Review of Taiwanese SBT Fishery of 2001/2002

1. INTRODUCTION

SBT was mainly a by-catch of Taiwan tuna longline fishery in the past, and following the development of super-low temperature freezers, vessels equipped with such freezing facilities started to operate directed fishing seasonally on the species in recent years. Annual catches of SBT were smaller than 250 mt in early 1980s (Table 1), but, due to the increase of fleet size, development of deep longliners, and expansion of fishing ground, the catches of SBT were increased thereafter. From 1989 onwards, annual catch of SBT surpassed 1,000 mt, where drift net fishery accounted for about ¼ of the catches in 1989 and 1990. After then, the SBT catches fluctuated between 800 and 1,600 mt. The total annual catches in 2002 was preliminarily estimated to be 1,137 mt, a decrease of 443 mt from 2001 in compliance with the quota set at the level of 1,140 mt.

2. CATCH AND EFFORT

Three types of data were collected to compile the catch and effort data for SBT, namely: (1) logbooks, (2) weekly report and (3) commercial trading information such as statistical documents of TIS and certified weight reports of Shin Nippon Kentai Kaisha. SBT was included in logbooks since 1981, but little information on this species was reported. Weekly report on SBT catches in weight and fishing location was required for vessels that have caught SBT from 1996 onward. Statistical documents were issued for the export of SBT as from July 2000 following the implementation of TIS. These data have been crosschecked with each other to improve their accuracy.

The estimated annual catch of SBT by gears from 1971 to 2002 is shown in Table 1. Catch distribution of 1999-2002 is mapped in Figure 1. In view of the characteristics of Taiwan's SBT fishery as seasonal basis for some vessels, it is difficult to define the effort deployed for this fishery. The 2002 data is still preliminary and may subject to revision.

3. NOMINAL CPUE

The catch of SBT was relatively low in the total longline catch and there was no separate 'SBT' item on the logsheet collected before 1994. Information on SBT catch was scarce in the logbooks recovered. Weekly reports were therefore acted as the main source for catch and effort information since 1996. However, since the design of weekly report was to

monitor the SBT catch, rather than to replace the logbook, the effort information was incomplete in the report. Such situation has led to an over-estimation of CPUE. After crosschecked with other available information from fishing companies and from logbook later recovered, this problem has been resolved. Since 2002, an enhanced regulation has been implemented to avoid this occurrence.

As mentioned in the previous section, effort information is hard to be defined for Taiwanese SBT fisheries. For calculation of the CPUE, the entire trip information of vessels that have caught SBT during a year was compiled as the basic dataset. From the dataset, the nominal CPUE series was obtained as shown in Figure 2. The CPUE of 2002 was not calculated from the dataset, since logbook information from the period operating bycatch activities is incomplete and thus will overestimate the CPUE. Instead, it was roughly estimated from the number of vessel and general information on fishing days.

The CPUE trend in Figure 2 shows a two-stage level: the CPUE before 1989 is at a level with comparatively low value, and after 1989 is at another level with higher CPUE values except for 1991-92 when the logbook coverage is at its lowest (<10%).

4. SIZE COMPOSITION

Mean weight distribution of SBT from 1999 to 2002 was shown in Figure 3. In general, larger fish (greater than 40 kg) tends to distribute in waters closer to land mass, i.e., South Africa, Australia, and South America, with exceptions in the Pacific Ocean. Figure 4 shows the length frequency of SBT during 1999-2002. The size mainly ranged from 100-130 cm, except for year 2001 for which more small fish was noted.

