Summary of available catch statistics of pelagic sharks caught by Japanese offshore and distant-water longliners[1]

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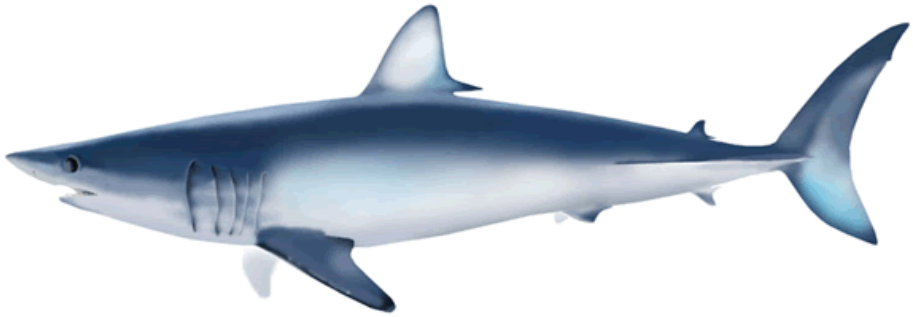

[1]Working document submitted to the ISC Shark Working Group Workshop, 19-21 July 2011, Keelung, Chinese Taipei. Document not to be cited without author's permission.

Introduction

This document summarize the currently exisiting catch data of pelagic sharks caught by Japanese offshore and distant-water longliners. In 1994, Fishary Agency of Japan introducted the new log-book system to the pelagic longline fisheries, and started to collect catch information of catches of blue, mako and salmon sharks. In 1998, oceanic whitetip shark and thresher sharks were addded. National Research Institute of Far Seas Fisheries (NRIFSF) is in a process to prepare these data for the use of their stock assessment. This study summarize the recent situation of the arrangements of these data.

Material & Method

New log book reporting system for Japanese longliners was commenced in 1994. In this new system, fisherman was mandated to report not only catch number but also total processed weight by species for each operation (Miyabe and Uozumi, 2001). Also, this new log book reporting system requires Japanese longliners to report their catch of three major sharks species, blue shark, mako sharks and salmon shark. Recently, the catch information of these three sharks were compiled in the same manner as tunas and billfishes by NRIFSF. In this study, these data were summarized. During the process of data compilation, the reported processed weight smaller than 3 kg per one fish was considered the weight of “fins” and it was extrapolated by the average weight of the fishes caught by same/adjucent stratum (roughly defined by year, quater and 10 degrees latitude x 20 degrees longitude block).

In 1998, oceanic whitetip shark and thresher sharks were addded to this reporting system, but the data of these two sharks have not been compiled yet. Especially the reported processed weights have not been converted to the whole weight, and there are some lucks of reports for the processed weight. These data also summarized in this document.

Result & Discussion

Table 1 and Fig. 1 show the annual trend of estimated total catch weight of blue shark, mako sharks and salomon shark caught by Japanese offshore and distant-water longliners in the north Pacific for 1994 – 2009. Catch of mako sharks is dominated by that of shortfin mako, but few catches of longfin mako supposed to be mixed in. In the north Pacific, majority of catches of these three sharks would be obtained by offshore surface longliners targeting swordfish and blue shark.

Total catch of shortfin mako sharks shows quite stable trend in the period analyzed, while that of blue shark shows steady declining trend since the early 2000s. Catch of blue shark in the most recent years (2008 and 2009) is half of those in 2000 and 2001. This catch decrease, however, would partially be due to the decrease of the number of offshore surface longliners, it would also suggest the decline of biomass. The assessment of blue shark stock would be better to conduct earlier as possible. The trends of average weight of blue shark by four reagion (east/west of dateline and north/south of 20N) are also declining steadily.

Catch of salmon shark shows sudden increase in 2004, and the level of catch in the period of 2004 – 2009 is more than double or triple of that in the period of 1994 – 2003. The reason of this sudden jump of the catch is not clear yet, but some information by skippers of Japanese offshore surface longliners suggested that the some shift of their fishing ground occered in around 2004, many surface longliners started to operate slitly northern and colder area than before to catch more blue sharks. This would be, however, the one of the reason of the sudden increase of the catch of salmon shark, the exact reason should be clarified before the detailed analysis of CPUE.

The summaries of log-books of oceanic whitetip shark and thresher sharks, caught by Japanese offshore and distant-water longliners in the north Pacific, are shown in Tables 2 and 3 respectively. Coverage of the weight data stayed at level lower than 50% in the period before 2006 for whitetip shark. It stated increase since then and reached nearly full coverage in the most recent year. For the thresher sharks, coverage of weight data stayed in the level between 40 – 70 % in the period before 2007 and increased to 96% in 2009. If one compare the coverage of weight data and sum of reported processed weight, the catch of oceanic whitetip sharks by Japanese offshore and distant-water longliers in the period between 1994 and 2009 is supposed to be in the level of some several tens tons, and the catch of thresher sharks is in the level of some several hundreds tons. There are no apparent affected trends seemed in the annual average weight of both two sharks (Fig. 3), and they show relatively stable trends.

