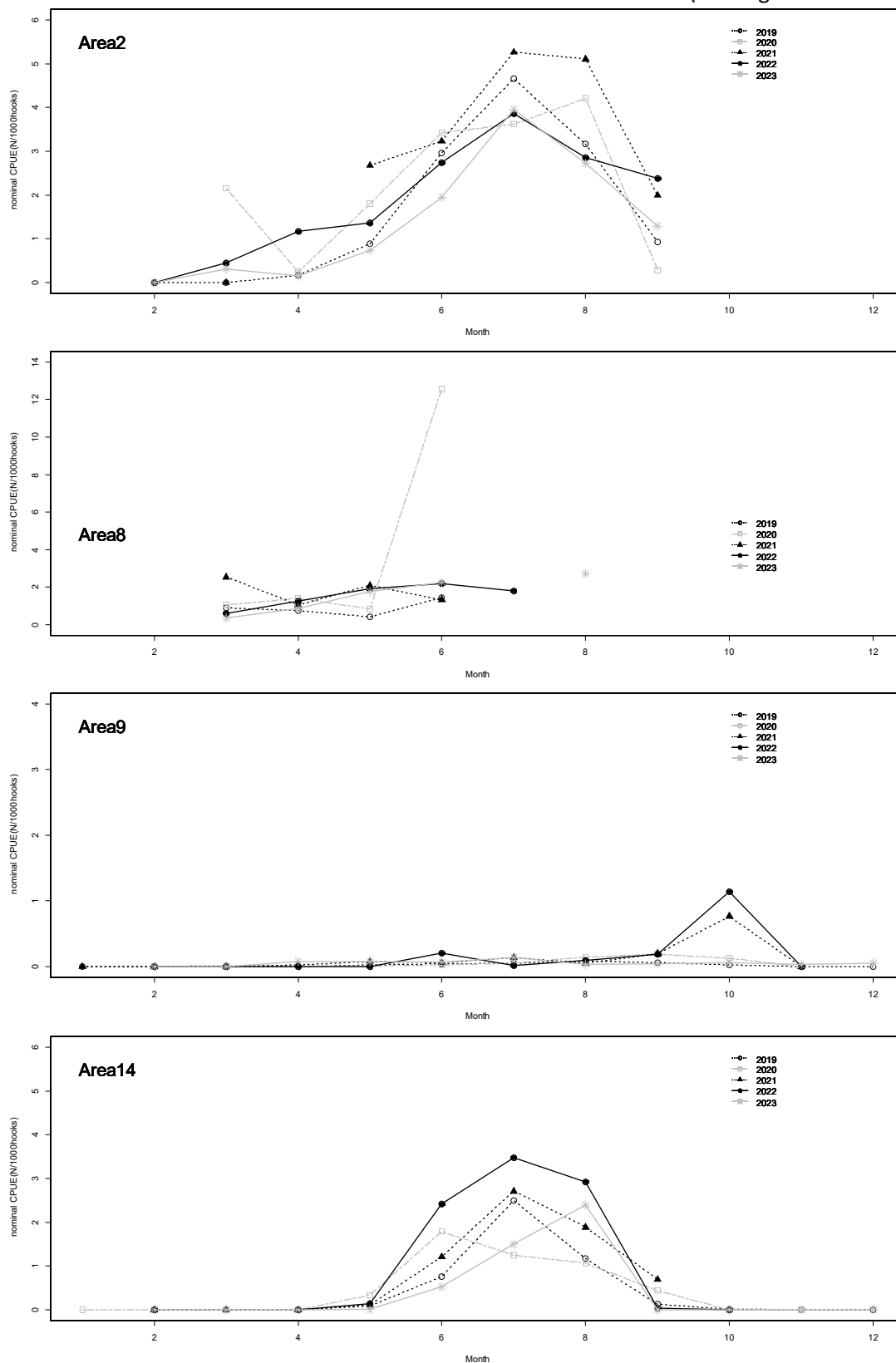
Fig. 2 Annual nominal CPUE by area, by month and by year of Taiwanese SBT
longline fishery in main fishing grounds
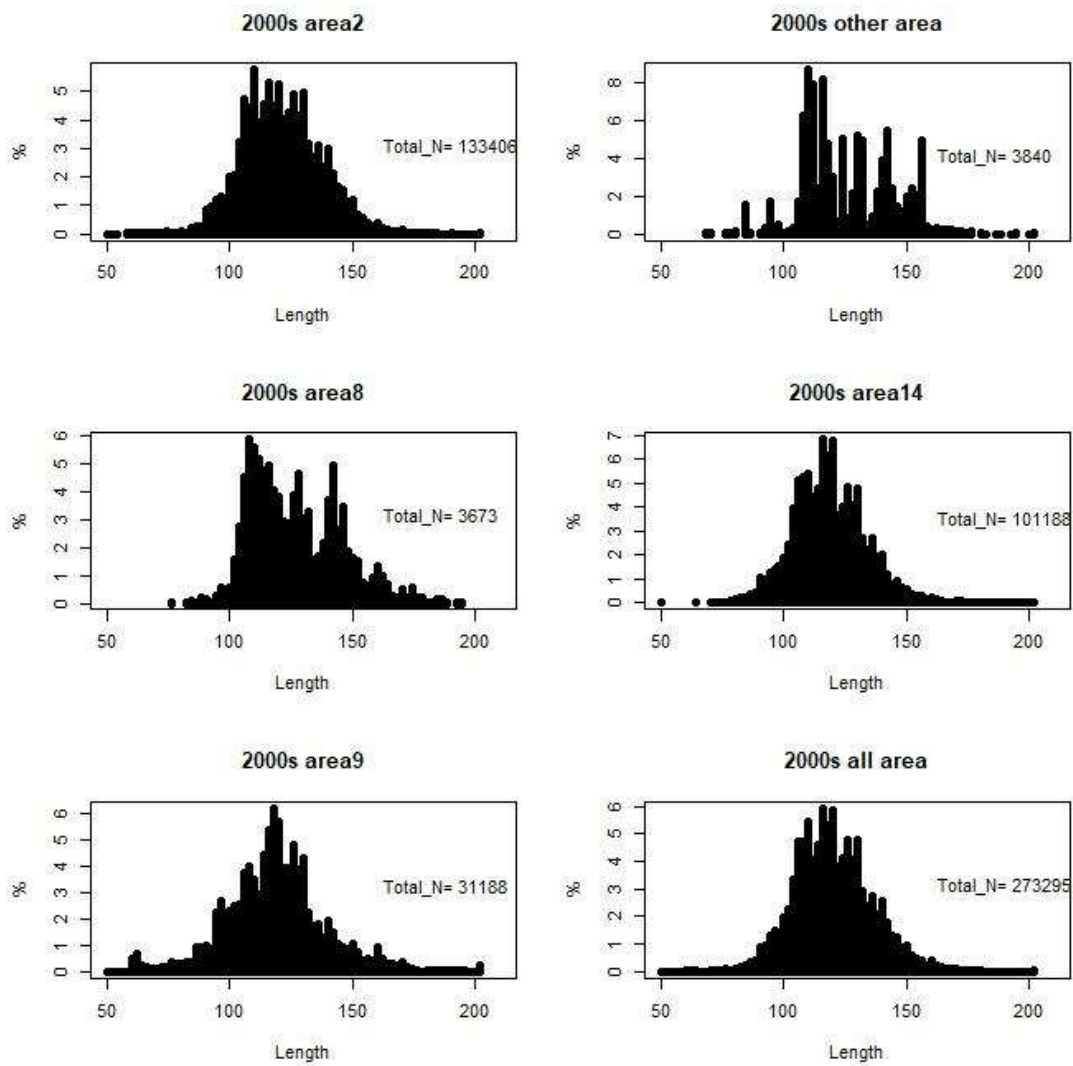
Fig.3 (1) SBT size frequency by area of Taiwanese SBT longline fishery in 2000s
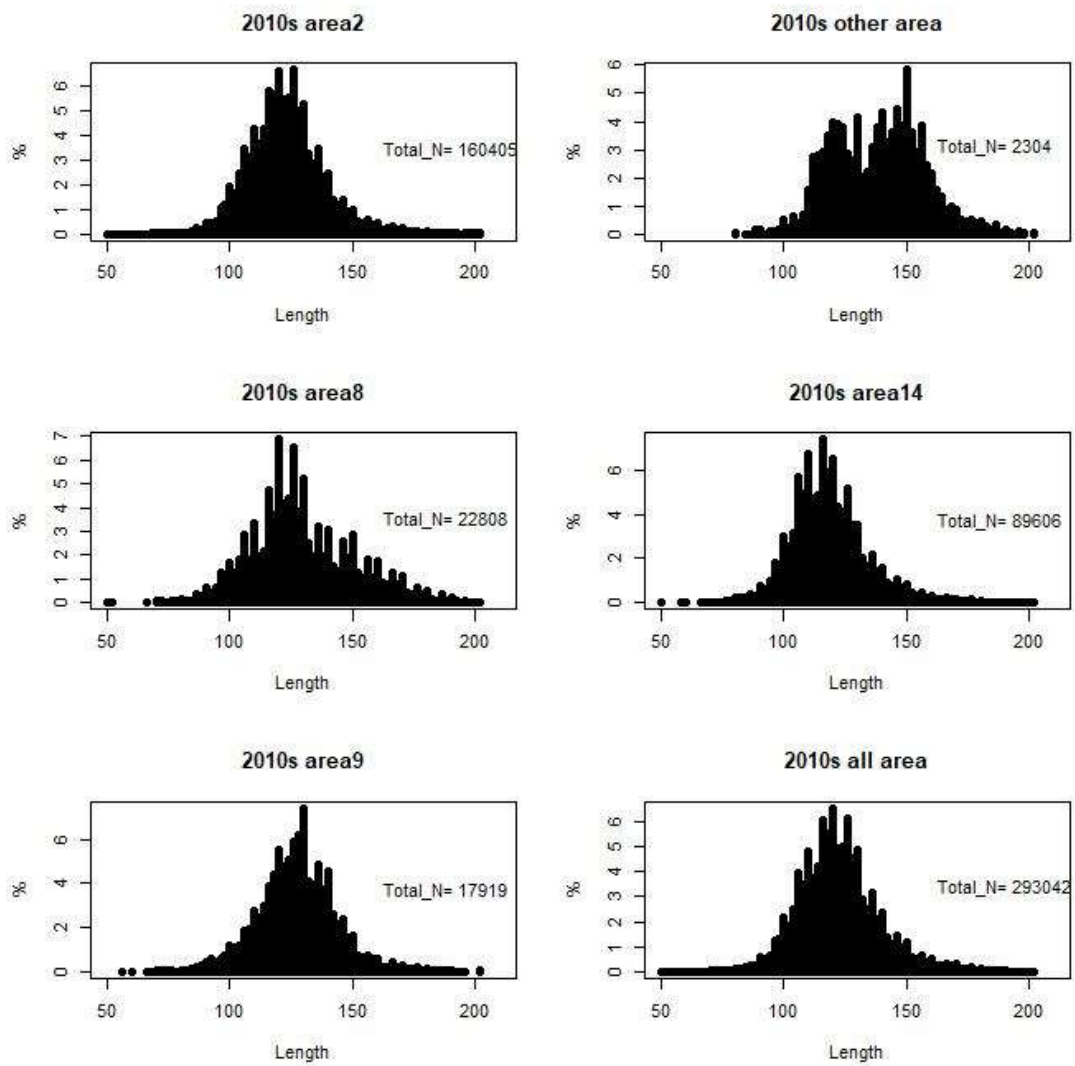
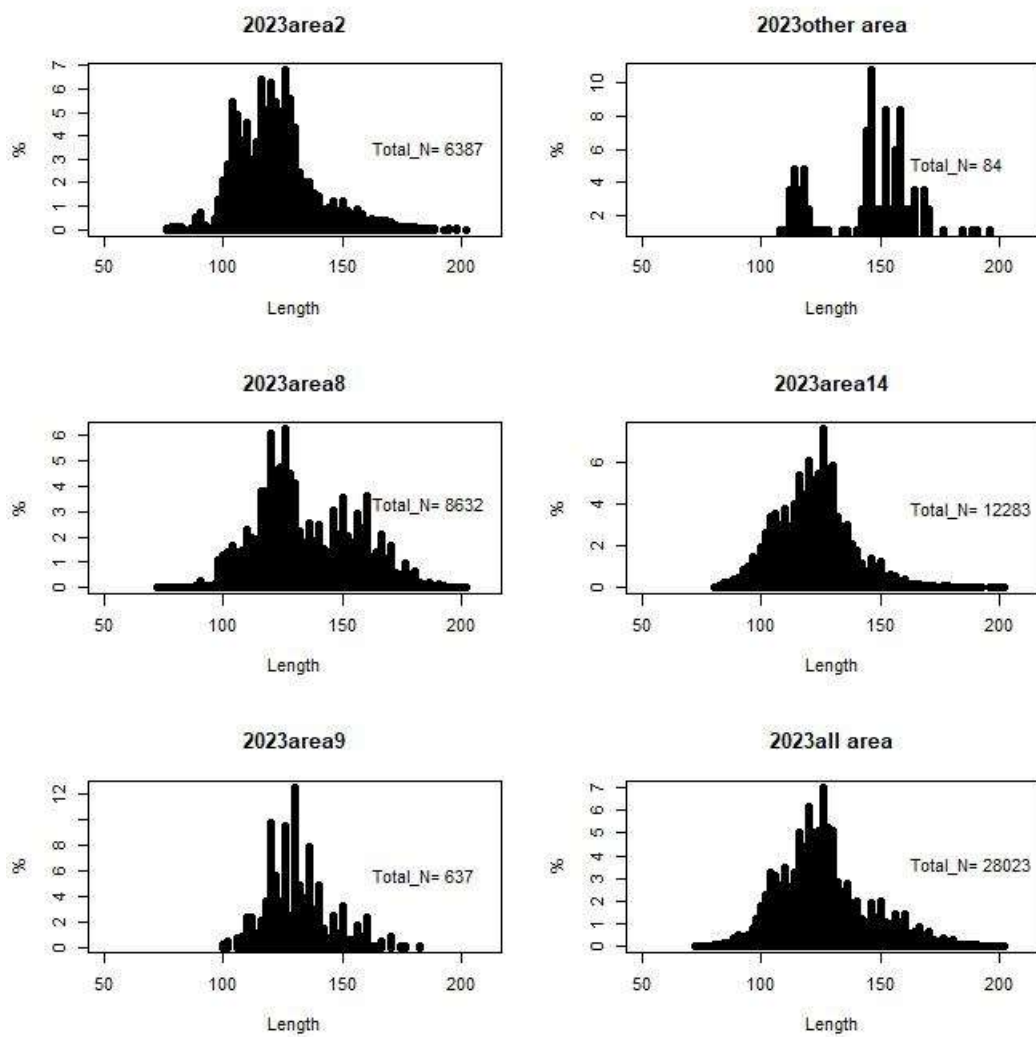Fig.3 (2) SBT size frequency by area of Taiwanese SBT longline fishery during in 2010s
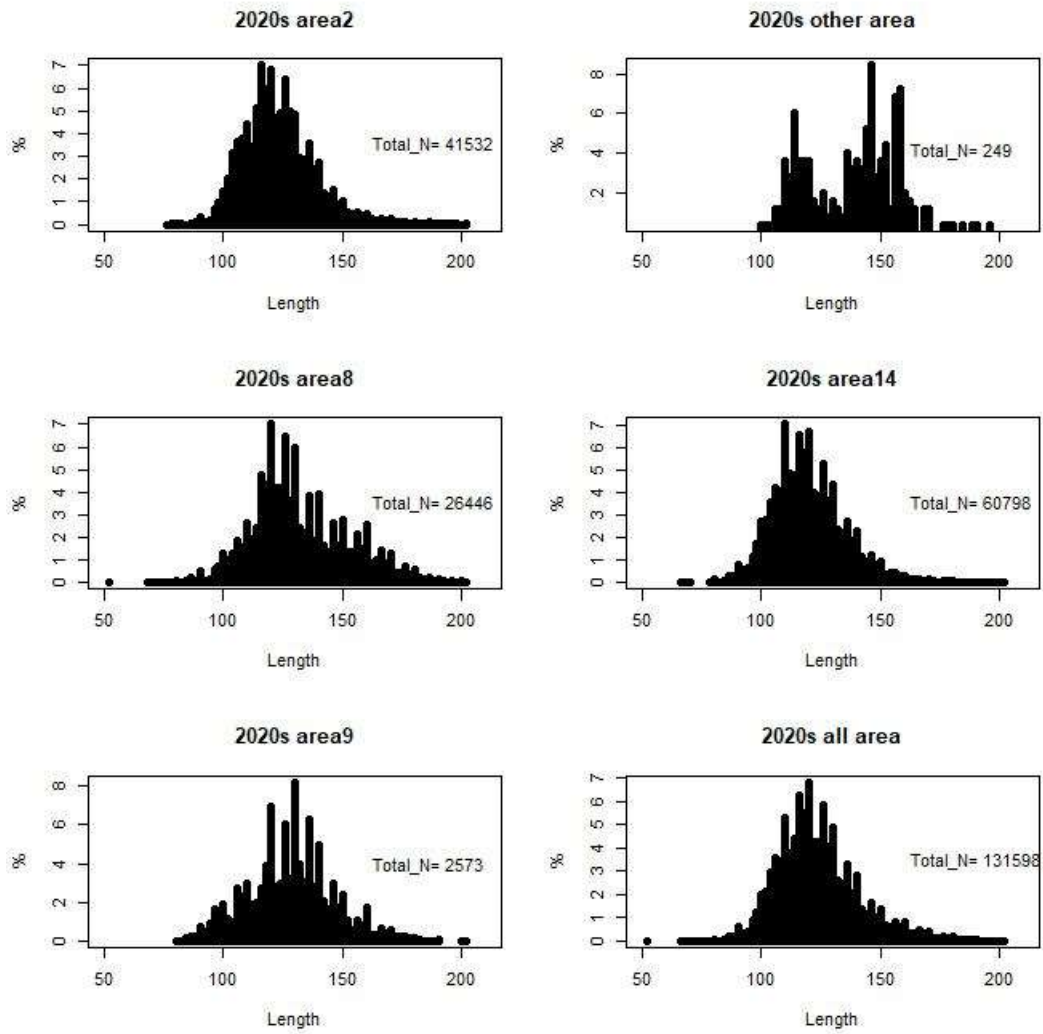
