



## **Japanese Pacific bluefin tuna catch updates**

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### Summary

Japanese catches of Pacific bluefin tuna (PBF) were updated up to 2010 and presented in this paper. Total annual catch of PBF increased from 8,561 mt in 2010 to 13,342 mt in 2011 with increase in the catches of tuna purse seine, small pelagic fish purse seine, troll and set net fisheries. Decline observed in the annual nominal catch of the coastal longline fisheries might reflect lower abundance of spawning stock. On the other hand, increase in the catch of the small pelagic fish purse seine fishery might indicate high recruitment abundance of 2010 year class.

### 1. Introduction

This paper provides with the further update including modification for recent years and including preliminary data for 2011. In this paper, the year in this document refers to calendar year.

### 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 2010. 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. 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 "JFA data" and used for PBF catch estimation of troll and set net fisheries.
4. Logbook data from tuna and small pelagic purse seine fisheries submitted from fishing vessels larger than 40 GRT.
5. Logbook data from the distant water and offshore longline fisheries, which are raised to the entire fleet by coverage rate, 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.

### 3. Catch updates

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

- 1) Tuna and small purse seine in 2011
- 2) Distant water and offshore longline in 2010
- 3) Coastal longline in 2010 and 2011
- 4) Troll in 2011
- 5) Pole-and-line in 2011
- 6) Set net in 2010 and 2011
- 7) Other fisheries in 2011.

Other fisheries given above include drift net, handline, trawl, others (other longline) and unclassified fisheries. Historical catches by fishery from 1952 to 2011 are listed in **Tables 1 and 2**.

### 3. Topics in 2011

#### 3.1. Approaches for management of PBF

Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries, the Government of Japan has commenced measures to strengthen the management of PBF stock since April 1<sup>st</sup> 2011. These measures are for purse seine and coastal fisheries.

Managements for purse seine fisheries targeting PBF operated by fishing vessels of 40 GRT or more are currently were set as follows:

- ✓ Voluntarily restricting annual catch at less than 4,500 metric ton for the small pelagic fish purse seine fishery catching juvenile PBF less than 30kg in body weight which operates in East China Sea and Sea of Japan,
- ✓ Voluntarily restricting annual catch at less than 2,000 metric ton for the tuna purse seine fishery catching matured PBF of 30 kg or more in body weight which operates in Sea of Japan during the period between July and August when spawning occurs in this water area.
- ✓ Voluntarily restricting annual catch at less than 500 metric ton of juvenile PBF less than 30 kg in body weight for the tuna purse seine fishery operated in water areas off Pacific coast of Japan.

The first and third measures were introduced in response to the Conservation and Management Measure (CMM) for Pacific bluefin tuna adopted in the plenary meeting of Western and Central Pacific Fisheries Commission (WCPFC) held in December 2010. On the other hand, the second measure was carried out as an additional management measure.

The coastal fishery for PBF that mainly consisted of small-scale troll fishery is

open-accessible fishery. With a view to introduce a limit on number of fishing boats engaged in the coastal fisheries in future, the Fishery Agency has started a registration system for the fishing vessels harvesting PBF with powered fishing boats less than 10 GRT and operating in Sea of Japan and the water on the western side of Kyusyu since April 1<sup>st</sup> in 2011. The registered vessels are required to report at fishing port where they have unloaded PBF catch, fishing gear, area of operations and catch amount of PBF on a month-by-month basis. Thus registration system with the mandatory reporting will be due in 2012 in the waters on the Pacific side of Japan is due to be applied in 2012.

### **3.2. Great East Japan earthquake**

Great East Japan Earthquake occurred on March 11 2011. Almost all of fishing vessels, landing ports and set nets on the coast of Sanriku in the Tohoku region were affected by tsunami disaster generated by this earthquake.

### **4. Catch trends in 2011**

Total annual catch in 2011 was 8,561 mt, the minimum in recent ten years. The total annual catch in 2011, however, increased to 13,338 mt by 4,766 mt. In 2011, decreases of annual catch were seen in the coastal longline, pole-and-line and others fisheries. The annual catch for the coastal longline fishery, main fishery for adult PBF, continued to decrease from 2007 and the catch in 2011, although it was provisional, was approximately half of that in 2008. This fact might reflect reduced abundance of the spawning stock. On the other hand, the catches by the tuna purse seine, small pelagic fish purse seine, troll and set net fisheries had increased in 2011. The increases of catch of the tuna purse seine and small pelagic fish purse seine fisheries, which were 1,072 mt and 3,518 mt, respectively, contributed to the increase of total annual catch. The annual catch in 2011 of the small pelagic fish purse seine fishery that targets age-1 PBF was the fourth highest since 2000. As described in Oshima and Takeuchi (2011), this relatively high catch could be the reflection of higher abundance of recruitment in 2010.

### **5. References**

Oshima, K. and Takeuchi, Y. 2012. Strength of 2010 year class observed in catch information. ISC/12-2/PBFWG/01.

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	North Pacific	South Pacific						
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	3,922	4,981	47	5	794	2,427	99	1,100	631	14,007
2003	956	4,812	85	12	1,152	1,839	44	839	446	10,186
2004	4,934	3,323	231	9	1,616	2,182	132	896	514	13,836
2005	4,034	8,783	107	14	1,818	3,406	549	2,182	548	21,441
2006	3,644	5,236	63	11	1,058	1,544	108	1,421	777	13,862
2007	2,965	3,875	83	8	2,004	2,385	236	1,503	1,209	14,268
2008	3,029	7,192	19	8	1,476	2,074	64	2,358	1,192	17,412
2009	2,127	5,950	8	7	1,304	1,875	50	2,236	913	14,470
2010	1,122	2,620	4	6	904	1,301	83	1,603	918	8,561
2011	2,194	6,137	-	-	727 <sup>††</sup>	1,688	63	1,957	572	13,338

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

\*\*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 2011 is provisional value, including catch of the distant water and offshore longline.

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
2010	140	589	0	103	85	918
2011	41	362	0	120	48	572