5. FLEET SIZE AND DISTRIBUTION

According to the weekly reports and trading information, more than 100 vessels have caught SBT during 1998-2001. Due to the quota regulation, the number of vessel allowed and had caught SBT drastically reduced to around 60 in 2002. Their catches were mainly made in the waters of 20°S - 40°S in the Indian Ocean and seas adjacent to the Atlantic Ocean. There were two clear fishing grounds in general: one in the central Indian Ocean around 55°E-95°E, 30°S-40°S, and another off the southeast coast of Africa around 30°E-55°E, 35°S-45°S. Seasonally, the fish was caught in the southern and central Indian Ocean during June to September, and in the southern and western Indian Ocean extending to the eastern limit of the Atlantic Ocean during October to February of the following year.

Table 1. Annual SBT catches by Taiwanese deep-sea longline and drift net fisheries during 1971-2002. (Data of 2002 is preliminary.)

Unit: metric ton

Year	Deep Sea Longline	Drift Net	Sum
1971	100		100
1972	17		17
1973	12		12
1974	1		1
1975	9		9
1976	2		2
1977	1		1
1978	20		20
1979	53		53
1980	64		64
1981	92		92
1982	171	11	182
1983	149	12	161
1984	244	0	244
1985	174	67	241
1986	433	81	514
1987	623	87	710
1988	622	234	856
1989	1,076	319	1,395
1990	872	305	1,177
1991	1,353	107	1,460
1992	1,219	3	1,222
1993	958		958
1994	1,020		1,020
1995	1,431		1,431
1996	1,467		1,467
1997	872		872
1998	1,446		1,446
1999	1,513		1,513
2000	1,448		1,448
2001	1,580		1,580
2002*	1,137		1,137

