ANNEX 10

REPORT OF THE BLUEFIN TUNA WORKING GROUP WORKSHOP

International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean

(July 19-21, 2007, Busan, Korea)
Revised October, 2007

1.0 OPENING, ADOPTION OF AGENDA AND MEETING ARRANGEMENTS

The ISC Pacific Bluefin Tuna Working Group (PBFWG) Workshop was held in Busan, Korea during 19-21 July 2007. This was the sixth meeting of this Working Group since its inception in 2000. Scientists from Japan, Korea, Mexico and the U.S.A. participated in the meeting (Appendix 1). Five working documents (Appendix 2) were presented and reviewed by the participants.

1.1 Adoption of Agenda

The draft agenda was reviewed and adopted with minor modification (Appendix 3).

1.2 Selection of Chair

Mr. Yukio Takeuchi (Japan) was appointed to chair the meeting.

1.3 Appointment of rapporteurs

The following were appointed as rapporteurs for the different sections of the Workshop report:

Section 1 Yukio Takeuchi
Section 2 Harumi Yamada
Section 3 Kazuhiro Oshima
Section 4 Ray Conser, Yukio Takeuchi
Section 5 Kevin Piner, and Mikihiko Kai
Section 6, 7, 8,9,10 Yukio Takeuchi

2.0 UPDATES OF FISHERIES INDICATORS

Since the April PBFWG Workshop, Korean scientists submitted updated catch data and U.S. scientists submitted minor changes to U.S. catch data. The Chair contacted the WCPFC, SPC and New Zealand colleagues about availability of PBF catch data in their files for non-ISC members. No response was received from the SPC, and WCPFC indicated that it had no data on PBF. S. Harley of New Zealand provided official New Zealand catches but for only commercial catches and not sport fishing catches. The revised catches are shown in Table 1.

It was pointed out that there are large differences in Japanese catches from different sources. Japanese scientists explained that ISC Category 1 data were tentative and that the differences are due to various technical difficulties among Japanese scientists. Catches estimated for Table 1 were compiled from best available sources and were developed for stock assessment purposes. The WG concluded that Table 1 should be used for its work. The WG recommended making both catch tables consistent in the near future.

3.0 REVIEW OF PROGRESS OF WORK ASSIGNMENTS ON CATEGORY 1 FROM APRIL WORKSHOP

3.1 Re-examination of estimation of the catches of small-sized fish of PBF by Japanese small pelagic fish purse seine fisheries in the East China Sea (ISC-PBF07/02/01)
Presented by H. Yamada

The catches of PBF caught by the small pelagic fish purse seine fishery in the East China Sea for 1991 – 2006 were estimated using landing data from previous report presented to the PBFWG meeting in April 2007 (Yamada, 2007). Estimates of landing weight for the San'in area, southwest of Honshu, are generally accurate, although there is still room to improve the procedure that the Japan Fisheries Information Center (JAFIC) uses to estimate landing weight for Kyusyu landings. The detailed method in estimating catch of PBF was reviewed, as was the conversion factor (number of fish per box to mean weight of fish in each box) used by JAFIC. JAFIC estimates landing weight in Kyusyu based on the sales slip. As a result, JAFIC probably significantly under-estimates PBF catches because the conversion factor was underestimated. Therefore, if relatively larger catches are unloaded in Kyusyu (most of them are fish smaller than 5 kg), the underestimation of catches would be significant. A new conversion factor (weight/box) was developed to correct the underestimation.

Discussion

It was pointed out that this fishery has a logbook reporting system that might be used to accurately estimate catches. However, the WG learned that the characteristics of this small pelagic fish purse seine fishery complicate accurate estimation of the catch from the logbooks as well as port sampling of the catch. That is, (1) the small pelagic fish purse seine fishery for PBF is a recent development with a short history, and (2) the introduction of a tuna purse seine fishery logbook system is relatively new and confusing to the fishermen who have traditionally used a mackerel purse seine data reporting system. It was concluded that logbooks not be used to estimate catches and instead, the current method of using landing data be used.