Fig.3 (3) SBT size frequency by area of Taiwanese SBT longline fishery during in 2020s
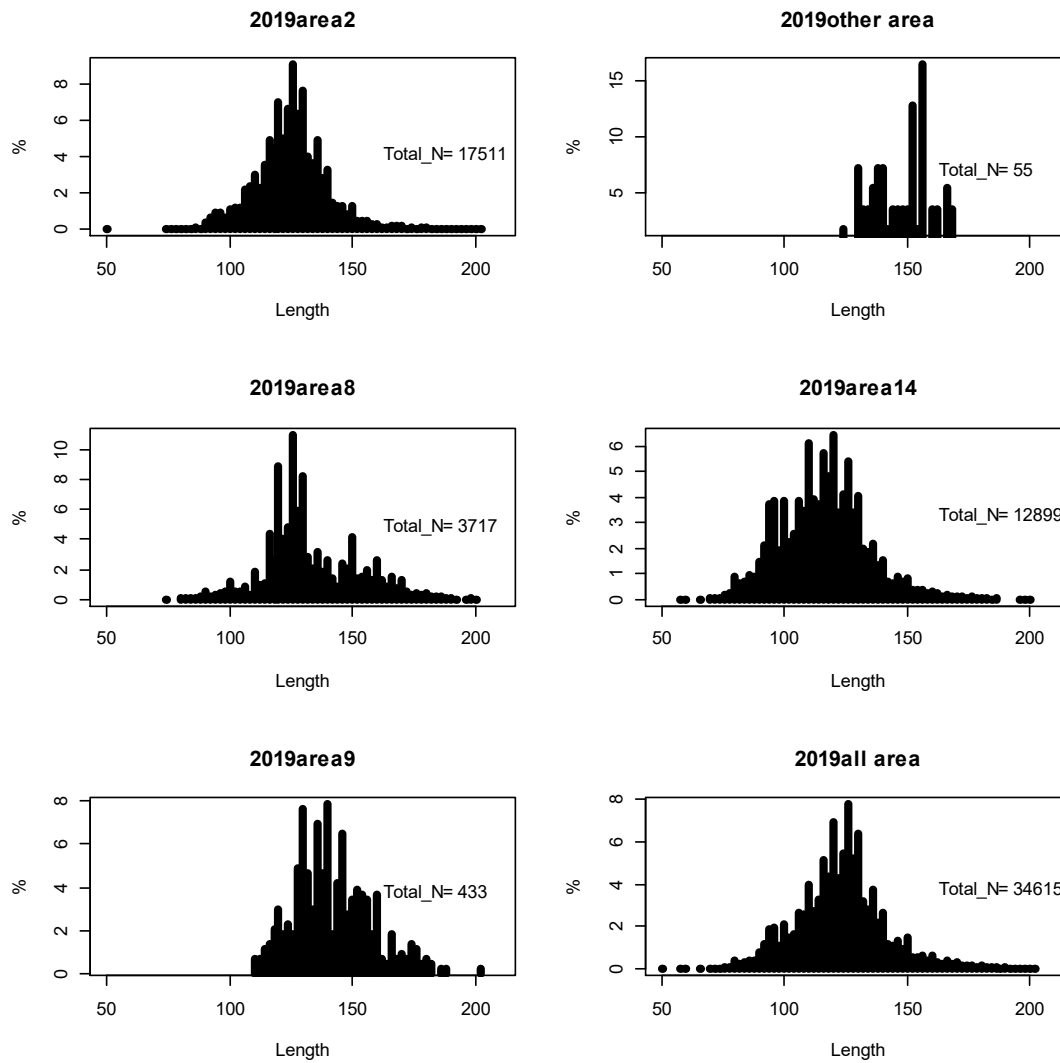
Fig.4 (1) SBT size frequency by area of Taiwanese SBT longline fishery in 2019
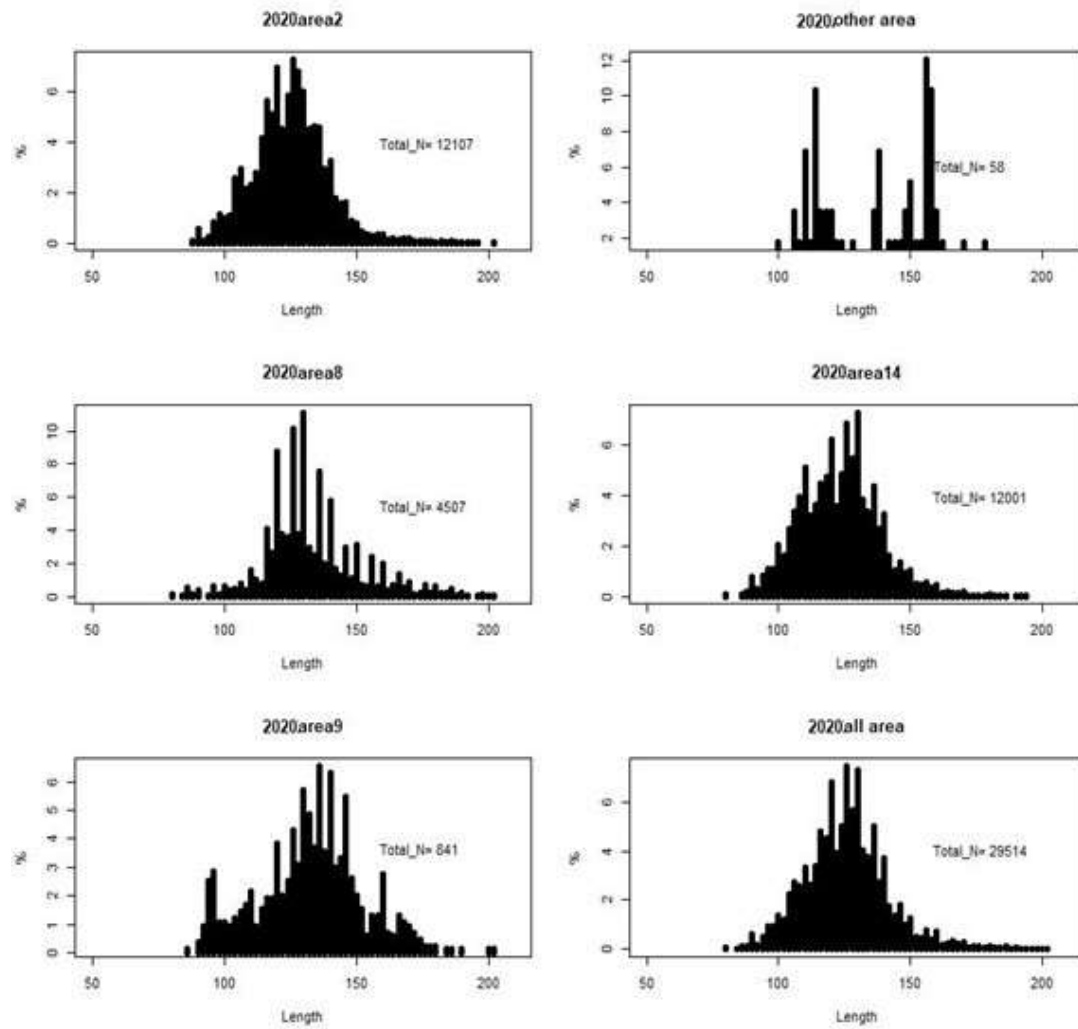
Fig.4 (2) SBT size frequency by area of Taiwanese SBT longline fishery in 2020
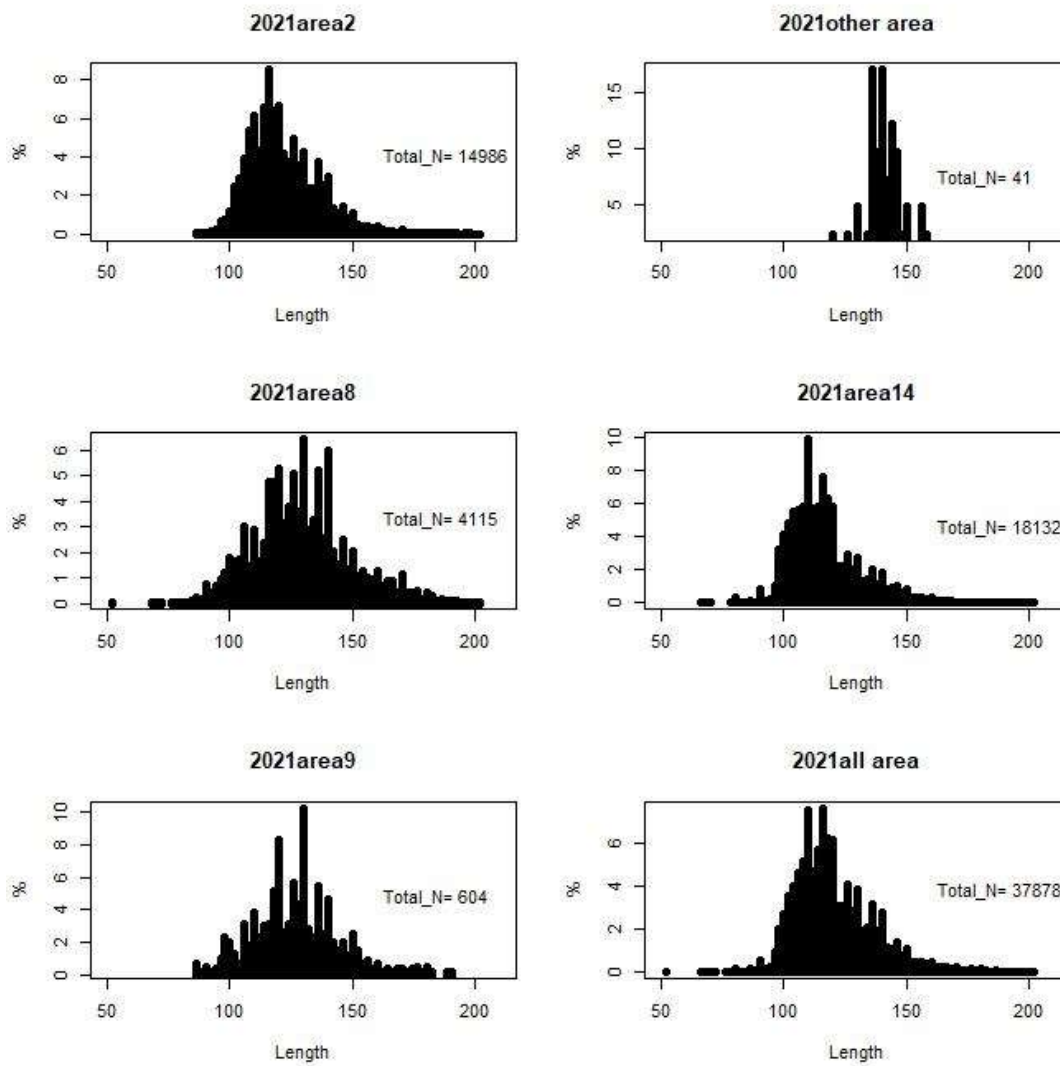
Fig.4 (3) SBT size frequency by area of Taiwanese SBT longline fishery in 2021
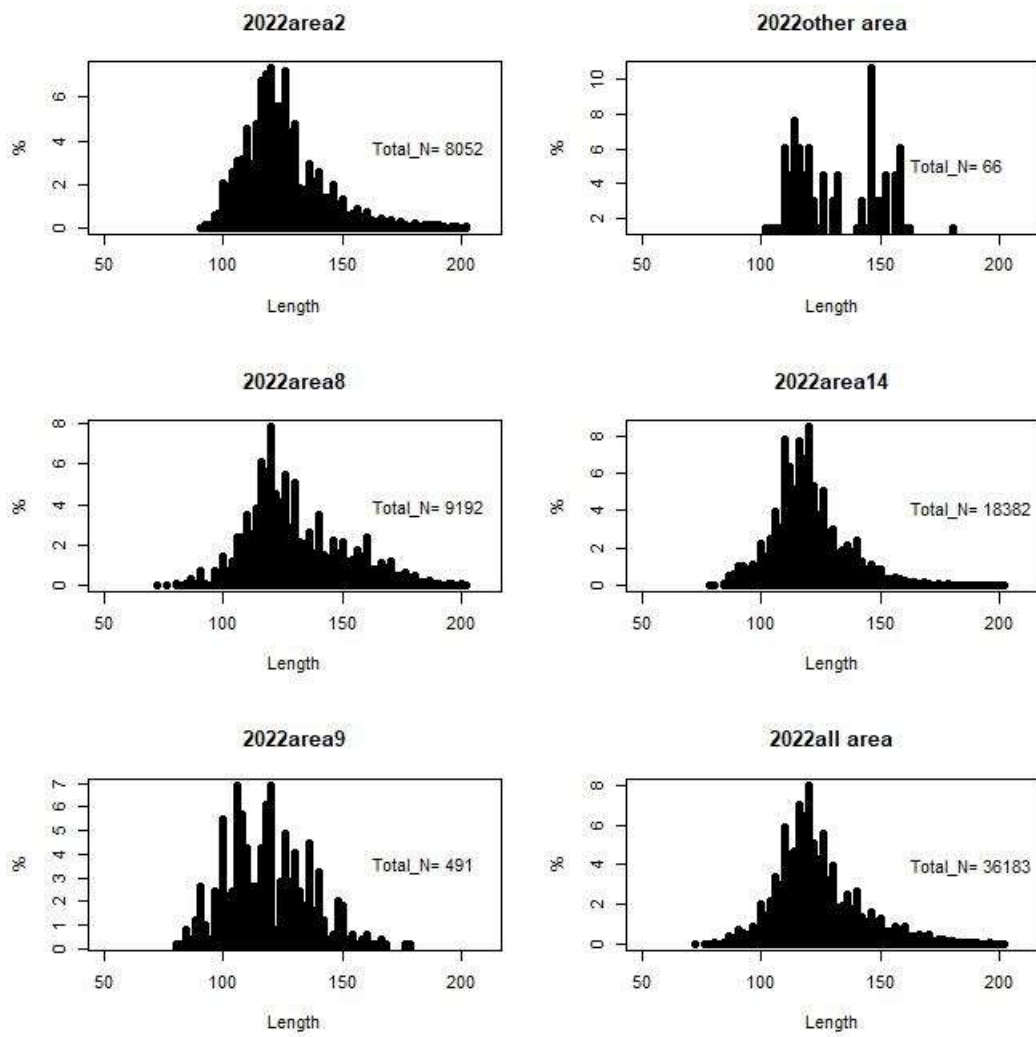
Fig.4 (4) SBT size frequency by area of Taiwanese SBT longline fishery in 2022

