



Japanese catch updates for Pacific bluefin tuna

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Summary

Japanese catches of Pacific bluefin tuna (PBF) were updated up to 2009 and including in this paper. New two kinds of data sources have been incorporated in the present catch update. One is monthly catch data by landing ports, derived from the Survey on Catch of Bluefin Tuna in Japan's Coastal Areas implemented by Japan Fishery Agency, Ministry of Agriculture, Forestry and Fisheries, the government of Japan. Those data were used for PBF catch estimation of the troll fishery. Another new source is data based on sales slips of PBF catch by the small pelagic fish purse seine fishery in markets in Kyusyu region. Total annual catch of PBF decreased from 17,137 mt in 2008 to 13,322 mt in 2009 with declines in the catches in all the fisheries. The tuna purse seine recorded, in 2009, the second lowest catch since 2000.

1. Introduction

Catches in metric tons (mt) by Japanese fisheries for Pacific bluefin tuna (PBF) were updated up to and including 2008 in the ISC meeting held in July 2009 (Oshima and Takeuchi 2009). This paper provides the further update including modification for recent years and including preliminary data for 2009.

2. Database

Conventional data sources used for updating catch are as follows;

1. The Annual Report of Catch Statistics on Fishery and Aquaculture published by the Statistics Department, Ministry of Agriculture, Forestry and Fisheries, the government of Japan (SD report, previously referred to as "SID report"). The latest SD report available is for 2008. In the latest SD report, all PBF were categorized into "Bluefin tuna" regardless of fish size, whereas small PBF had been sorted into "Other tunas" in the SD report published before 2007.
2. Catch data obtained from collection of auction records at the unloading sites. This type of data collection has been carried out as a part of the Research Project on Japanese bluefin tuna (RJB), which started in 1994.
3. Summary report on number of boxes by weight classes of PBF catch unloaded at

ports in Kyusyu region by the small pelagic fish purse seine fishery.

4. Raised logbook data from the distant water and offshore longline fisheries, which are available since 1971 and include catch in weight (kg) aggregated by year, by month, by 5°x5° grid in latitude and longitude, by fishery category (distant water or offshore longline) and by tonnage classes of vessels.

New two types of data sources, which were added to the present catch update work, are as follows;

5. Monthly catch data by landing ports, derived from the Survey on Catch of Bluefin Tuna in Japan's Coastal Areas implemented by Japan Fishery Agency, Ministry of Agriculture, Forestry and Fisheries, the government of Japan, called as "the survey by Japan Fishery Agency" in this paper and used for PBF catch estimation of the troll fishery.
6. Data source based on sales slips of PBF catch by the small pelagic fish purse seine fishery in markets in Kyusyu region.

The SD report contains two difficulties, i.e. 1) two-years delay in its publication and 2) degradation of its survey in recent years. Hence, the survey by Fishery Agency was initiated in April 2008 in order to address these problems, being based on the collections of the auction records of PBF at all the unloading sites as well as RJB, where the collection of the auction records of tunas at only the major unloading ports. The survey by Japan Fishery Agency provides information on the monthly catch and effort (e.g. number of vessels unloading) by port or market.

The summary report was previously used for catch estimation of the small purse seine fishery in Kyusyu region. The landings are reported aggregating for each ten boxes. In this paper, the catch of this fishery in 2009 was calculated based on the sales slips which recorded exact number of boxes sold.

3. Catch updates

3.1. List of catch update

In this paper, the catch data of PBF were updated for the following Japanese fisheries:

- 1) Tuna and small purse seine in 2009
- 2) Distant water and offshore longline in 2007 and 2008
- 3) Coastal longline in 2007 through 2009
- 4) Troll in 2008 and 2009
- 5) Pole-and-line in 2009
- 6) Set net in 2008 and 2009

7) Other fisheries in 2008 and 2009.

Other fisheries include drift net, handline, trawl, others (other longline) and unclassified fisheries. Historical catch by fishery from 1952 to 2009 is listed in **Tables 1 and 2**. Because, the new data sources were incorporated, brief descriptions of catch updates for the purse seiners and troll fisheries and future perspective on catch data updates are described in the following subsections.