The Working Group agreed that the catch from 1997 forward be estimated using the new fish/box conversion factor. Also, because the JAFIC summary report for years prior to 1996 is not available, a procedure for improving the landing estimates for those years should be developed before the next meeting.

3.2 Reviews of weight-length relationship on PBF (ISC07/PBF/02/2)
Presented by Mikihiko Kai

Weight-length relationships of Pacific bluefin tuna from samples collected in 1964 to 2007 were reviewed in order to understand the characterestics of the samples and to determine a means for integrating the different estimated W-L relationships. A total of 74 W-L relationships for PBF and three W-L relationships for Atlantic and Mediterranean bluefin tuna were summarized and compared. Most of the relations were similar and fall within a narrow range; consequently, the weight-length relationship by Shingu *et al* (1974), which has been identified as preferred by the PBFWG, appears to be a representative relationship for PBF. However, because small differences in weight-length relationships among season, fishing area, and sampling port are reported in the literature, it is recommended that when a weight-length relationship that corresponds to the conditions, such as fishing season, is available, it be used to convert weight to length.

Discussion

The WG discussed differences in error statistics in the relationships, $W=aL^b$ and $L=\alpha W^\beta$, estimated from a common set of data and used for conversion. It was agreed that the preferred equation for converting weight frequency to length frequency is $L=\alpha W^\beta$.

The WG noted that variations of the weight at length among the compared W-L relationships were very small.

The WG noted the need for a single, best W-L equation for use in the SS2 model. Because the Shingu et al. equation was estimated with data for only large-sized fish, the WG recommended that further W-L analyses be carried out that included available data that represent the full length range of PBF. This new relationship should then be compared to the Shingu et al. W-L relationship. The Working Group also agreed with the author that where specific W-L relationships are available, they be used for conversion of the specific weight frequency to length frequency.

3.3 Estimate of the age-length relationship of Pacific bluefin tuna with descriptive analysis on uncertainties remained (ISC07/PBF/02/03)
Toshiyuki Tanabe and Mikihiko Kai

Age and length data for 158 individual Pacific bluefin tuna were analyzed in this study. The age readings of otolith samples were conducted by a single scientist. The 158 samples were collected from fish caught in four areas, Ohma (Tsugaru Strait), Shiogama (off Tohoku), Sakaiminato (Sea of Japan) in Japan and Tungkang (off Taiwan). In addition, a group of samples were collected from the Amami farming station in Japan. Growth curves were estimated for four groupings of the data: (a) all data included, (b) data for wild fish only (c) data for wild fish and Taiwan samples excluded, and (d) data for wild fish with Ohma samples excluded. The results indicated that the ages of large fish in the sample influenced the growth curve and that few large fish were represented in the sample. The need, therefore, is for further data collection to acquire a sufficient sample of fish larger than 200 cm FL.

Discussion

The Working Group pointed out that there appears to be a large variance in length-at-age among years or areas, and that future studies should pay special attention to the experimental design, particularly the quality and quantity of samples collected. The Working Group suggested that for future studies they take into account the possibility of differences in growth among years or areas.