In this document, quick summarize of the available log-book information of major sharks species caught by Japanese offshore and distant-water longliners in the north Pacific are made. It seems that the quantity and quality of log-book data of blue and mako sharks seems to be enought for conducting some stock analysis. For these two sharks, some good coverage of size data are also available. As for the oceanic whitetip shark and thresher sharks, further effort should be done to compile log-book data. Japanese logbook reporting system also holds the information of “other sharks”, and this information may be used to imporve the log-book information of oceanic whitetip and thresher sharks.

Refferences

Miyabe and Uozumi 2001; Proposed improvement in estimating swordfish catch in weight caught by the Japanese longline fishery. Col. Vo. Sci. Pap. ICCAT, 52: 1279-1282.

Table 1. Estimated total catch of three major sharks caught by Japanese offshore and distant-water longliners in the north Pacific.

Year	Blue Shark	Salmon Shark	Shortfin Mako Shark
1994	12305	301	563
1995	11201	427	770
1996	12730	347	571
1997	15830	253	574
1998	14231	228	586
1999	15751	192	709
2000	16041	119	618
2001	16386	199	532
2002	15500	128	480
2003	15456	113	495
2004	13136	556	436
2005	12624	448	527
2006	11093	617	671
2007	8994	460	668
2008	7252	649	515
2009	7943	301	501

Table 2. Summary of log-books of oceanic whitetip shark caught by Japanese offshore and distant-water longliners in the north Pacific.

	Catch number	Catch number with weight data	Coverage of weight data (%)	Sum of reported processed weight (kg)
1997	0	0	–	0
1998	247	247	100%	5,535
1999	2268	1336	59%	28,416
2000	2016	829	41%	14,291
2001	1516	668	44%	11,944
2002	940	335	36%	7,066
2003	1119	147	13%	3,051
2004	922	340	37%	6,388
2005	382	112	29%	1,858
2006	1093	734	67%	10,928
2007	560	460	82%	9,434
2008	1107	1070	97%	16,688
2009	864	858	99%	12,832

Table 3. Summary of log-books of thresher sharks caught by Japanese offshore and distant-water longliners in the north Pacific.

	Catch number	Catch number with weight data	Coverage of weight data (%)	Sum of reported processed weight (kg)
1997	64	63	98%	5,407
1998	303	303	100%	17,591
1999	3876	2678	69%	118,273
2000	6343	4676	74%	175,019
2001	5757	3620	63%	146,397
2002	5351	3604	67%	121,936
2003	5579	2023	36%	80,563
2004	5494	2716	49%	82,100
2005	3887	1822	47%	56,275
2006	4578	2584	56%	81,401
2007	3461	2439	70%	98,016
2008	5573	4537	81%	154,753
2009	1884	1817	96%	69,733

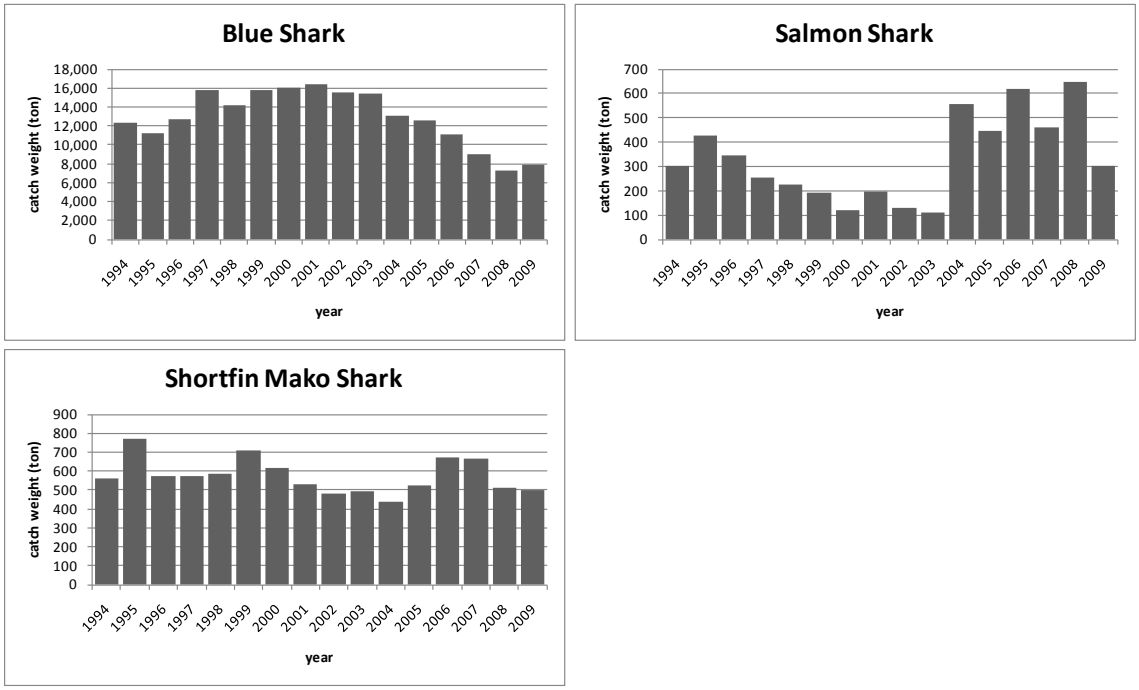

Fig. 1. Estimated annual catch weight of blue, shortfin mako, and salmon sharks caught by Japanese offshore and distant-water longliners in the north Pacific in the period between 1994 and 2009.