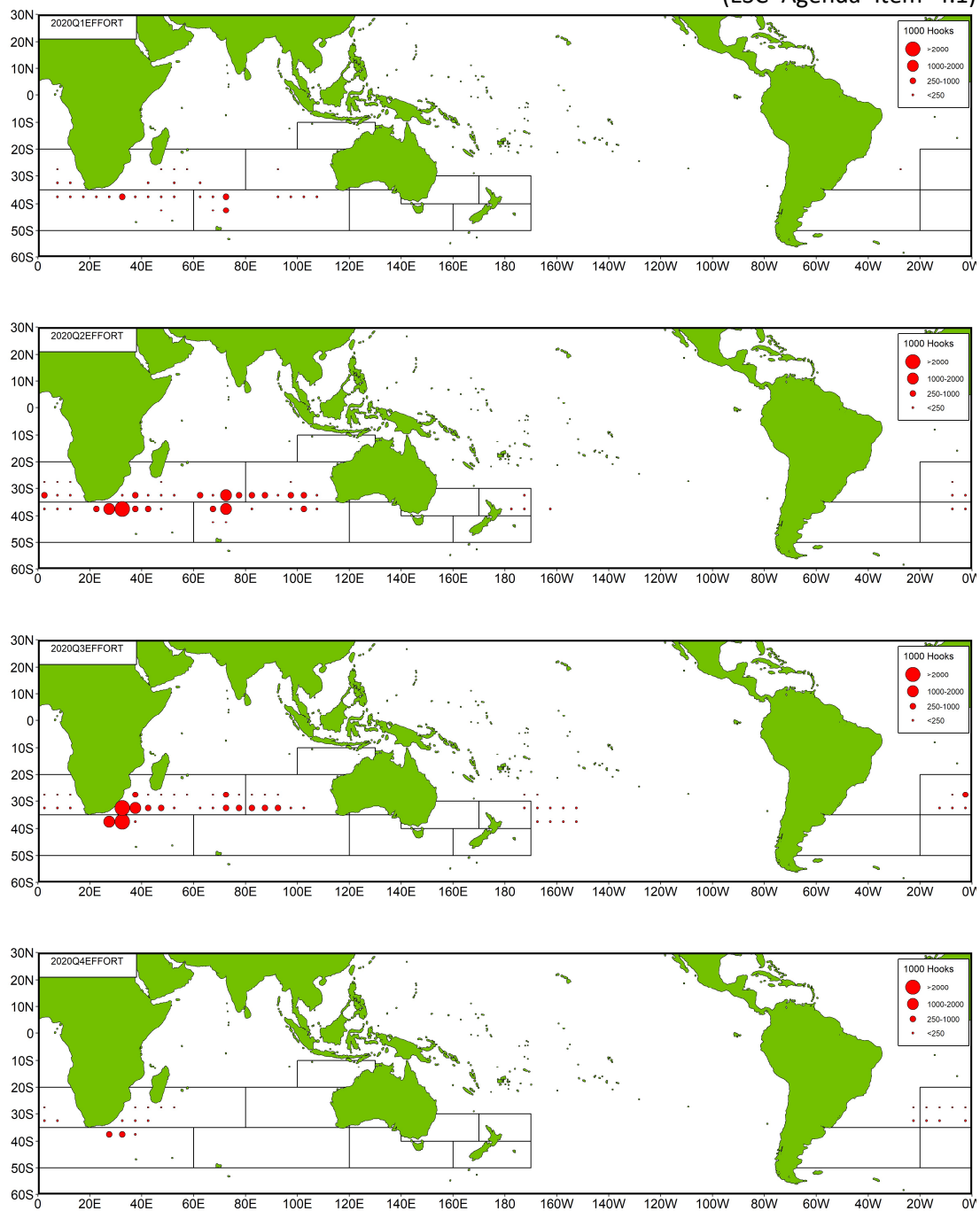Fig.4 (5) SBT size frequency by area of Taiwanese SBT longline fishery in 2023
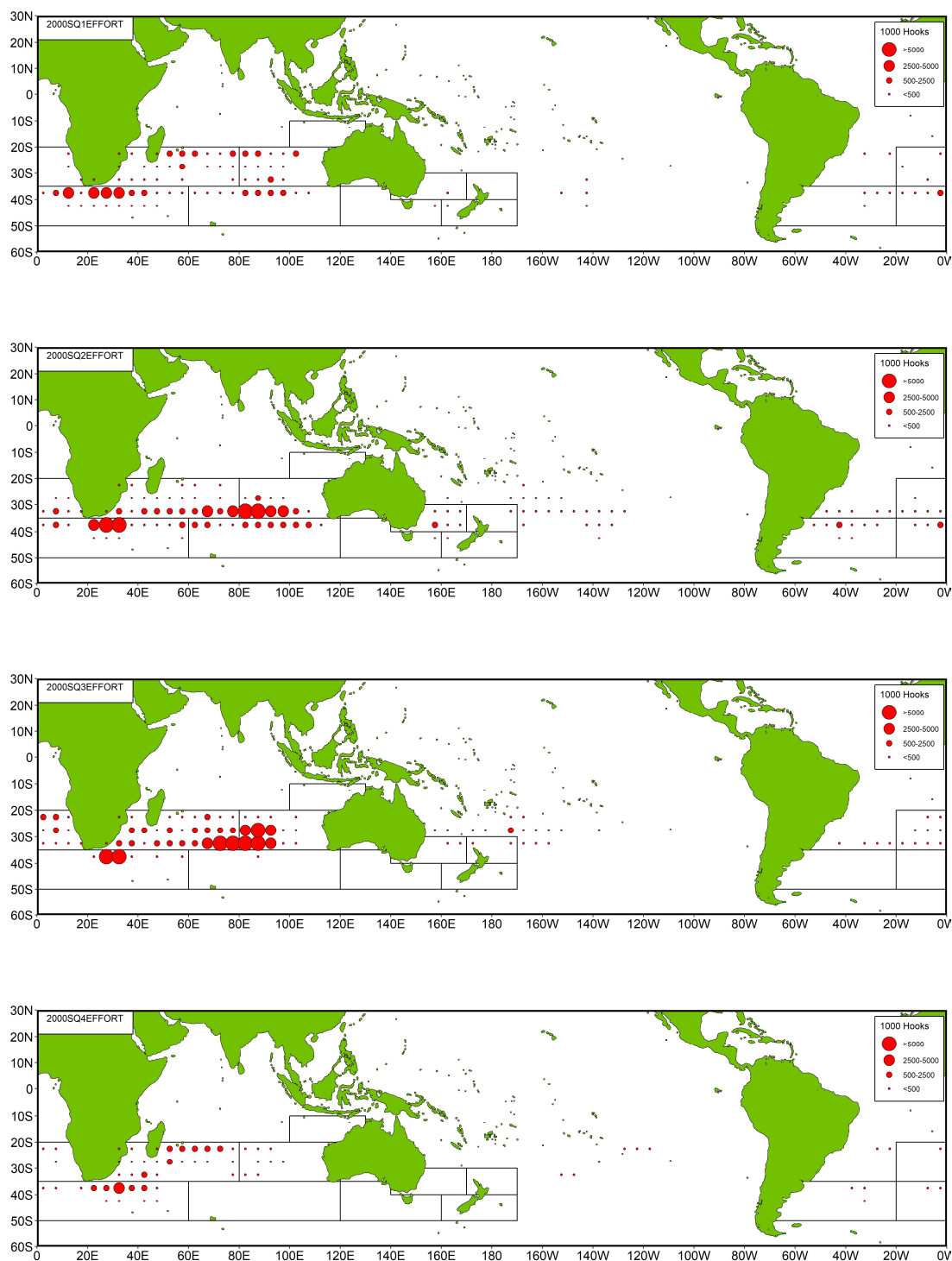
Fig.5 (1) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in
2000s
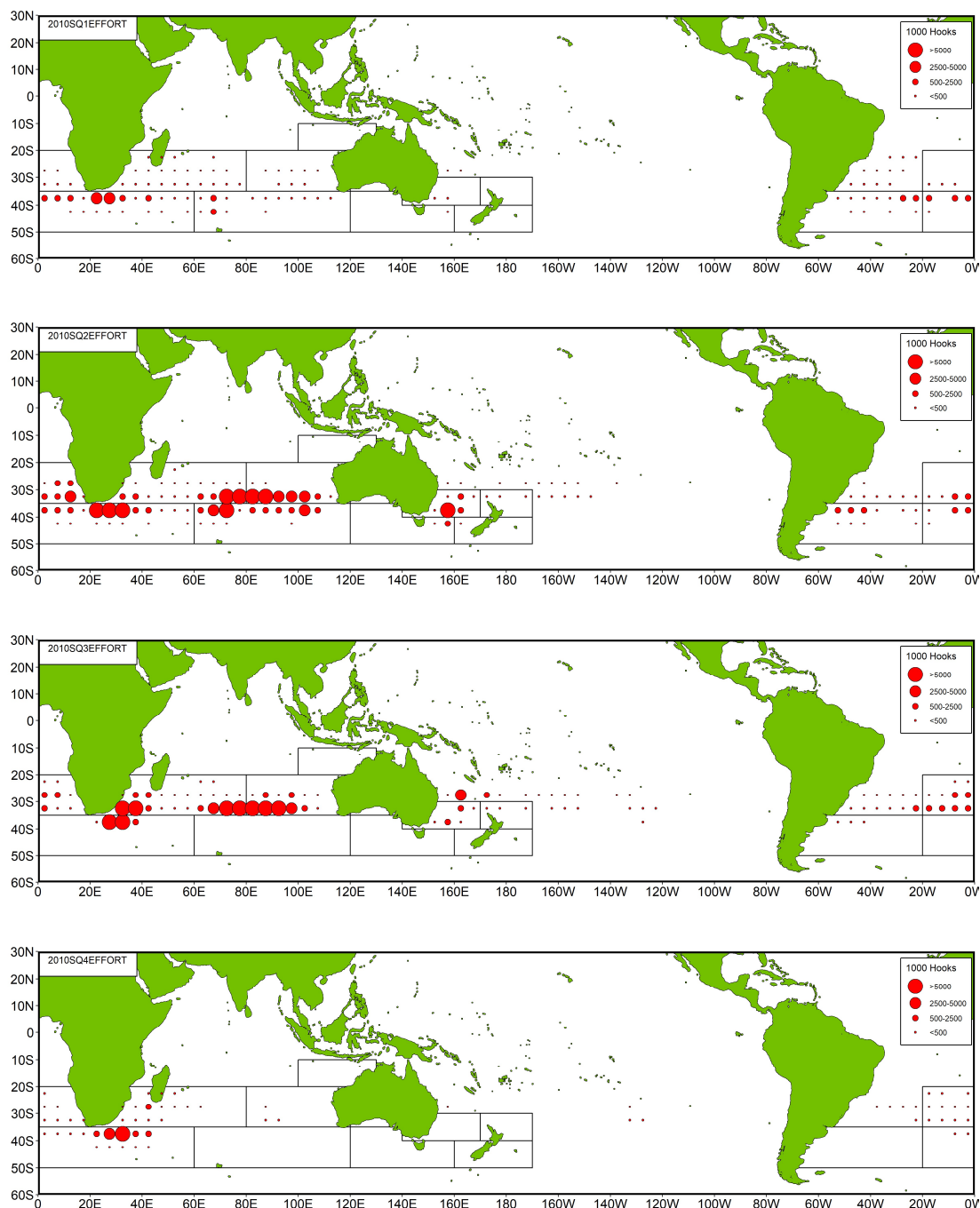