3.2. Tuna and small purse seine fisheries

Annual catch of the Tuna purse seine was estimated with the RJB data. The data source based on the sales slips as described earlier was applied for the calculation of annual catch of the small pelagic fish purse seine. The the sales slips are available only for 2009 at present.

3.3 Troll fishery

Annual catches of the troll fishery in recent year were estimated by raising the catch from the RJB data with ratio of that to the catch based on the SD report. As described above, the monthly PBF catch data derived from the survey by Japan Fishery Agency is available since April 2008. In this paper, the annual catches of this fishery in 2008 and 2009 estimated with both of the RJB data and the catch data from the survey by Fishery Agency.

The catch of the troll fishery did not always include the catch for farming. Such quantity was estimated to be approximately 100 mt or less and could not be covered completely so far.

3.4. Future perspectives on catch updates

In future, the sales slips will be applied for estimation of the catches by the small purse seine unloading in Kyusyu region.

The survey by Japan Fishery Agency has a potential to cover overall PBF catch by all coastal fisheries. Procedures of the survey have been still developing since its initiation in April 2008. In future, the catch data derived from the survey may be utilized for estimation of catch of not only the troll fishery but also other coastal fisheries such as the longline, set net, pole-and-line and hand line fisheries, but only after the close examination of quality and quantity of the catch data obtained through this survey.

4. Catch trends in 2009

Total annual catch of PBF declined from 17,137 mt in 2008 to 13,322 mt in 2009. Such declines are seen in all the fisheries (**Fig. 1**). The troll fishery recoded the third smallest catch in 2009 over the recent decade. The annual catch of the tuna purse seine in 2009 was 2,071 mt, the second lowest since 2000. The annual catch of the small purse seine decreased from 6,299 mt in 2008, the fifth largest in the past 22 years, to 5,353 mt in 2009, although the catch in 2009 was larger than the mean catch of 5,101 mt in the recent decade.

5. References

Oshima, K., Takeuchi, Y. 2009. Japanese catch updates for Pacific bluefin tuna. ISC/09/PBF-1/03. p. 13.

Table 1 Catch table on Japanese Pacific bluefin tuna catch by fishery.