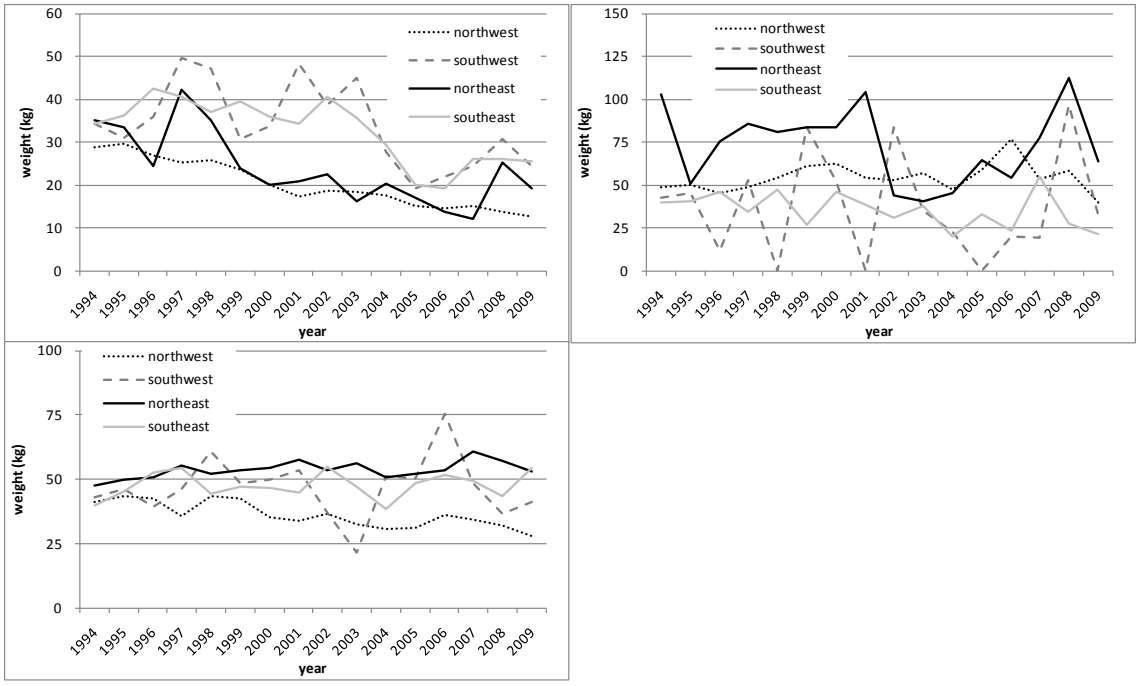

Fig. 2. Calculated average weight of three major shark species by four region (east/west of dateline and north/south of 20N) in the north Pacific caught by Japanese offshore and distant-water longliners.

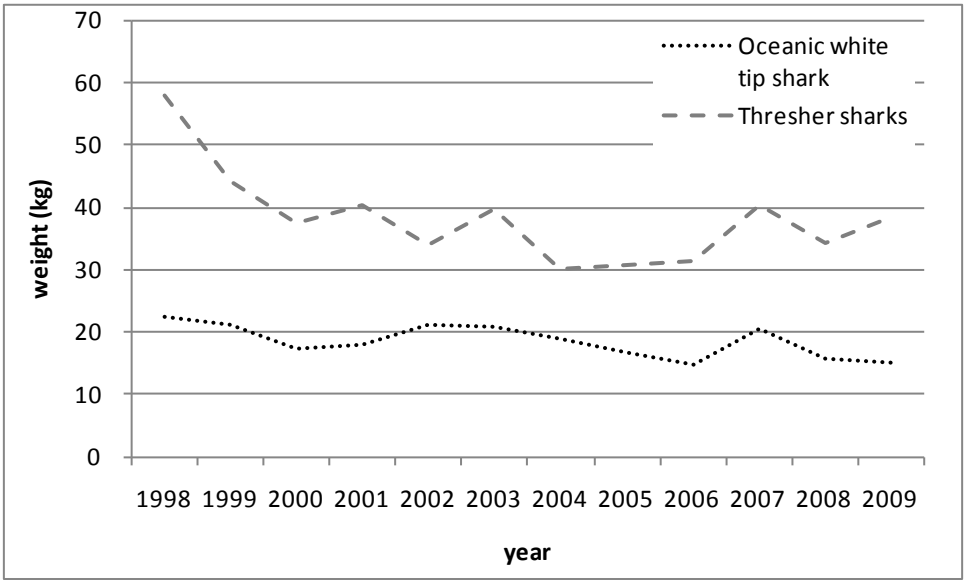

Fig. 3. Calculated average processed weight (kg) of oceanic whitetip shark and thresher sharks in the north Pacific caught by Japanese offshore and distant-water longliners.