Fig.5 (2) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2010s
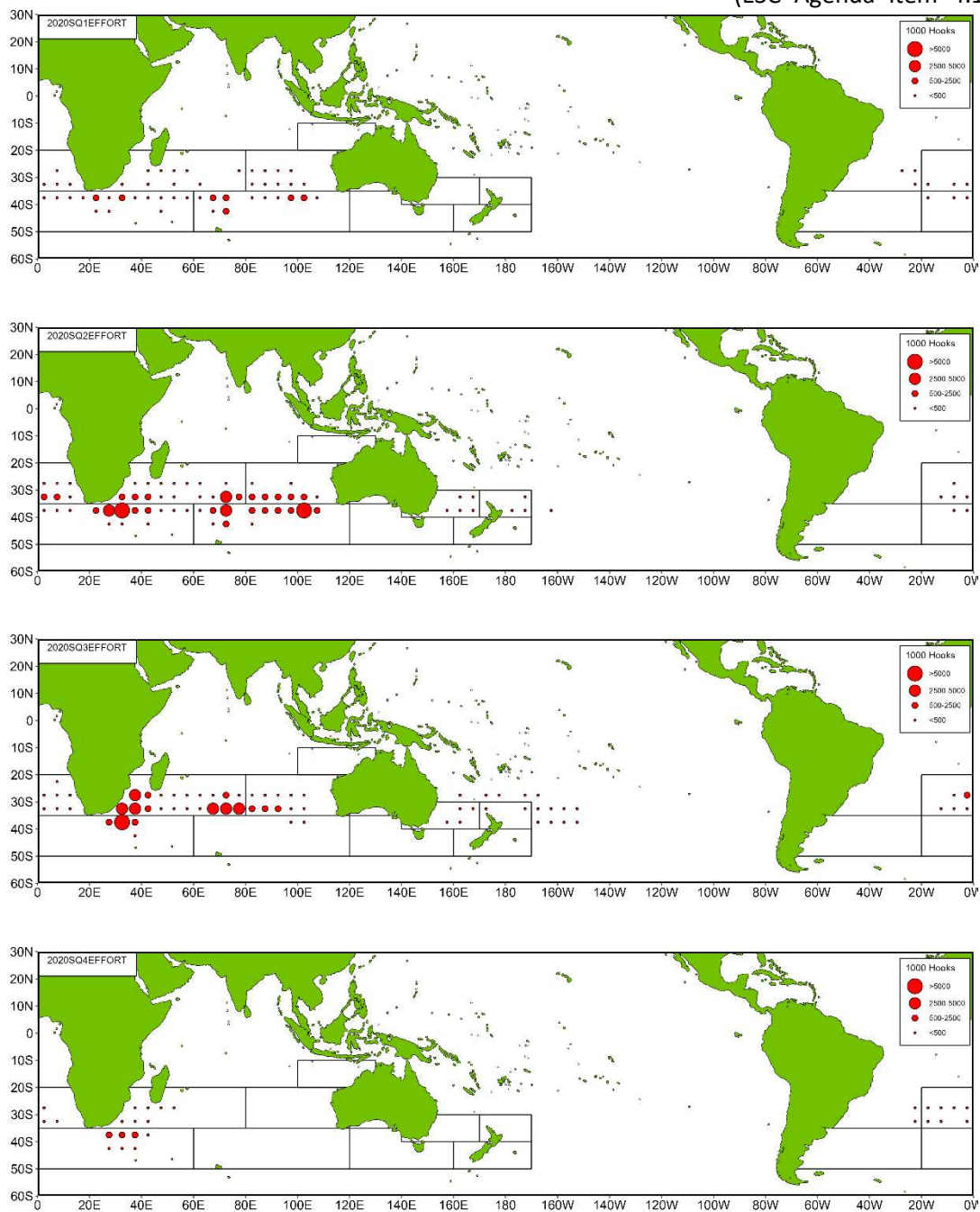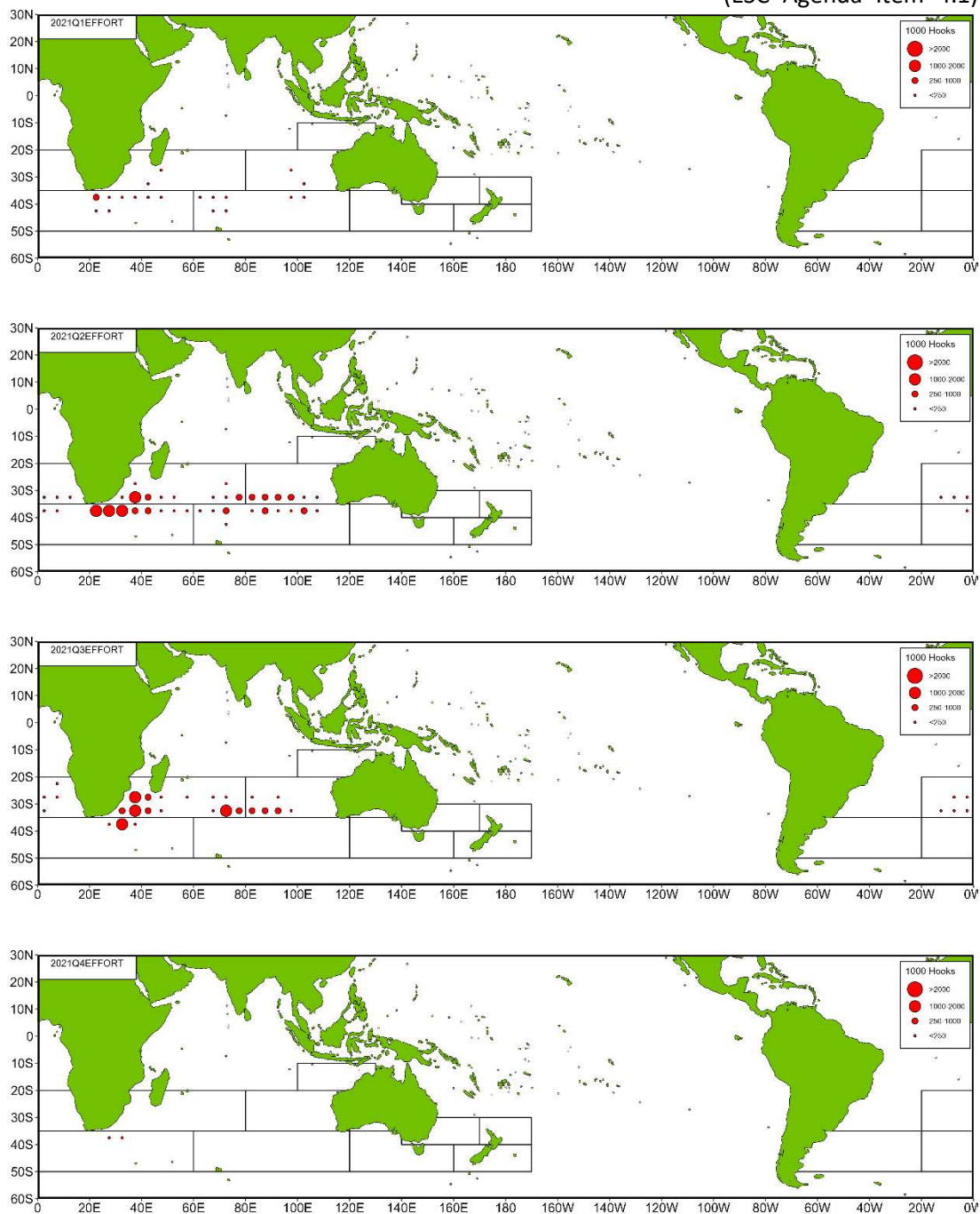
Fig.5 (3) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2020s
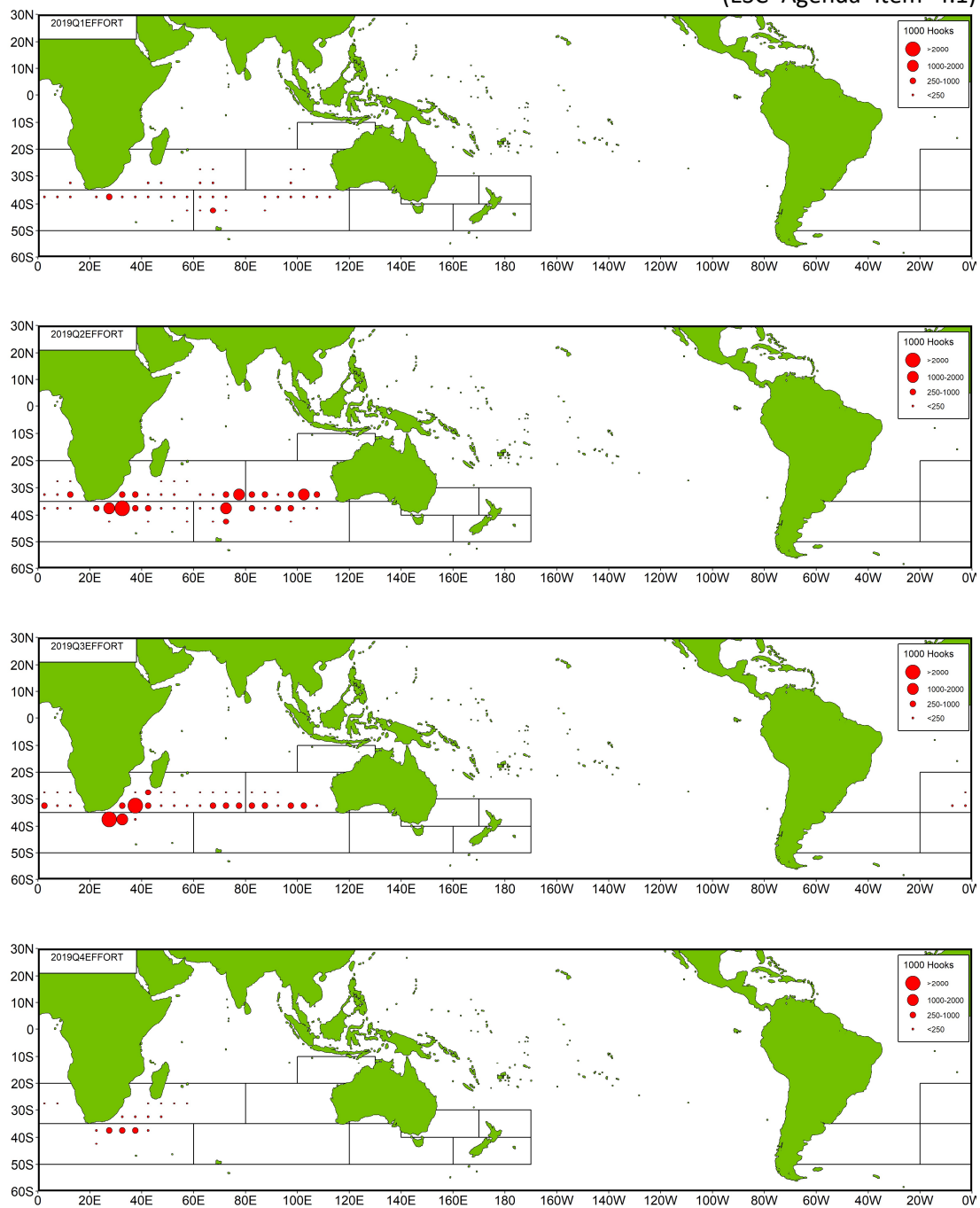
Fig.6 (1) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2019