Year	Purse seine		Dist. & Off. longline*		Coastal longline***	Troll†	Pole and line	Set net	Others††	Total
	Tuna PS	Small PS	NP**	SP**						
1952	7,680		2,694	9		667	2,198	2,145	1,700	17,094
1953	5,570		3,040	8		1,472	3,052	2,335	160	15,636
1954	5,366		3,088	28		1,656	3,044	5,579	266	19,027
1955	14,016		2,951	17		1,507	2,841	3,256	1,151	25,739
1956	20,979		2,672	238		1,763	4,060	4,170	385	34,268
1957	18,147		1,685	48		2,392	1,795	2,822	414	27,302
1958	8,586		818	25		1,497	2,337	1,187	215	14,666
1959	9,996		3,136	565		736	586	1,575	167	16,760
1960	10,541		5,910	193		1,885	600	2,032	369	21,531
1961	9,124		6,364	427		3,193	662	2,710	599	23,078
1962	10,657		5,769	413		1,683	747	2,545	293	22,107
1963	9,786		6,077	449		2,542	1,256	2,797	294	23,201
1964	8,973		3,140	114		2,784	1,037	1,475	1,884	19,406
1965	11,496		2,569	194		1,963	831	2,121	1,106	20,280
1966	10,082		1,370	174		1,614	613	1,261	129	15,243
1967	6,462		878	44		3,273	1,210	2,603	302	14,772
1968	9,268		500	7		1,568	983	3,058	217	15,601
1969	3,236		313	20	565	2,219	721	2,187	195	9,456
1970	2,907		181	11	426	1,198	723	1,779	224	7,448
1971	3,721		280	51	417	1,492	938	1,555	317	8,772
1972	4,212		107	27	405	842	944	1,107	197	7,840
1973	2,266		110	63	728	2,108	526	2,351	636	8,788
1974	4,106		108	43	1,069	1,656	1,192	6,019	754	14,948
1975	4,491		215	41	846	1,031	1,401	2,433	808	11,266
1976	2,148		87	83	233	830	1,082	2,996	1,237	8,697
1977	5,110		155	23	183	2,166	2,256	2,257	1,052	13,202
1978	10,427		444	7	204	4,517	1,154	2,546	2,276	21,577
1979	13,881		220	35	509	2,655	1,250	4,558	2,429	25,537
1980	11,327		140	40	671	1,531	1,392	2,521	1,953	19,574
1981	25,422		313	29	277	1,777	754	2,129	2,653	33,353
1982	19,234		206	20	512	864	1,777	1,667	1,709	25,988
1983	14,774		87	8	130	2,028	356	972	1,117	19,471
1984	4,433		57	22	85	1,874	587	2,234	868	10,161
1985	4,154		38	9	67	1,850	1,817	2,562	1,175	11,673
1986	7,412		30	14	72	1,467	1,086	2,914	719	13,714
1987	8,653		30	33	181	880	1,565	2,198	445	13,985
1988	3,583	22	51	30	106	1,124	907	843	498	7,163
1989	6,077	113	37	32	172	903	754	748	283	9,118
1990	2,834	155	42	27	267	1,250	536	716	455	6,282
1991	4,336	5,472	48	20	170	2,069	286	1,485	650	14,536
1992	4,255	2,907	85	16	428	915	166	1,208	1,081	11,063
1993	5,156	1,444	145	10	667	546	129	848	365	9,310
1994	7,345	786	238	20	968	4,111	162	1,158	398	15,186
1995	5,334	13,575	107	10	571	4,778	270	1,859	586	27,090
1996	5,540	2,104	123	9	778	3,640	94	1,149	570	14,008
1997	6,137	7,015	142	12	1,158	2,740	34	803	811	18,852
1998	2,715	2,676	169	10	1,086	2,865	85	874	700	11,179
1999	11,619	4,554	127	17	1,030	3,387	35	1,097	709	22,574
2000	8,193	8,293	121	7	832	5,121	102	1,125	689	24,482
2001	3,139	4,481	63	6	728	3,329	180	1,366	782	14,074
2002	4,171	5,102	47	5	794	2,427	99	1,100	631	14,377
2003	1,033	5,399	85	12	1,152	1,839	44	839	446	10,849
2004	4,844	2,577	231	9	1,616	2,182	132	896	514	13,000
2005	4,061	7,390	107	14	1,818	3,406	549	2,182	548	20,074
2006	3,962	3,272	63	11	1,058	1,544	108	1,421	777	12,216
2007	3,058	2,841	84	8	2,225	2,385	236	1,503	1,209	13,549
2008	2,954	6,299	19	8	1,476	2,767	64	2,358	1,192	17,137
2009	2,071	5,353	_†††	_†††	1,052†††	1,897	50	1,985‡	913	13,322

Table 1 *cont.*

*Catches of the distant-water and offshore longline are yielded by vessels larger than 20 GRT.

**NP and SP indicate North Pacific and South Pacific, respectively.

***Catches of the coastal longline yielded by vessels smaller than 20 GRT.

†The troll catch for farming, estimated as approximately 100 mt since 2000, is not cover completely.

††Others fisheries include drift net, handline, trawl, other longline and unclassified fisheries.

†††Catch of the coastal longline in 2009 is provisional value, including catch of the distant water and offshore longline.

‡Catch of the setnet in 2009 is preliminary.

Table 2 Catch table of Japanese bluefin tuna of breakdown of other fishery listed in Table 1.