4.0 REVIEW OF STOCK CONDITION IN RELATION TO THE STRENGTH OF 2001 YEAR CLASS

4.1 Review of stock condition in relation to the strength of 2001 year class (ISC07/PBF-2/04)
Presented by K. Oshima

A previous stock assessment using VPA indicated that the 2001 year class was a strong cohort and larger than the 1994 year class, which was also a strong cohort. This document re-examined the strength of the 2001 year class using information available since the last assessment. The author examined the catch-at-age data used in the VPA, and reviewed catch and CPUE of fisheries targeting PBF before they are recruited to the Japanese longline fishery. Published documents were used in the study and nominal length-frequency data of Japanese purse seine and longline fisheries were analyzed (see Figs. 1 and 2). The CPUE for the troll fishery indicates a strong 1994 cohort but does not clearly indicate a strong 2001 cohort. In addition, the 1994 cohort appears clearly in the longline catches beginning at age 5, whereas the 2001 cohort has not yet appeared in the longline size-frequency data in 2006 or 2007, though the current data sets are not yet complete. The results suggest that the 2001 cohort was not as strong as the 1994 cohort, although its strength was above average.. The author recommends that a final determination of the strength of this cohort can not be made until 2008, when it is expected to fully recruit to the longline and compilation of recent years' data is completed.

Discussion
The WG expressed appreciation for the thoroughness of the work described in ISC/07/PBFWG-2/4. It greatly contributed to the WG's effort to come to terms with this important issue. Three technical points were raised in discussion of this paper.

1. It was noted that when combining size-frequency data from different fisheries, the individual size frequencies were not weighted by the catches from the respective fisheries. Consequently, the resulting composite size frequencies displayed in ISC/07/PBFWG-2/4 may not be representative of the total catch. In the future, individual size frequencies should be weighted (by the catch) whenever composite size frequencies are developed.
2. The WG requested that Figures 9-12 be modified to display age on the x-axis (as well as length) using the age-length relationship from ISC/07/PBFWG-2/3 (Figure 5b, therein). This was done during the WG meeting and proved to be quite helpful in the WG's discussions.

3. It was suggested that updating the full catch-at-age matrix would be helpful when reviewing the strength of the 2001 year class. However, it was not possible to carry out this work in the course of this WG meeting. Further, the WG felt that its review could be completed without the additional year of catch-at-age that would have been provided by updating the catch-at-age matrix.

It was noted that during the last meeting of the PBFWG (April 2007; see Annex 6), the WG planned to review recent trends in stock abundance at this meeting in addition to reviewing the strength of the 2001 year class. While the two topics are interrelated, the more general review of recent trends could not be undertaken using the data available to the WG at this meeting. A thorough review of recent trends will be undertaken in conjunction with the next stock assessment.

Nonetheless, the WG noted that the last PBF stock assessment (Jan 2006) estimated an exceptionally strong 2001 year class. Based largely on the estimated size of this year class, the stock projections indicated that the current level of SSB (Spawning Stock Biomass) could be maintained at the current F level. Based on this assessment, the ISC6 Plenary recommended that F should not be increased from current level.

The WG agreed that preliminary analysis of the Japanese catch and size-frequency data that has become available since the last assessment (2005-2007) indicates that the 2001 year-class was not as strong as previously thought, but may have indeed been larger than the average year class

More importantly, however, the survivorship of this year class in 2007 is unclear and cannot be well estimated until the next stock assessment (2008). While the last well-estimated strong year-class (1994) appeared clearly in the Japanese longline size frequency data in 2000 (i.e. at age 6), the 2001 year-class does not appear in the 2007 Japanese longline size frequency(see Fig. 2). Consequently, the conclusion of the last stock assessment regarding the likelihood that the 2001 year-class would maintain the bluefin SSB level now appears to have been optimistic in light of the new data that have become available since the last assessment.

The WG has no conservation advice at this time. However the findings (above) do not contradict the recommendation made in ISC6 Plenary ("fishing mortality should not be increased"). But if the Plenary wishes to be more precautionary, these findings would not contradict that action either.

5.0 FURTHER SPECIFICATION OF SS2 MODELING AND GENERAL ISSUES FOR NEXT STOCK ASSESSMENT

The Working Group continued the discussion begun in the April 2007 workshop on data needs and specification for SS2 for the upcoming stock assessment.

Discussion

New age and growth information presented at this meeting suggested that there may be regional differences in length-at-age. The WG suggested that the hypothesis explaining this spatial variability should include ageing error and regional size-selectivity patterns. Between-reader precision estimates could be used to investigate one of these hypotheses. The working group also noted that if fishery selectivity is the cause of the length-at-age differences, estimating regional selectivity patterns in the stock assessment model should be considered.