Fig.6 (2) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in
2020

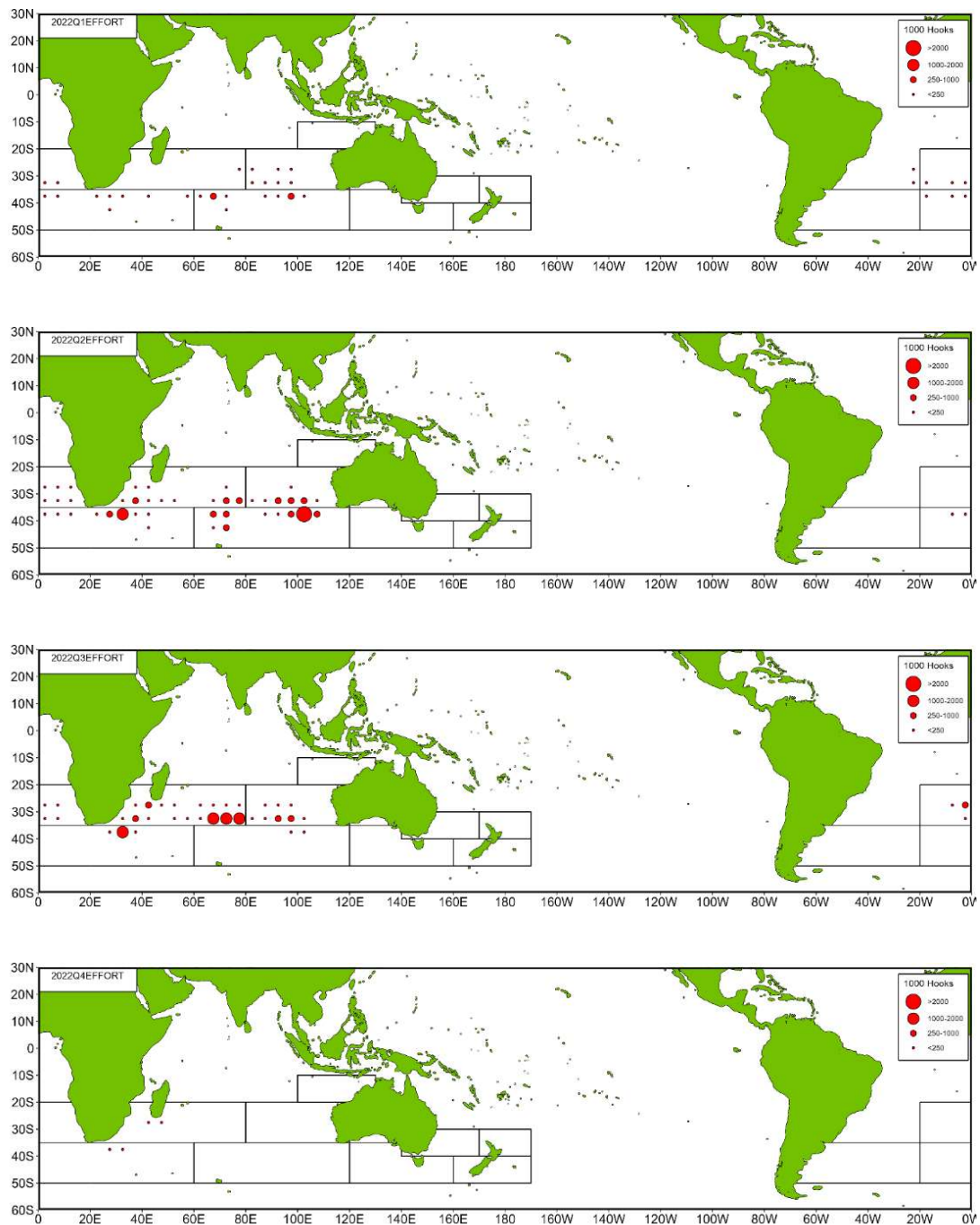Fig.6 (3) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2021

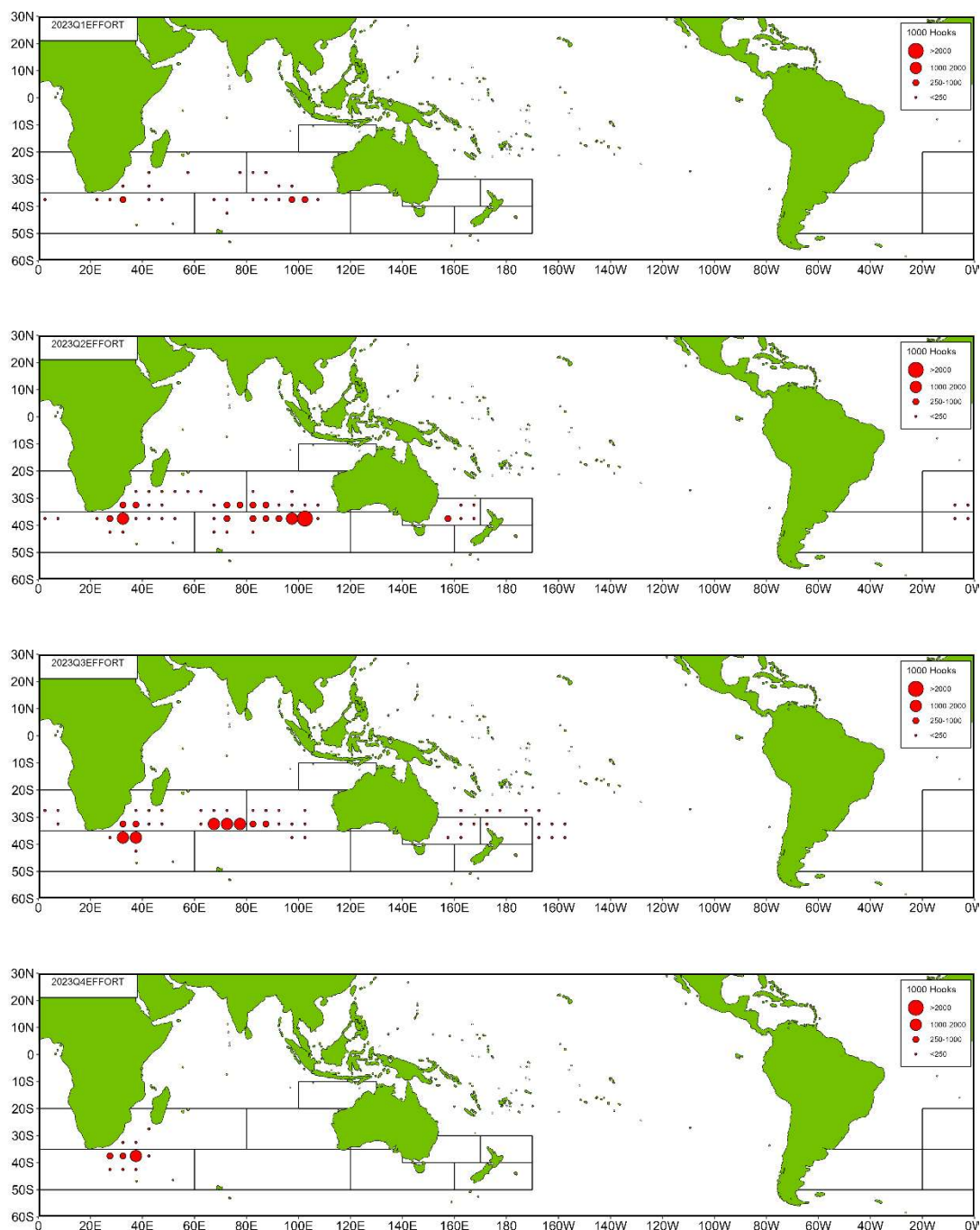Fig.6 (4) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2022

Fig.6 (5) Fishing efforts distributions by quarter of Taiwanese SBT longline fishery in 2023
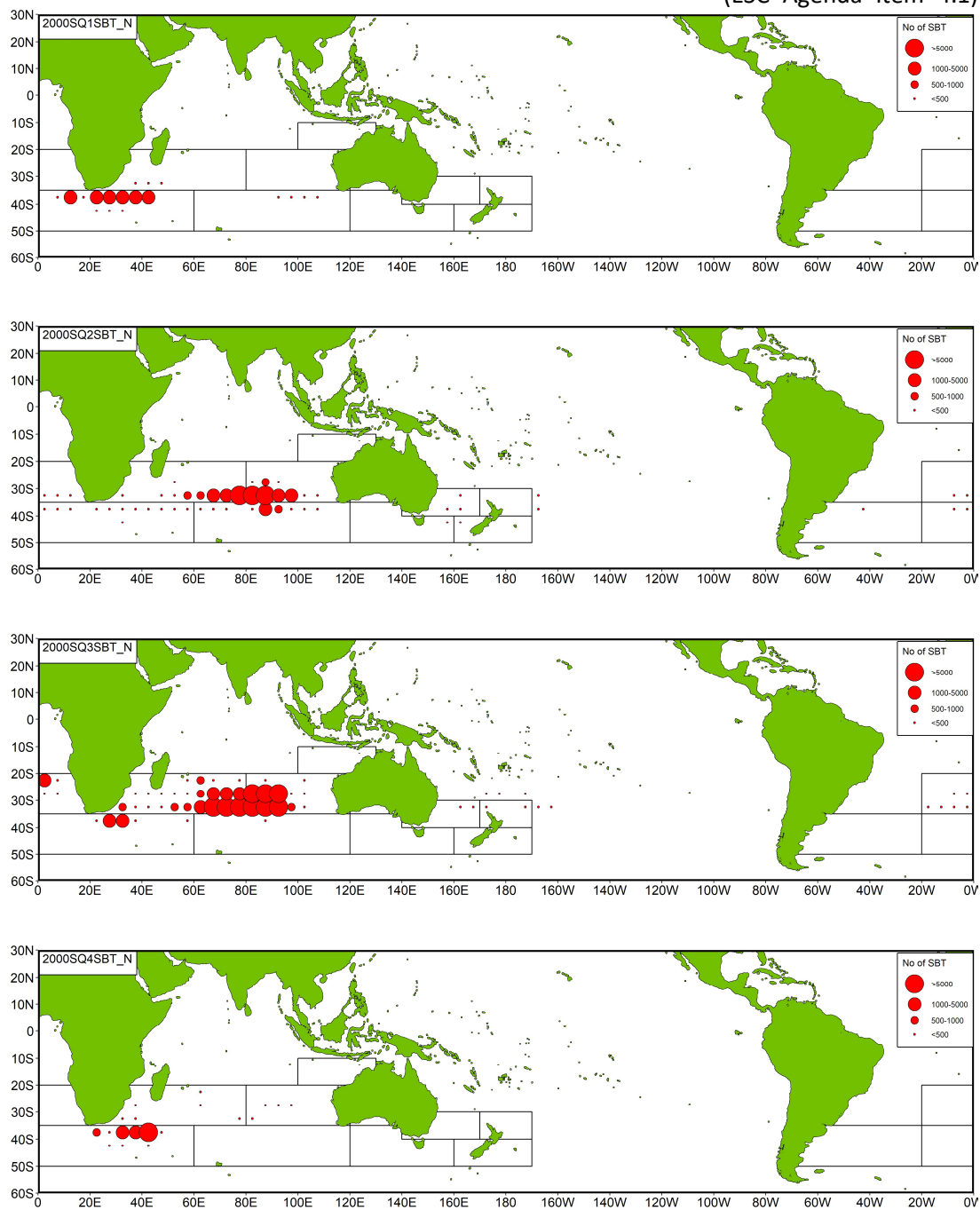
Fig.7 (1) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
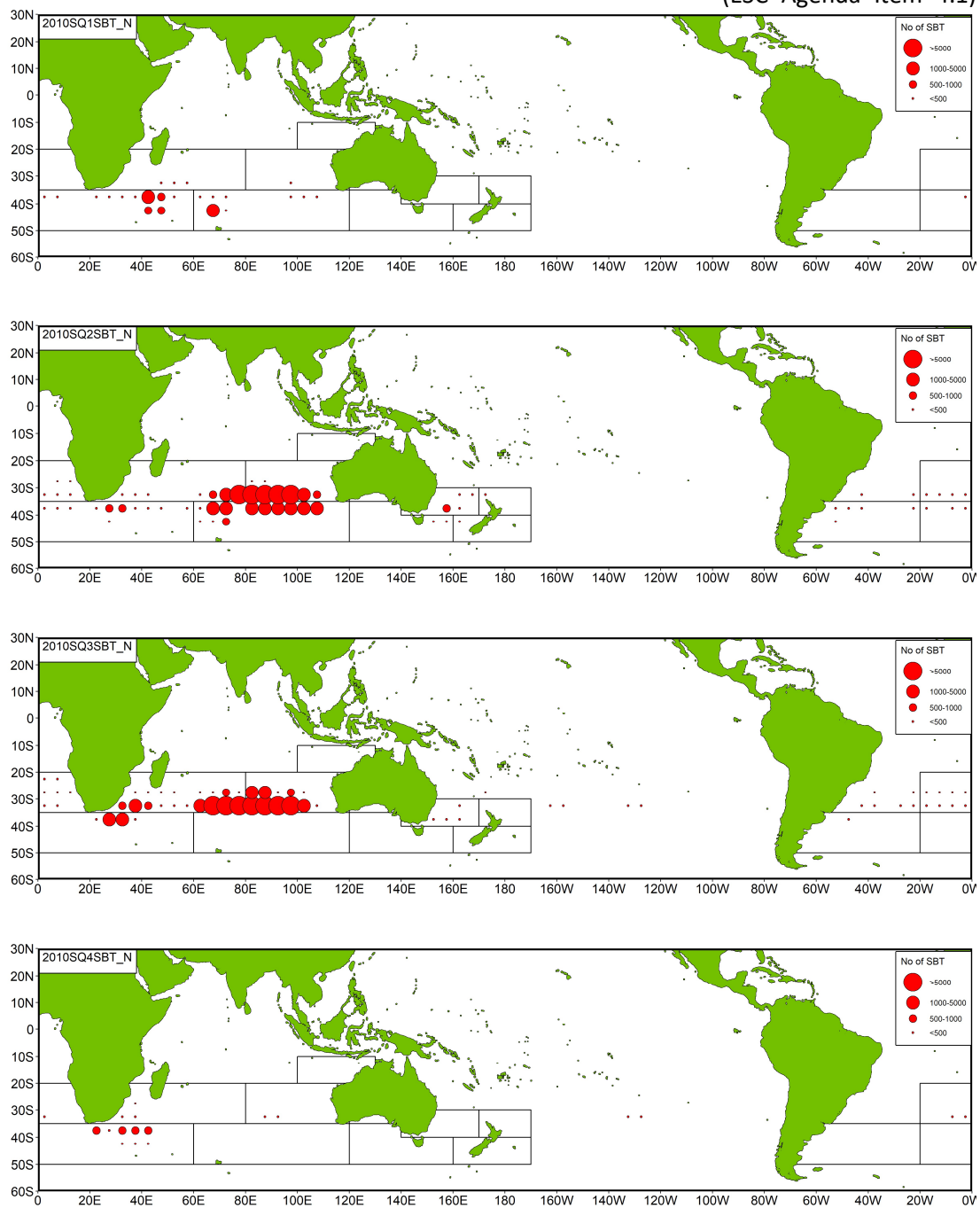fishery in 2000s