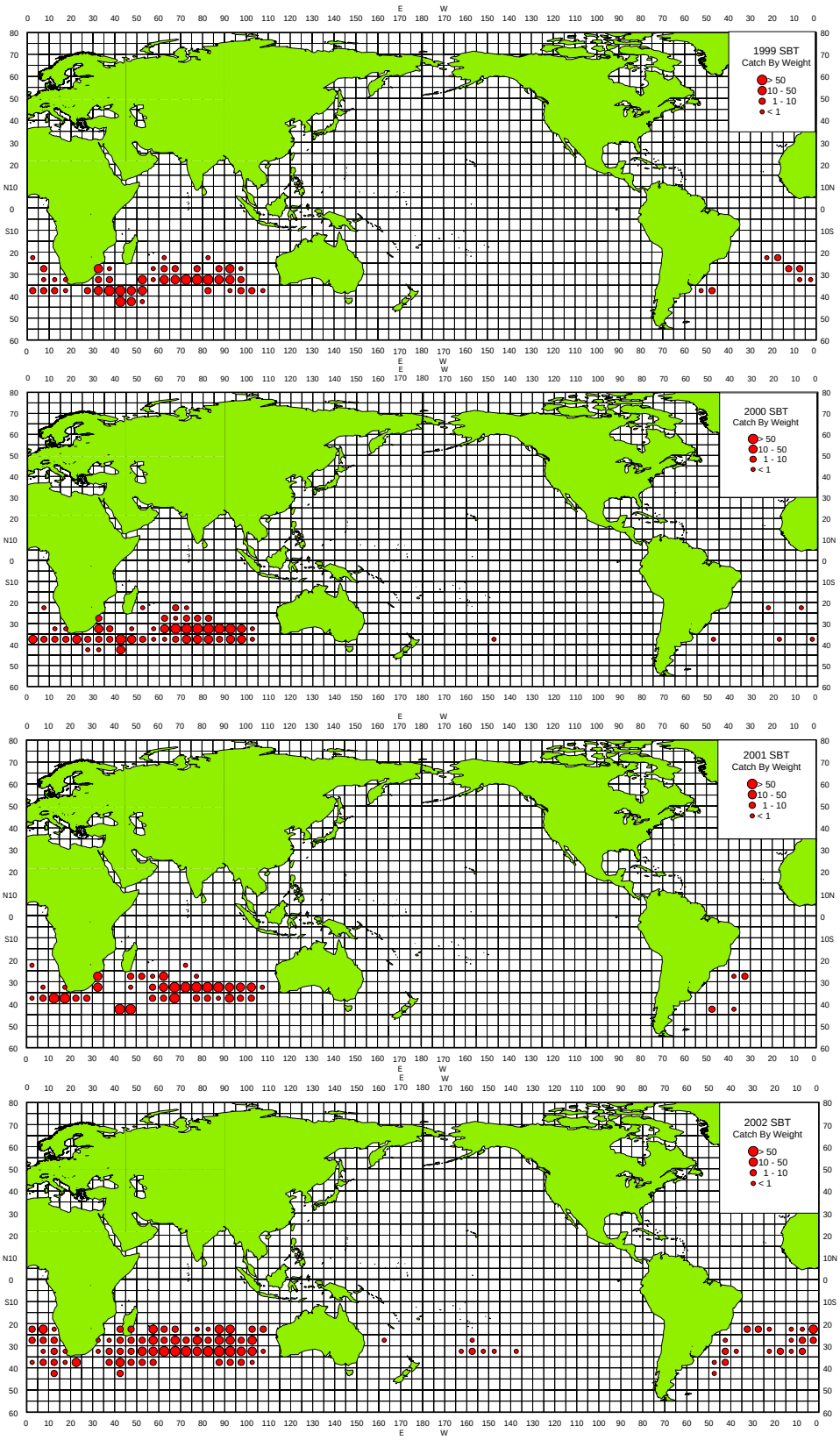

Figure 1. Catch distribution of SBT by Taiwan longline fishery from 1999 to 2002. Data of year 2002 is preliminary and may be subject to revision.

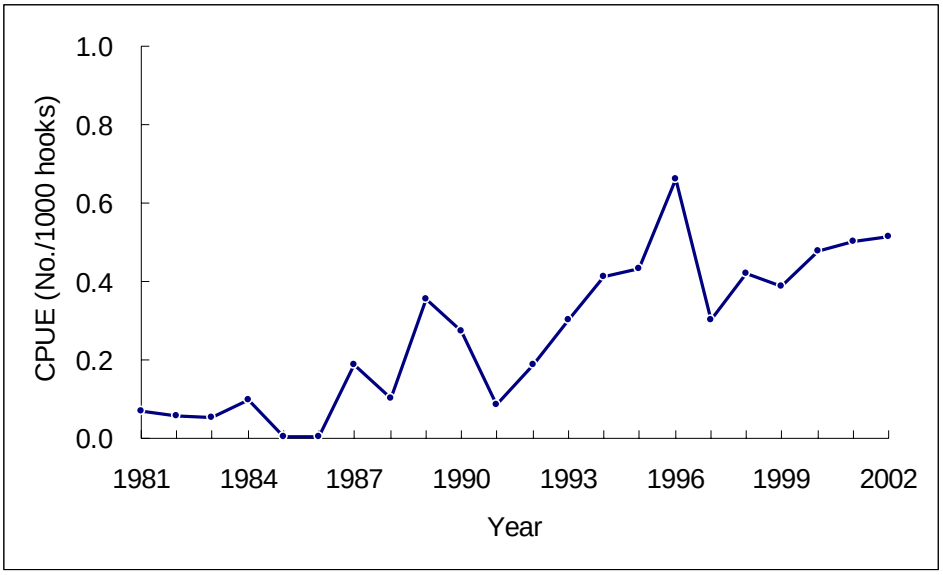

Figure 2. Nominal CPUE series of southern bluefin tuna during 1981-2002. Data of 2002 is preliminary. The entire trip data of the vessels having caught SBT in the year were compiled and used to obtain the series.