The WG discussed data availability and suitability for use in the stock assessment. Although the starting year of the model has been discussed at previous meetings, the terminal year/quarter of the model had not yet been considered. The terminal year/quarter will be determined by data availability and model specification. It was suggested that if the stock assessment model uses fishing year, the terminal year could be the second quarter of 2007. However if calendar year is used, the terminal year/quarter would be the end of 2006. The WG also discussed the W-L relationships to be used in the assessment model. It was suggested that the W-L relationships be derived from the spawning season and estimated using whole body weight. The WG suggested that further discussion on the use of the EPO data will be necessary at the next PBF WG meeting because two types of fisheries exist and may have different selectivity patterns. It was also noted that at the next PBF WG meeting some prioritization of data sources regarding their reliability will be needed because of the large number of data sources available.

The methodology of stock projections and stock assessment modeling was also discussed. It was noted that projections inside SS2 were designed to meet the management needs of the U.S. West Coast groundfish stocks. Investigation of the applicability of the projection component of SS2 to Pacific bluefin tuna needs to be investigated. Other projection software could also be considered if the SS2 application is not satisfactory. The WG agreed to revisit - at the next WG meeting - the selection of the most appropriate version of SS2 to use in the stock assessment.

Specific recommendations to be completed by the next PBF WG meeting:

1. Review the methods used to determine ages and estimate the between reader ageing error. (Japan)
2. Review the possible options to use the otolith data in the stock assessment. (Piner and Takeuchi)

3. Investigate the applicability of the SS2 software for PBF projections. (Japan and Conser)

4. Review of the methods used to standardize the EPO purse seine catch and data. (da Silva and Dreyfus)

6.0 ELECTION OF THE CHAIR OF THE WORKING GROUP

Election of Chairperson for the next three years, 2007-2010 was held following ISC procedures. Yukio Takeuchi was elected Chairperson of the Pacific bluefin tuna Working Group for the next term. Takeuchi thanked the members for having confidence in his ability to lead the WG. He assured the Group that he will dedicate himself to do his best in leading the group in completing its assignments.

7.0 REVIEW OF SCHEDULE AND ASSIGNMENTS

7.1 Schedule

The ISC Chairperson's proposed schedule for intercessional meetings was reviewed and discussed. It was agreed that a workshop for Data Preparation for Model development will be held December 11-18, 2007 in Shimizu, Japan. The full PBF assessment will be planned for May 28 – June 4, 2008. For this effort, it was agreed that the key stock assessment scientists of the WG would meet one week (May 21-27, 2008) before the assessment is conducted. In this way, there will be some assurance that the data and information preparation will be completed by the time the full WG meets to conduct the assessment. Japan tentatively offered to host this stock assessment meeting and the decision will be made at the December Working Group meeting. It was agreed that a location with good computer access is necessary for that meeting. Mexico offered to host a future intercessional meeting.

7.2 Work assignments to be completed by the next PBF WG meeting:

The WG noted that data preparation and the assignments identified in the April 2007 (see section 9 of Annex 6) workshop should be completed by the data preparatory meeting in December 2007. In addition, the WG identified the following four work assignments and persons responsible for them:

1. Review the methods used to determine ages and estimate the between reader ageing error.
Japan agreed to complete this task.

2. Review the possible options to use the otolith data in the stock assessment.
Kevin Piner from the U.S. and Yukio Takeuchi from Japan will accomplish this task.

3. Investigate the applicability of the SS2 software for PBF projections.
Japan and Ray Conser from the U.S. agreed to complete this task.

4. Review of the methods used to standardize the EPO purse seine catch and data.
Alex Aires da Silva from IATTC and Michel Dreyfus from Mexico will complete this task.