Fig.7 (2) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
fishery in 2010s

Fig.7 (3) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
fishery in 2020s

Fig.8 (1) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
fishery in 2019

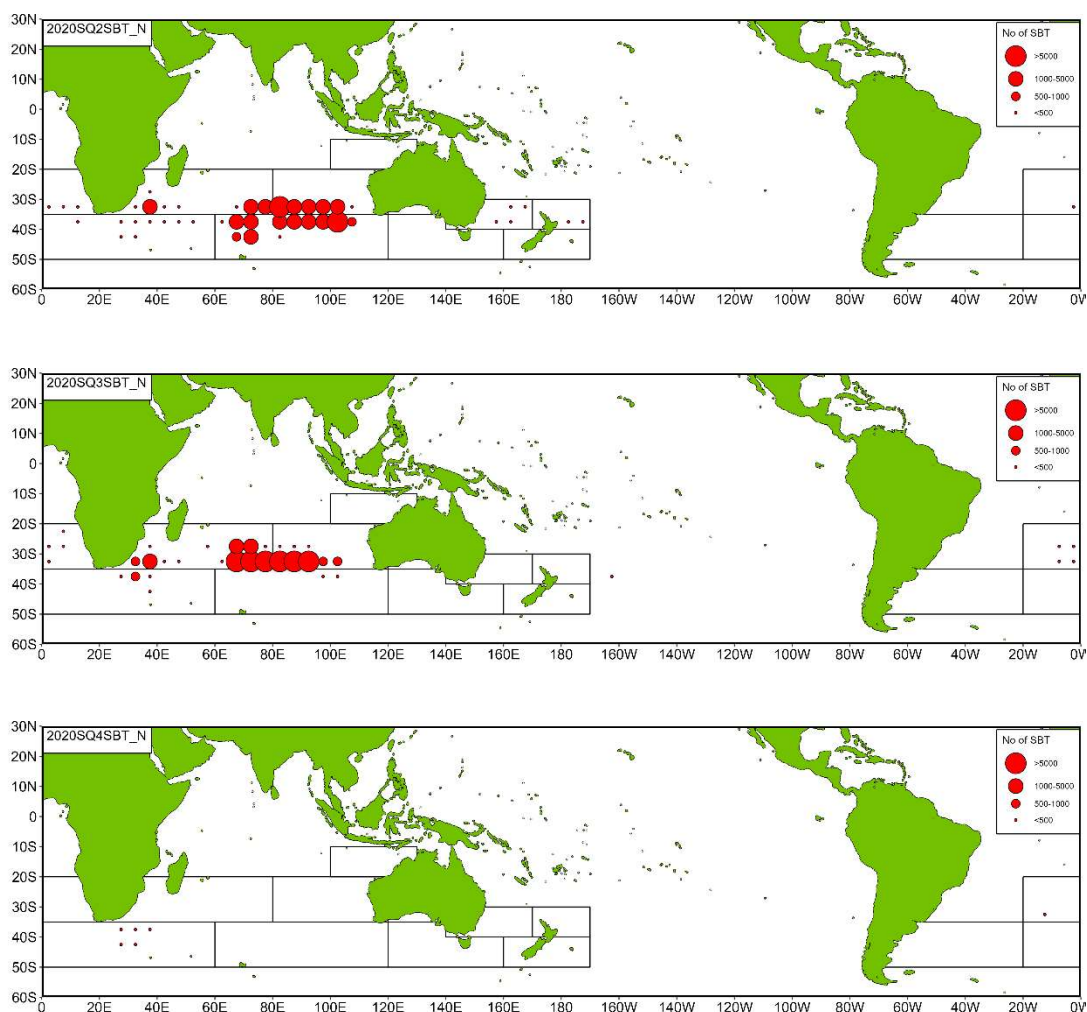Fig.8 (2) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
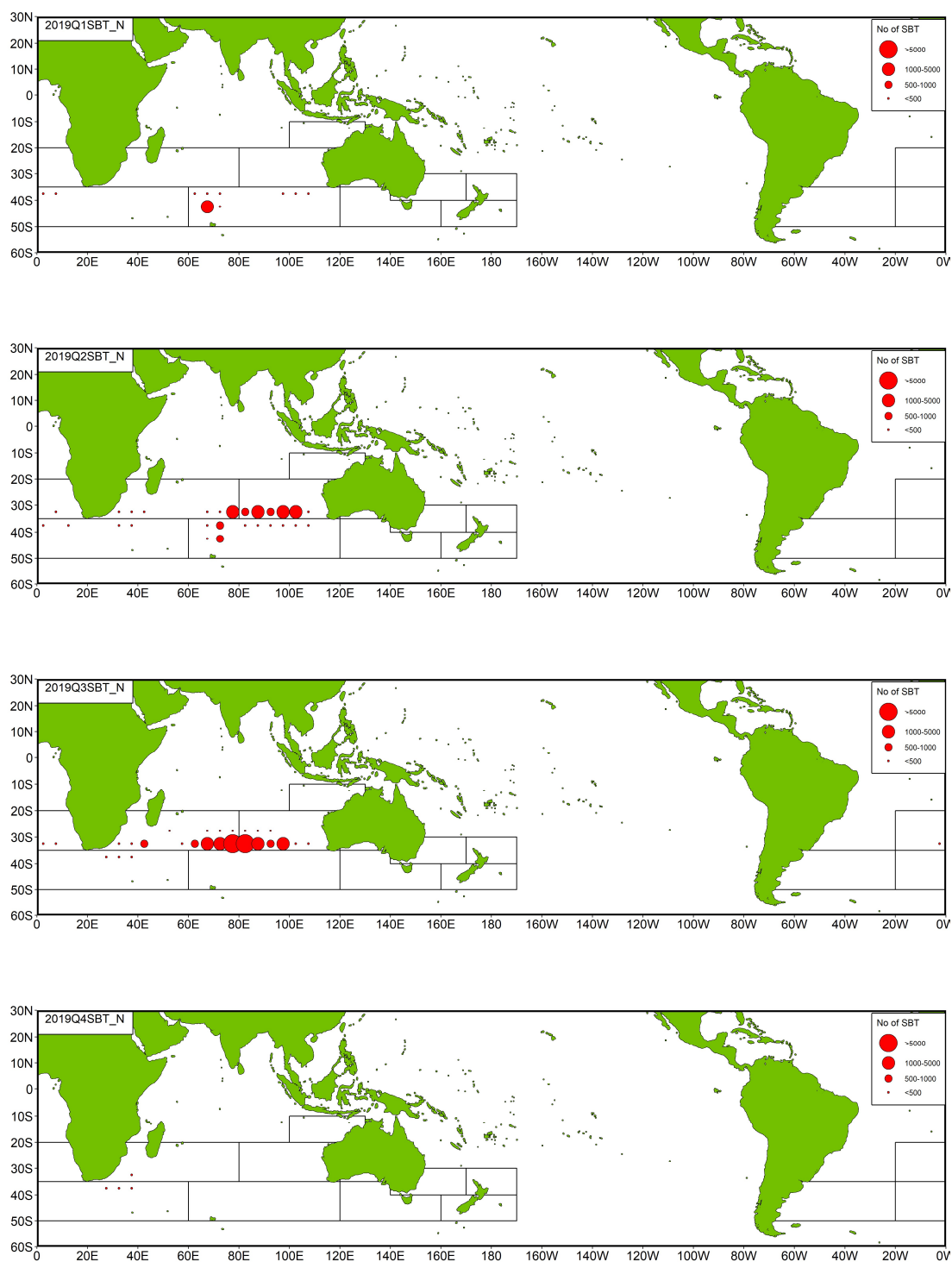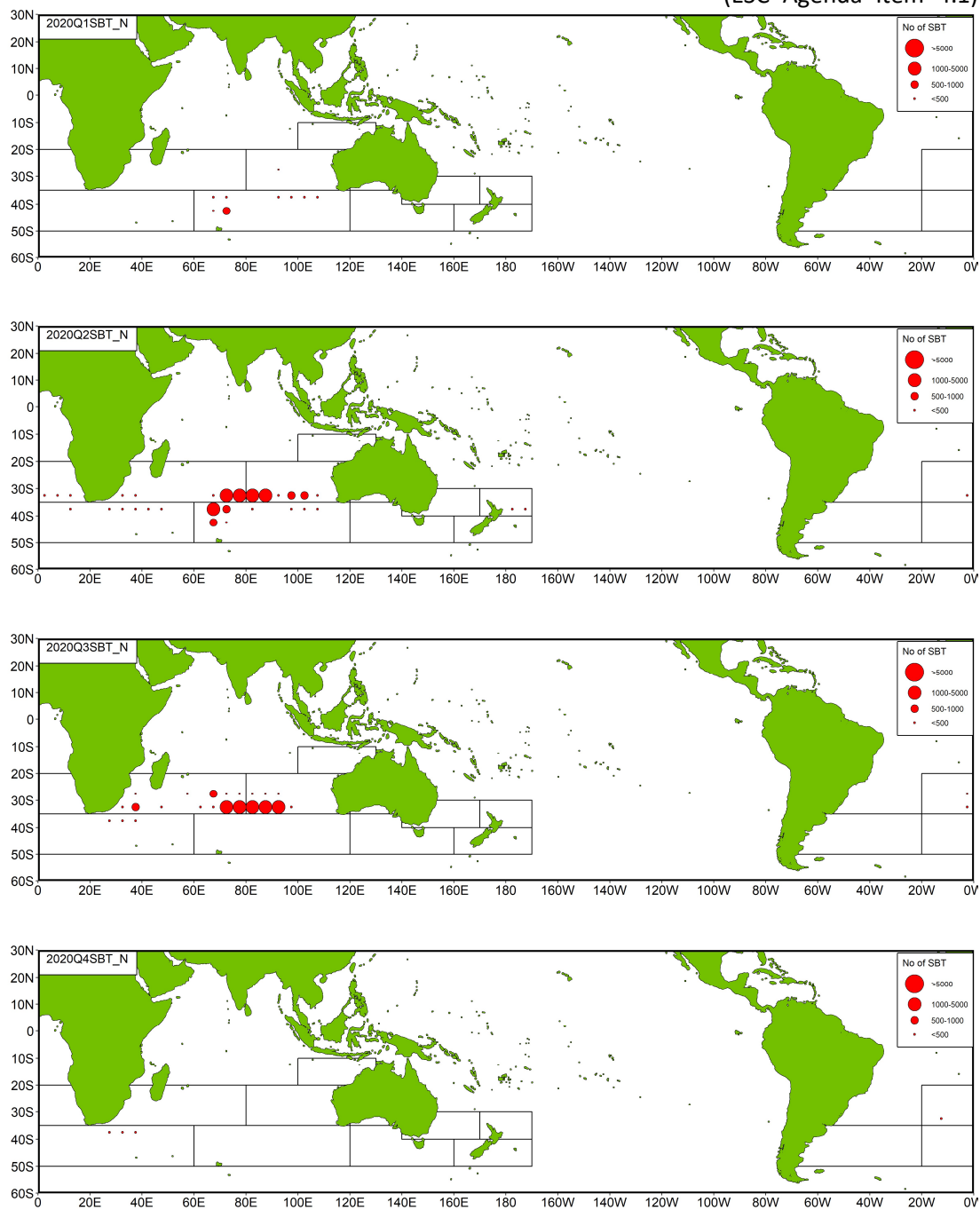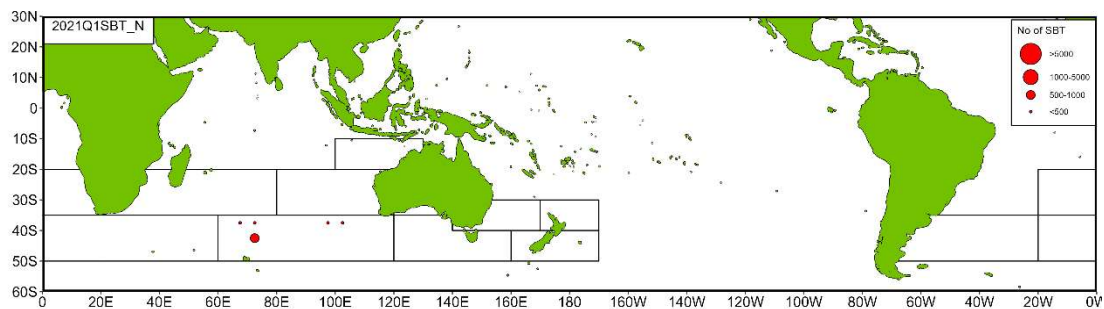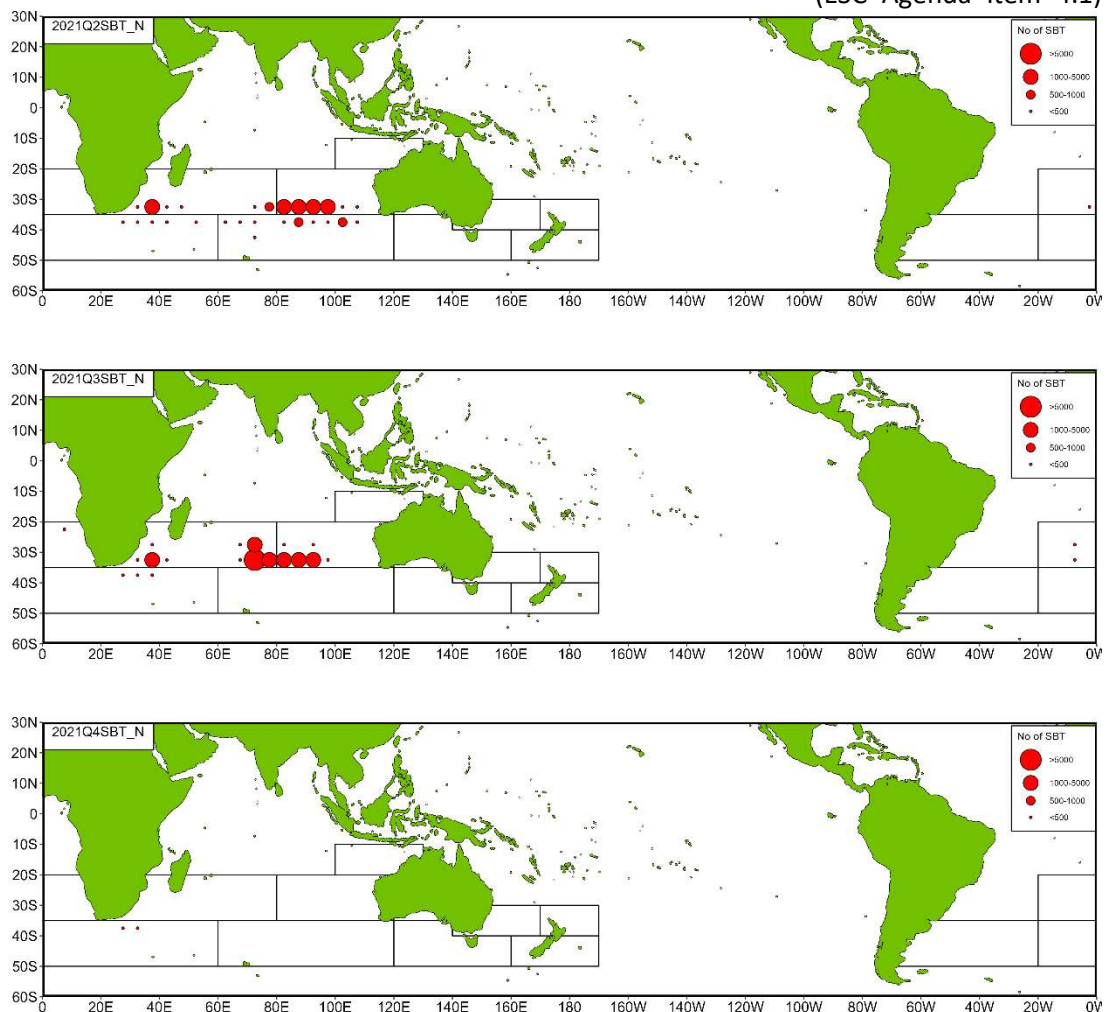fishery in 2020