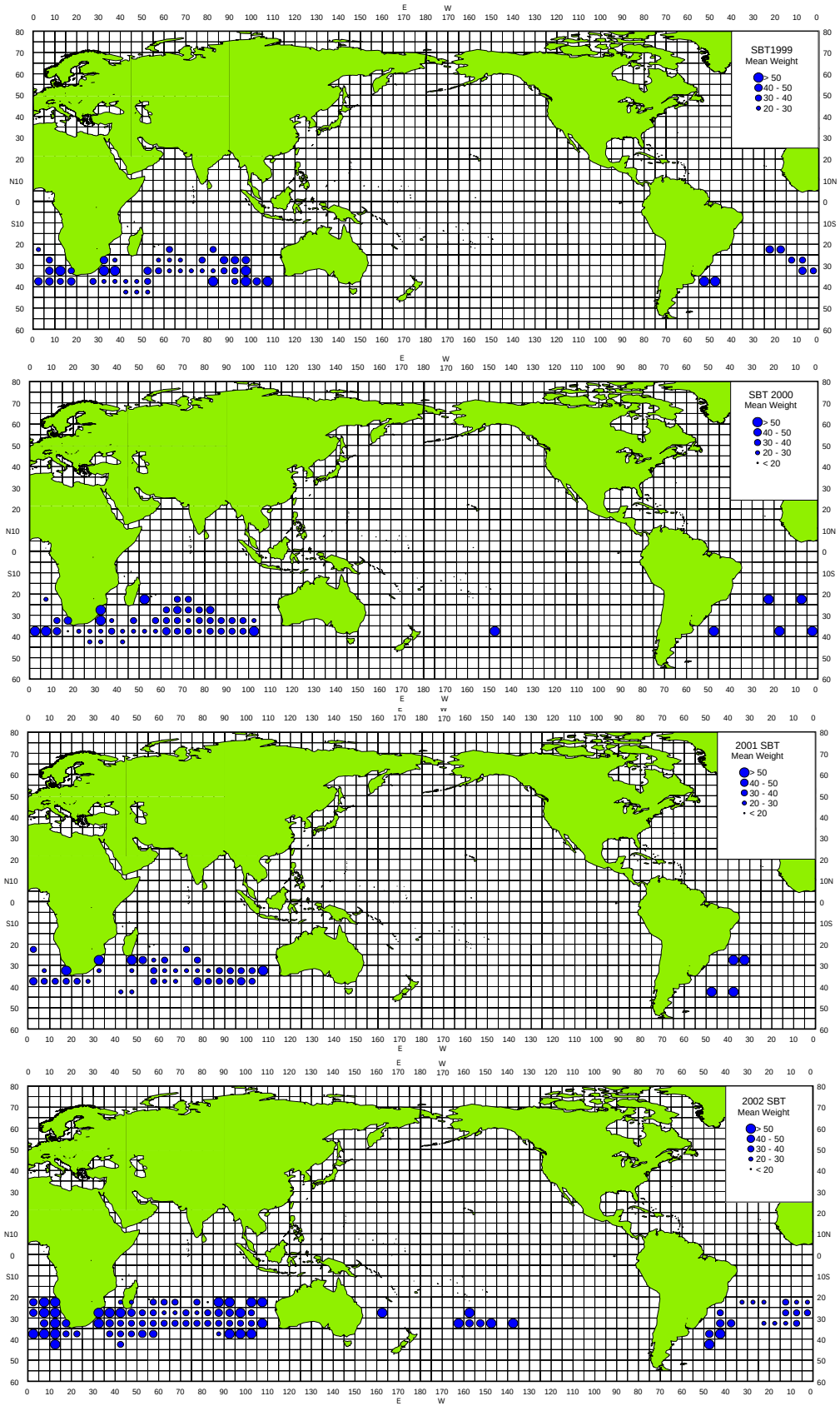

Figure 3. Mean weight distribution of SBT by Taiwan's longline fishery from 1999 to 2002. Data of 2002 is preliminary and may be subject to revision.