8.0 OTHER MATTERS

8.1 Adoption of April meeting report

The draft report of the working group meeting held in April 2007 in Shizuoka, Japan was adopted with understanding that further editing of the text will be undertaken before general release of the report.

8.2 Consideration of effect of historical change of spatial effort distribution on standardized CPUE through simulation

The systematic error of standardized CPUE's trend by historical change in fishing area-coverage (ISC07-PBF02-05)
Presented by Minoru Kanaiwa

Area coverage of Japanese longline fisheries catching Pacific bluefin tuna has changed historically. This change may be contributing a systematic error to standardized CPUE computed from these fisheries data. Systematic error on trend in standardized CPUE was investigated with data of known characteristics and from set-by-set data (1 x 1 degree) of the Japanese distant water and offshore longline fisheries for 1952-2005. Using GLM analysis, the results indicate that if area effect is not included in CPUE standardization, a systematic error will likely affect the results, particularly in the interpretation of trends in the CPUE. Area effect is, therefore, recommended for inclusion in standardization models.

Discussion

In general, this type of study is encouraged because the geographic distribution of fisheries change with time. For the Japanese longline fishery targeting Pacific bluefin tuna in coastal waters of Japan, it has experienced a shrinkage of fishing area historically; Hence, standardization models should include interaction terms such as year*area, month*area, etc., in future study

9.0 ADOPTION OF REPORTS AND CLOSURE

A draft report was developed and reviewed. Suggested changes were discussed. It was agreed that corrections to the report would be made and general “clean up” completed. The revised copy would be made available to members for final approval; however, the Group agreed that the Chairman should use the revised copy for reporting to the ISC7 Plenary.

The Chairman thanked all participants and the rapporteurs for their contribution in making this a successful meeting. The meeting was adjourned at 5:00 pm on 21 July 2007.

Table 1. Pacific bluefin tuna catch for Stock Assessment. (Revised Oct 2007)