Fig.8 (3) SBT catch (in number) distributions by quarter of Taiwanese SBT longline fishery in 2021
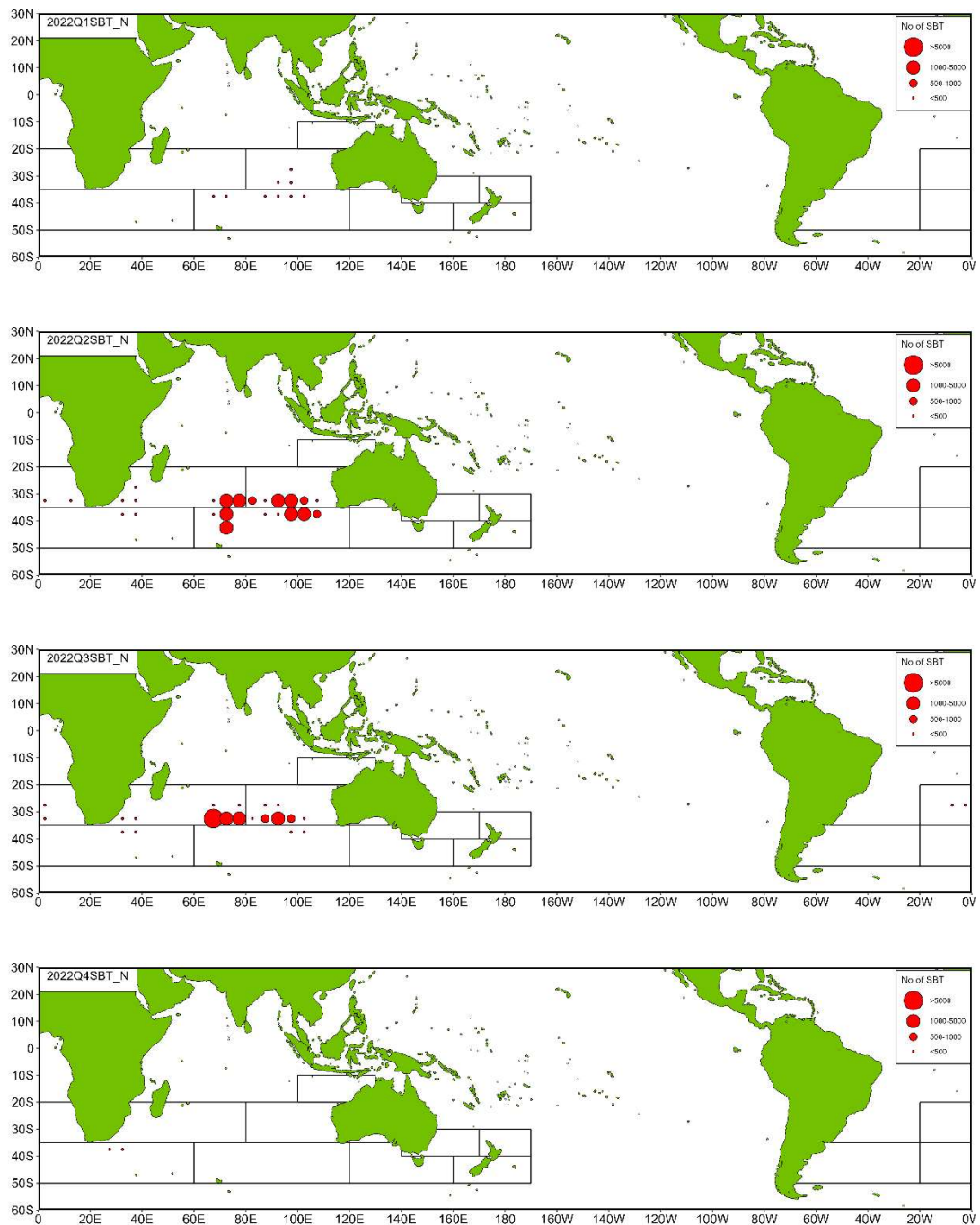
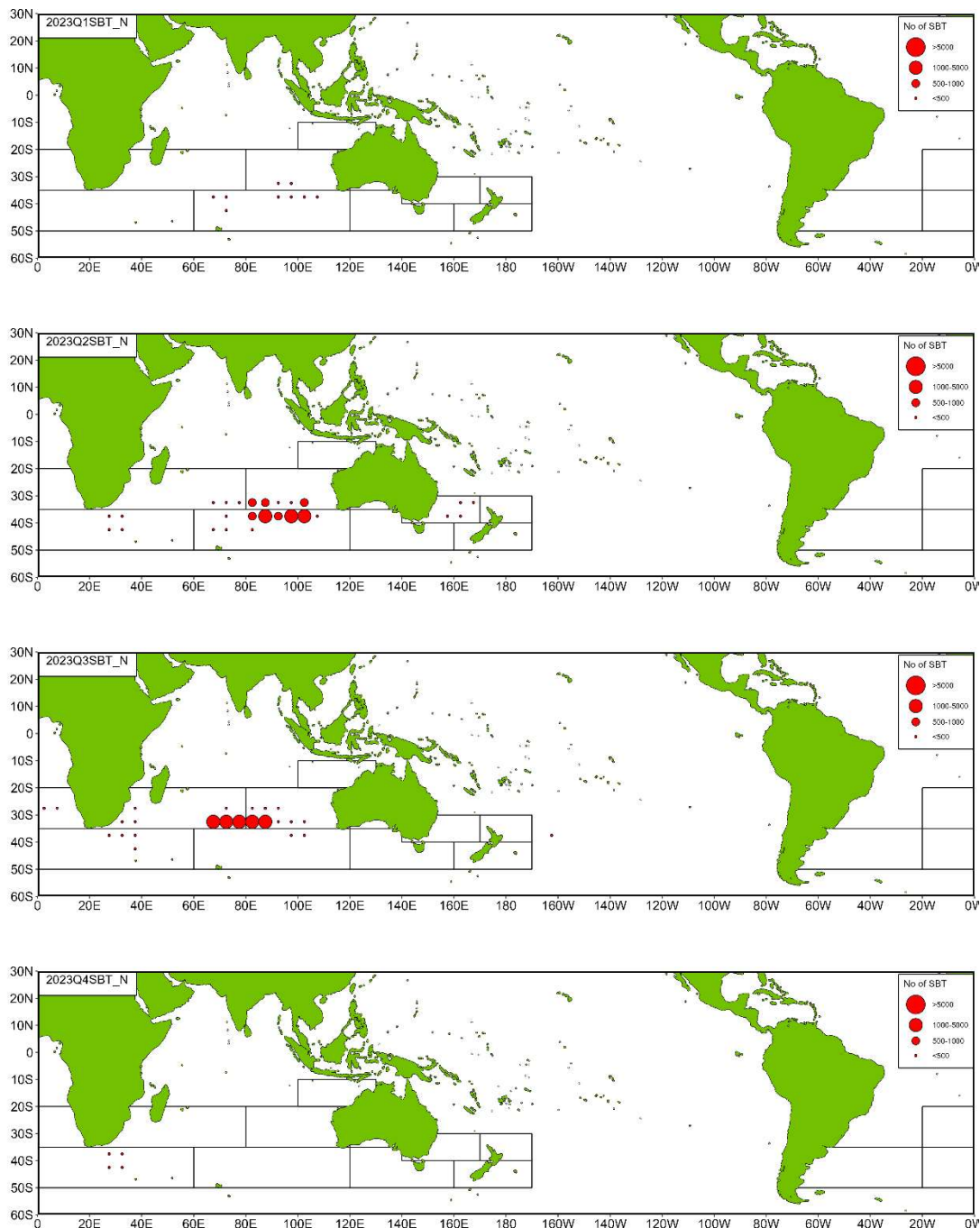Fig.8 (4) SBT catch (in number) distributions by quarter of Taiwanese SBT longline fishery in 2022

Fig.8 (5) SBT catch (in number) distributions by quarter of Taiwanese SBT longline
    fishery in 2023

Annex 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 2002. After trained, observers started being deployed on board and conducting the observation program of SBT in the following year.

To work in coordination with the FA, the Overseas Fisheries Development Council (OFDC) is responsible for implementing the program and recruiting scientific observers. The Program also invited researchers on fishery sciences and senior observers to form a special panel for designing the observer training program, items of observation, biological and by-catch information to be collected for scientific research and the format of data records.

The qualifications of recruitment for observer is senior high school graduation, with experience on-board preferred. They are also required the competence to live and work at sea. Candidate observers who have passed the oral examination will have to take a 4-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 and VMS system, identification of catch 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, and basically understanding of Conservation and Management Measures and Resolutions of the RFMOs. After 3-weeks training, 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 domestic fish market.

Recently, two batches of observer training are supported by this program annually. The main objective of training courses is inviting experts and scholars to provide follow-up lectures related the observer safety during maritime navigation, species

identification, and biological sampling. The Program also conducted observer experiences sharing events periodically. for improving the at-sea observation practice, sampling technique, and potential resolutions while observers having problems.