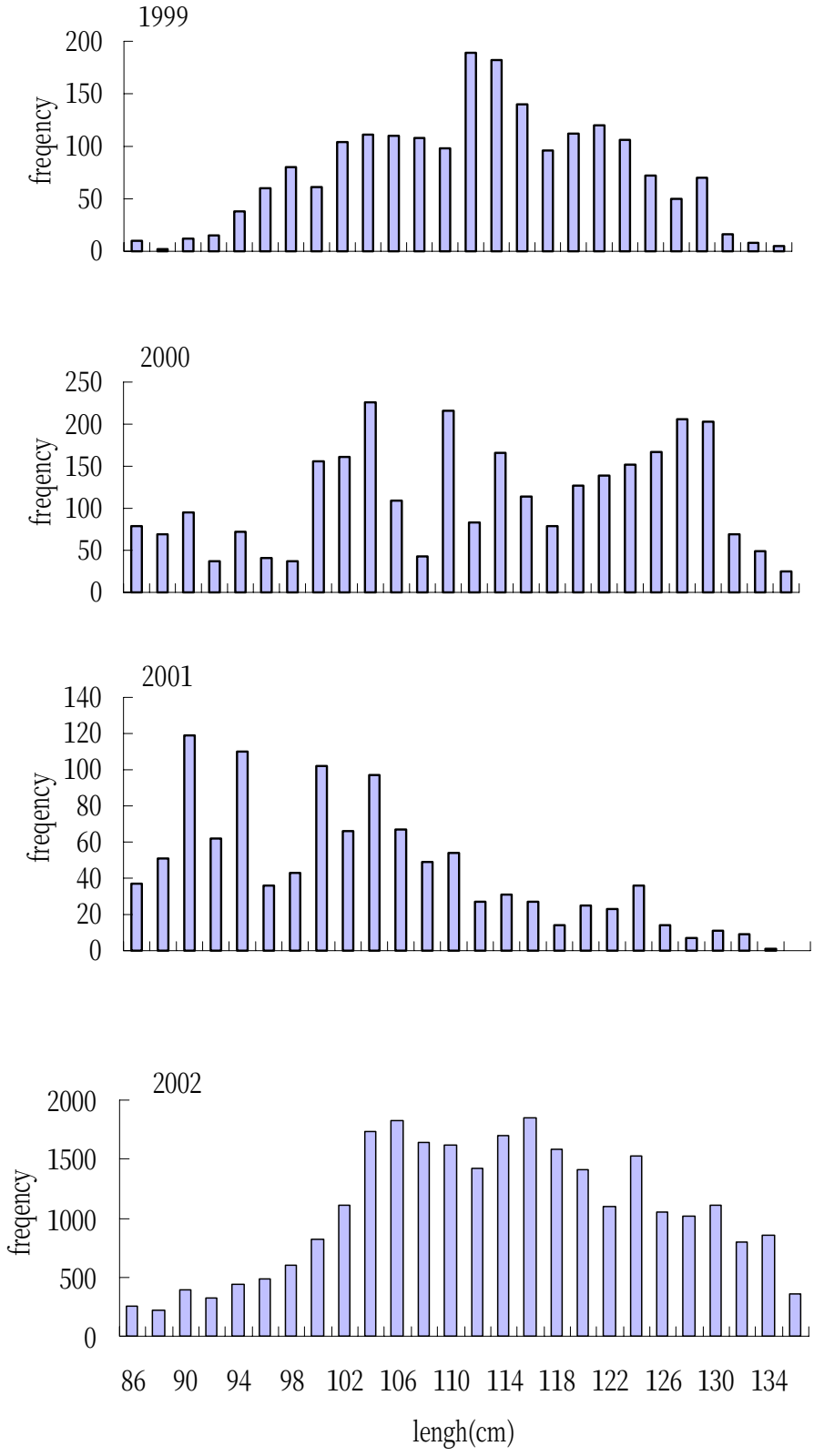

Figure 4. Length frequency of SBT by Taiwan's longline fishery from 1999 to 2002. Data of 2002 is preliminary.