Annex 10

unit: metric tones

Year	Western Pacific													Sub Total	Eastern Pacific					Sub Total	Other		Grand Total
	Japan *							Korea***		Chinese Taipei					United States******			Mexico			****** NZ	******* Others	
	Purse Seine		Longline	Troll**	Pole and Line	Set Net	Others	Purse Seine	Trawl	Longline* ***	Purse Seine	Distant Driftnet	Others		Purse Seine	Others	Sport	Purse Seine	Others				
	Tuna PS	Small PS																					
1952	7,680		2,581	439	2,198	2,145	357							15,400	2,076					2,076			17,476
1953	5,570		1,998	1,465	3,052	2,335	133							14,553	4,433					4,433			18,986
1954	5,366		1,588	1,656	3,044	5,579	266							17,499	9,537					9,537			27,036
1955	14,016		2,099	1,507	2,841	3,256	264							23,983	6,173					6,173			30,156
1956	20,979		1,242	1,765	4,060	4,170	703							32,919	5,727					5,727			38,646
1957	18,147		1,490	2,395	1,795	2,822	208							26,857	9,215					9,215			36,072
1958	8,586		1,429	1,509	2,337	1,187	190							15,238	13,934					13,934			29,172
1959	9,996		3,667	1,011	586	1,575	154							16,988	3,506					3,506			20,494
1960	10,541		5,784	1,846	600	2,032	363							21,166	4,547			0		4,547			25,713
1961	9,124		6,175	3,116	662	2,710	598							22,385	7,989			130		8,119			30,504
1962	10,657		2,238	978	747	2,545	289							17,454	10,769			294		11,063			28,517
1963	9,786		2,104	2,403	1,256	2,797	279							18,626	11,832			412		12,244			30,870
1964	8,973		2,379	2,739	1,037	1,475	365							16,968	9,047			131		9,178			26,146
1965	11,496		2,062	1,429	831	2,121	356			54				18,348	6,523			289		6,812			25,160
1966	10,082		3,388	1,502	613	1,261	114							16,960	15,450			435		15,885			32,845
1967	6,462		2,099	3,115	1,210	2,603	282			53				15,824	5,517			371		5,888			21,712
1968	9,268		2,278	1,407	983	3,058	203			33				17,231	5,773			195		5,968			23,199
1969	3,236		1,366	1,836	721	2,187	184			23				9,553	6,657			260		6,917			16,470
1970	2,907		1,123	1,181	723	1,779	215							7,929	3,873			92		3,965			11,894
1971	3,721		757	2,189	938	1,555	226			1				9,386	7,793			555		8,348			17,734
1972	4,212		724	2,385	944	1,107	154			14				9,539	11,642			1,646		13,288			22,827
1973	2,266		1,158	3,519	526	2,351	576			33				10,430	9,639			1,084		10,723			21,153
1974	4,106		1,220	2,994	1,192	6,019	679			47			15	16,273	5,243			344		5,587			21,860
1975	4,491		1,558	941	1,401	2,433	781			61			5	11,672	7,353			2,145		9,498			21,170
1976	2,148		520	920	1,082	2,996	1,226			17			2	8,912	8,652			1,968		10,620			19,532
1977	5,110		712	2,230	2,256	2,257	1,031			131			2	13,729	3,259			2,186		5,445			19,174
1978	10,427		1,049	4,757	1,154	2,546	2,183			66			2	22,185	4,663			545		5,208			27,393
1979	13,881		1,223	2,659	1,250	4,558	2,200			58				25,830	5,889			213		6,102			31,932
1980	11,327		1,170	1,494	1,392	2,521	1,931			114			5	19,953	2,327	1		582		2,910			22,863
1981	25,422	8	796	1,758	754	2,129	2,540			179				33,587	913	16	6	218		1,153			34,740
1982	19,234		880	872	1,777	1,667	1,622	31		207		2		26,293	2,644	126	7	506		3,283			29,576
1983	14,774	10	707	2,020	356	972	892	13		175	9	2		19,929	622	28	21	214		885			20,814
1984	4,433		360	1,905	587	2,234	658	4		477	5		8	10,672	673	151	31	166		1,021			11,693
1985	4,154	8	496	1,920	1,817	2,562	992	1		210	80	11		12,252	3,320	329	55	676		4,380			16,632
1986	7,412		249	1,562	1,086	2,914	468	344		70	16	13		14,134	4,851	127	7	189		5,174			19,308
1987	8,653	19	346	1,030	1,565	2,198	308	89		365	21	14		14,608	861	75	21	119		1,076			15,684
1988	3,583	18	241	1,190	907	843	403	32		108	197	37	25	7,584	923	58	4	447	1	1,433			9,017
1989	6,077	89	440	1,025	754	748	204	71		205	259	51	3	9,926	1,046	97	70	57	0	1,270			11,196
1990	2,834	125	396	1,291	536	716	351	132		189	149	299	16	7,035	1,380	14	40	50	0	1,484			8,519
1991	4,336	4,421	285	2,168	286	1,485	340	265		342		107	12	14,047	410	86	57	9	0	562	2		14,611
1992	4,255	2,387	573	908	166	1,208	986	288		464	73	3	5	11,317	1,928	71	93	0	0	2,092	0		13,409
1993	5,156	1,102	857	534	129	848	263	40		471	1		3	9,403	580	175	114	0	0	869	6		10,278
1994	7,345	564	1,138	3,427	162	1,158	301	50		559				14,705	906	58	24	63	2	1,053	2		15,759
1995	5,334	12,009	769	4,618	270	1,859	225	821		335			2	26,242	689	48	166	10	0	913	2		27,156
1996	5,540	1,798	978	3,203	94	1,149	276	102		956				14,097	4,523	70	30	3,700	0	8,323	4		22,424
1997	6,137	5,862	1,383	2,634	34	803	379	1,054		1,814				20,101	2,240	85	90	367	0	2,782	14		22,897
1998	2,715	2,269	1,260	2,550	85	874	238	188		1,910				12,089	1,771	268	213	1	0	2,253	20		14,363
1999	11,619	3,863	1,155	3,164	35	1,097	150	256		3,089				24,428	184	81	397	2,369	35	3,066	21		27,515
2000	8,193	6,802	1,005	4,367	102	1,125	271	794	0	2,780			2	25,440	693	49	220	3,025	103	4,090	21		29,551
2001	3,139	3,912	1,004	3,124	180	1,366	457	995	10	1,839			4	16,030	149	46	226	863	0	1,284	50		17,363
2002	4,171	4,359	889	2,422	99	1,011	590	674	1	1,523			4	15,743	0	10	348	1,708	6	2,072	55	10	17,881
2003	945	4,850	1,230	1,695	44	841	710	591	0	1,863			21	12,790	22	15	229	3,211	46	3,523	41	19	16,372
2004	4,792	2,218	1,311	2,067	132	896	1,091	636	0	1,714			3	14,860	0	11	34	8,880	11	8,936	67	10	23,873
2005	3,927	6,249	1,824	3,382	549	4,595	725	594		1,368				23,212	201	5	79	4,488		4,773	20	7	28,012
2006*	3,780	3,317	1,037	1,445	108	2,907	697	949		1,148				15,389	0	1	96	9,706		9,803	21	3	25,216