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 draw a lottery. Since 2008, upon completion of the observation missions, debriefers, served by senior observers, will examine observer's reports to enhance data accuracy.

The threat of Somalia piracy still exists in the tropical Indian Ocean. The same as recent years, most of our observers deployed on fishing vessels which operate in the southern Indian Ocean for the safety of observers, therefore, the observer coverage rate for SBT fishing vessels maintaining stability. In 2021, the deployment of observers was hindered by covid-19 pandemic, thus the observer dispatched on fishing vessels were decrease greatly. However, the observer coverage rate by vessels was still meet the requirements, only for efforts and catches were close approach to 10%.

There were 14 observers deployed on 14 of the 43 fishing vessels authorized to target SBT, and there were not deployed on fishing vessels authorized to bycatch SBT in 2022 with 2,897 days observed out of 3,405 fishing days. In 2023 calendar year, 15 observers were deployed on 15 of the 47 fishing vessels authorized to target SBT seasonally, and 1 were deployed on 1 of the 17 fishing vessels authorized to bycatch SBT. There were 3,310 fishing days with 2,670 days observed. In 2022, the coverage rate of observation was 25.55% by vessels, 17.69% by hooks and 12.00% by catch. The coverage rate was accounted for 25.00% by vessels in 2023, 20.18% by hooks, and 19.85% by catch. To conducting effectively monitoring, it is necessary for FA to considering the sustainable development observer program and budget to reduce the affluence of fishing vessels changing which may involve the coverage rates.

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 and length of all fishes during the observation time, and collection of otoliths, muscle tissues, stomach, and gonads of SBT, were carried out by observers on board. Table 2 shows the summary of biological samples collected by observers from 2022 and 2023. The length measurements of SBT in 2022 and 2023 were 4,649 and 5,427 respectively, and the number of otoliths of SBT collected were 38 and 2 in 2022 and 2023. The otoliths of the SBT collected by observers on board was reduced in 2023, as related samples were available from the SBT landed in domestic fishing ports. The length measurements by species were summarized in Table 3.

Tag Return Monitoring

The tags retrieved from SBT by Taiwanese fishing vessels are 781 in total among which 695 were released by the CCSBT and 86 tagged by CSIRO during 2002-2023. The details of tag recaptures for each year are shown in Table 4. The returned tags and the related information had been delivered to the CCSBT Secretariat.

Problems Experienced

Although the program was fully supported by boat owners and masters of SBT observed vessels, there are still some difficulties that could not be resolved technically. For example: Sometimes the biological sampling device is damaged, but the homeport is far from the fishing ground, it will take more than 1 month to transport the supplies and equipment needed for sampling from Taiwan to fishing ground, and sometimes the supplies could not reach to observers on board in time. Besides, the samples collected by observers may be lost when they are transferred by transshipping vessels. In addition, it is also difficult to arrange interviews with masters 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) 2022 (calendar year)

Area*	Month	Numbers of vessels observed	Numbers 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	27	33.30%	685258	3174088	21.60%	1213	8052	15.10%
	2	1	3	33.30%	13538	30385	44.60%	-	0	-
	3	2	5	40.00%	41394	143900	28.80%	11	64	17.20%
	4	1	12	8.30%	4080	71193	5.70%	3	83	3.60%
	5	7	22	31.80%	145390	836760	17.40%	114	1157	9.90%
	6	8	26	30.80%	166300	1066424	15.60%	365	3065	11.90%
	7	5	11	45.50%	184026	729076	25.20%	509	2863	17.80%
	8	4	6	66.70%	102754	242590	42.40%	170	692	24.60%
	9	1	1	100%	27776	53760	51.70%	41	128	32%
Area8	**Total**	14	37	37.80%	1173429	6176739	19%	1121	9192	12.20%
	3	7	24	29.20%	176009	1042300	16.90%	80	632	12.70%
	4	12	32	37.50%	400987	2514175	15.90%	309	3281	9.40%
	5	14	36	38.90%	442107	2051031	21.60%	479	4015	11.90%
	6	8	18	44.40%	133824	522188	25.60%	196	1180	16.60%
	7	1	3	33.30%	20502	47045	43.60%	57	84	67.90%
Area9	**Total**	2	11	18.20%	281168	2273055	12.40%	42	491	8.60%
	2	-	1	-	-	72540	-	-	0	-
	3	-	1	-	-	118800	-	-	0	-
	4	-	1	-	-	108000	-	-	0	-
	5	2	6	33.30%	33962	292150	11.60%	-	0	-
	6	2	6	33.30%	95873	507565	18.90%	17	207	8.20%
	7	2	8	25.00%	89802	494000	18.20%	-	16	-
	8	2	10	20.00%	61531	412400	14.90%	25	74	33.80%
	9	-	4	-	-	132000	-	-	44	-
	10	-	1	-	-	131100	-	-	150	-
	11	-	1	-	-	4500	-	-	0	-
Area14	**Total**	10	38	26.30%	946734	5823343	16.30%	2319	18382	12.60%
	2	-	1	-	-	9600	-	-	0	-
	5	4	10	40.00%	36540	150680	24.30%	21	24	87.50%
	6	7	30	23.30%	230337	1339948	17.20%	579	3806	15.20%
	7	8	33	24.20%	426806	2622085	16.30%	1389	10138	13.70%
	8	10	28	35.70%	194046	1197050	16.20%	330	4384	7.50%
	9	2	8	25.00%	59005	413580	14.30%	-	30	-
	10	-	4	-	-	90400	-	-	0	-
Grand Total		14	55	25.55%	3086589	17447225	17.69%	4695	36117	12.00%

* The areas which with observer deployed.

(b) 2023 (calendar year)

Area*	Month	Numbers of vessels observed	Numbers 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**	15	31	48.40%	802583	2792058	28.70%	1604	6387	25.10%
	2	1	3	33.30%	22694	108012	21.00%	-	0	-
	3	-	5	-	-	74750	-	-	23	-
	4	1	6	16.70%	1776	40330	4.40%	2	6	33.30%
	5	7	12	58.30%	33951	107868	31.50%	41	79	51.90%
	6	15	28	53.60%	374694	1394739	26.90%	611	2716	22.50%
	7	6	12	50.00%	227398	642939	35.40%	738	2542	29.00%
	8	4	7	57.10%	97483	331020	29.40%	199	902	22.10%
	9	2	2	100.00%	44587	92400	48.30%	13	119	10.90%
Area8	**Total**	15	36	41.70%	1496680	6977504	21.50%	2051	8632	23.80%
	3	8	25	32.00%	171551	1234430	13.90%	92	438	21.00%
	4	14	34	41.20%	497114	2476758	20.10%	350	2148	16.30%
	5	15	31	48.40%	662519	2790985	23.70%	1178	4939	23.90%
	6	6	19	31.60%	130577	399331	32.70%	304	901	33.70%
	8	1	1	100.00%	34919	76000	45.90%	127	206	61.70%
Area14	**Total**	12	47	25.50%	1057719	6870995	15.40%	1764	12283	14.40%
	2	1	2	50%	1764	39150	4.50%	-	0	-
	4	-	1	-	-	3553	-	-	0	-
	5	-	3	-	-	29300	-	-	2	-
	6	9	30	30.00%	180568	1161904	15.50%	105	870	12.10%
	7	11	42	26.20%	525581	3014658	17.40%	1150	5211	22.10%
	8	11	39	28.20%	349806	2210150	15.80%	509	6200	8.20%
	9	-	11	-	-	405480	-	-	0	-
	10	-	1	-	-	3500	-	-	0	-
	11	-	1	-	-	3300	-	-	0	-
Area15	**Total**	1	2	50.00%	6604	25320	26.10%	8	40	20%
	7	1	2	50.00%	6604	25320	26.10%	8	40	20%
Grand Total		16	64	25.00%	3363586	16665877	20.18%	5427	27342	19.85%

* The areas with observer deployed.

Table 2 Number of biological samples collected by observers in 2022 and 2023

Year		2022	2023
SBT catch data recorded		4695	5427
SBT length measured		4649	5427
Otolith	Southern bluefin tuna	38	2
	Oilfish	2	0
	Rudderfish	1	0
Gonad	Southern bluefin tuna	66	270
	Escolar	136	90
	Oilfish	55	22
	Rudderfish	9	4
Muscle	Sharks	1	0
	Oilfish	1	0
	Escolar	0	0
	Rudderfish	0	0
caudal peduncle	Escolar	129	0
	Oilfish	42	0
	Rudderfish	9	0
head	Escolar	128	90
	Southern bluefin tuna	22	1
	Oilfish	53	22
	Rudderfish	8	4

Table 3 Number of the length measurements per species by area and by month
(a) 2022

Area	Area 2								Area 8					Area 9				Area 14					
Month	2	3	4	5	6	7	8	9	3	4	5	6	7	5	6	7	8	3	5	6	7	8	9
Albacore	76	561	32	2743	1556	1555	698	147	5869	16493	13557	2741	398	12	35	95	74	78	1055	4933	4084	1729	86
Bigeye tuna	3	3	1	3	12	37	41	23	3	18	45	3	0	9	10	31	39	0	27	150	394	108	21
Black marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Pomfrets	0	0	0	2	37	53	26	2	1	25	50	18	16	0	1	0	2	0	0	5	18	5	0
Blue shark	20	34	0	6	26	29	89	22	98	181	152	19	2	8	10	21	23	3	5	23	58	57	35
Butterfly kingfish	0	0	0	11	48	41	3	0	6	44	65	79	36	0	0	0	0	0	0	1	0	0	0
Blue marlin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rudderfish	0	0	0	6	2	1	1	0	3	7	7	6	4	0	0	1	5	0	1	1	3	0	0
Common dolphinfish	10	32	0	0	0	8	24	0	4	2	38	2	0	1	0	0	0	0	3	13	7	14	0
Opah	1	2	11	142	332	976	175	31	190	631	759	184	9	4	2	4	2	6	23	123	300	107	6
Escolar	7	0	1	43	60	100	81	10	22	56	96	25	4	425	1667	1476	1364	0	48	258	660	384	2051
Striped marlin	1	1	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0
Ocean sunfish	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Oilfish	0	0	0	3	22	17	12	0	2	22	26	20	10	937	4549	6530	3587	0	3	37	19	186	1591
Slender sunfish	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Southern bluefin tuna	0	11	3	104	364	509	170	40	80	309	465	196	57	0	17	0	25	0	35	555	1379	330	0
Skipjack tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Shortfin mako	0	0	0	0	5	5	3	1	3	8	17	3	0	2	2	13	7	0	0	3	14	5	5
Shortbill spearfish	2	4	0	0	4	0	2	1	0	1	5	0	0	0	1	0	0	0	1	8	6	6	0
Swordfish	0	0	0	6	9	9	15	4	6	8	21	11	4	19	80	67	74	0	5	26	57	13	32
Wahoo	3	16	0	0	1	0	7	0	0	0	5	3	0	1	0	0	0	0	5	36	11	25	10
Yellowfin tuna	3	5	0	0	0	0	15	0	0	3	4	0	0	3	8	9	12	0	5	52	19	69	7

(b) 2023

Area	Area 2							Area 8					Area 14				Area 15
Month	2	4	5	6	7	8	9	3	4	5	6	7	2	6	7	8	7
Albacore	149	8	310	4553	2051	926	283	3048	9315	10857	1231	10	19	4894	8995	4569	597
Bigeye tuna	19	0	2	239	114	88	62	15	25	3	5	0	0	176	936	431	12
Black marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Pomfrets	0	0	0	22	24	33	5	0	10	120	24	9	0	6	24	7	0
Blue shark	12	0	7	41	39	42	79	26	117	142	21	26	0	17	74	87	11
Butterfly kingfish	0	0	11	37	28	0	0	21	144	247	24	39	0	2	0	0	0
Blue marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Rudderfish	0	0	0	6	0	0	0	1	12	16	0	0	0	8	18	5	0
Common dolphinfish	14	1	0	21	4	6	1	5	5	0	0	0	2	16	207	158	0
Opah	0	0	46	270	137	64	19	190	911	956	329	0	0	141	272	245	0
Escolar	3	0	12	274	110	90	12	24	82	144	31	0	0	136	491	361	0
Longfin mako	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Striped marlin	0	0	0	2	0	0	1	1	0	0	0	0	0	3	3	2	0
Ocean sunfish	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Oilfish	0	0	2	42	12	4	0	8	16	52	13	0	0	18	52	27	0
Other fish	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Southern bluefin tuna	0	2	41	611	738	199	13	92	350	1178	304	127	0	105	1150	509	8
Indo-Pacific sailfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
Skipjack tuna	8	0	0	0	0	0	0	0	0	0	0	0	1	3	13	3	0
Shortfin mako	0	0	2	17	16	4	1	5	16	26	9	0	0	7	15	17	0
Longbill spearfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Shortbill spearfish	8	0	0	21	4	1	0	1	1	1	1	0	1	1	11	2	0
Swordfish	0	0	0	32	7	3	0	1	10	29	4	0	0	21	74	48	0
Wahoo	12	0	0	84	7	9	2	0	1	1	0	0	1	61	72	22	0
Yellowfin tuna	6	0	0	114	19	17	15	6	5	0	0	0	0	166	265	82	7

Table 4 Number of SBT tag returned during 2002-2023

Year	Total		
		CCSBT	CSIRO
2002	18	2	16
2003	42	24	18
2004	133	112	21
2005	229	204	25
2006	259	253	6
2007	40	40	0
2008	5	5	0
2009	0	0	0
2010	27	27	0
2011	13	13	0
2012	5	5	0
2013	5	5	0
2014	1	1	0
2015	2	2	0
2016	0	0	0
2017	0	0	0
2018	0	0	0
2019	0	0	0
2020	0	0	0
2021	0	0	0
2022	0	0	0
2023	2	2	0
Grand Total	**781**	**695**	**86**