Year	Drift net	Hand line	Trawl	Others		Total
				Others	Unclassified	
1952	242	137	0	34	1,286	1,700
1953	6	50	8	74	23	160
1954	48	188	0	31		266
1955	15	0	0	101	1,036	1,151
1956	24	84	1	107	169	385
1957	14	161	0	33	206	414
1958	7	148	0	35	25	215
1959	1	102		51	13	167
1960	67	218	0	84		369
1961	19	511	0	69		599
1962	6	235		53		293
1963	18	204	7	65		294
1964	9	265	0	101	1,510	1,884
1965	52	182	0	131	742	1,106
1966	42	63		18	6	129
1967	39	128	0	130	4	302
1968	6	204		2	5	217
1969	32	158		3	2	195
1970	62	159	0	2		224
1971	35	209		3	70	317
1972	39	120	0	3	34	197
1973	309	265	1	19	41	636
1974	335	339	0	29	51	754
1975	676	131		1		808
1976	1,085	146	0	6		1,237
1977	884	163		5		1,052
1978	2,030	206		40		2,276
1979	1,541	494		394		2,429
1980	1,479	164	0	310		1,953
1981	2,130	251		272		2,653
1982	1,577	124		9		1,709
1983	807	257		53		1,117
1984	532	319		18		868
1985	728	415		32		1,175
1986	316	393		9		719
1987	258	187		0		445
1988	371	127		0		498
1989	173	109	0	1		283
1990	256	197		1		455
1991	236	410		5		650
1992	888	192	0	1		1,081
1993	159	204		2		365
1994	126	266	0	5		398
1995	110	459	0	17		586
1996	67	496	0	7		570
1997	109	697	0	5		811
1998	91	606	0	3		700
1999	59	472	0	9	168	709
2000	51	615	0	23	0	689
2001	100	659	0	24	0	782
2002	212	397	0	13	10	631
2003	43	375		28		446
2004	93	419		2		514
2005	135	413		0		548
2006	313	329	2		133	777
2007	144	1,004	0	8	52	1,209
2008	276	786	0	10	120	1,192
2009	103	670	1	7	132	913

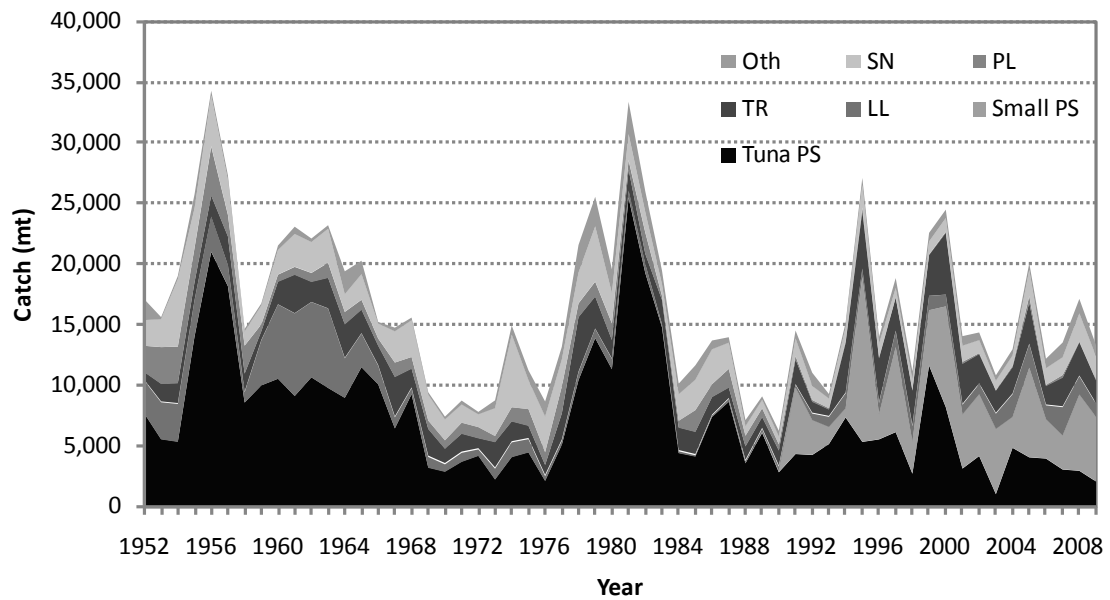


Fig. 1 Yearly changes in catch by fishery during years of 1952 – 2009. Tuna PS, tuna purse seine; Small PS, small purse seine; LL, longline; TR, troll; PL, pole-and-line; SN, set net; Oth, other fisheries.