*** Part of Japanese catch is estimated by the WG from best avairable source for the stock assessment use. Data are preliminary.**

**** The troll catch for farming estimating 10 - 20 mt since 2000, is excluded.**

***** Catch statistics of Korea derived from Japanese Import statistics for 1982-1999.**

****** Catches of Chainese Taipei's longline for 2005 and 2006 are preliminary.**

******* US in 1952-1958 contains catch from other countries - primarily Mexico**

******** Catches by NZ are derived from the Ministry of Fisheries, Science Group (Compilers) 2006: Report from the Fishery Assessment Plenary, May 2006: stock assessments and yield estimates. 875 p. (Unpublished report held in NIWA library, Wellington), but for catch in 2006 is personal com. by S. Herley. NZ catches exclude the recreational catches.**

********* Other countries include AUS, Cooks, Palau and so on. Catches derived from Japanese Imort Statistics as minimum estimates.**

Appendix 1

List of the Participants

Japan

Hitoshi Honda
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6042, 81-54-335-9642 (fax)
hhonda@affrc.go.jp

Harumi Yamada
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6034, 81-54-335-9642 (fax)
hyamada@fra.affrc.go.jp

Kazuhiro Oshima
Japan NUS Co., ltd
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6034, 81-54-335-9642 (fax)
oshimaka@fra.affrc.go.jp

Kotaro Yokawa
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6035, 81-54-335-9642 (fax)
yokawa@fra.affrc.go.jp

Makoto Miyake
Scientific Adviser, Japan Tuna
3-3-4, Shimorenjaku, Mitaka-shi
Tokyo, Japan 181-0013
+81 422 46 3917
p.m.miyake@gamma.ocn.ne.jp

Mikihiko Kai
Japan NUS Co., ltd
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6035, 81-54-335-9642 (fax)
kaim@fra.affrc.go.jp

Momoko Ichinokawa
Visiting scientist to NOAA/NMSF PIFSC
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6039, 81-54-335-9642 (fax)
ichimomo@fra.affrc.go.jp

Toshiyuki Tanabe
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6045, 81-54-335-9642 (fax)
katsuwo@fra.affrc.go.jp

Yukio Takeuchi
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, Japan, 424-8633
81-54-336-6039, 81-54-335-9642 (fax)
yukiot@fra.affrc.go.jp

Minoru Kanaiwa
Tokyo University of Agriculture
196 Yasaka, Abashiri, Hokkaido, Japan
81-152 (48)3906, 81-152(48)2940 (fax)
m3ikanaiw@bioindustry.nodai.ac.jp

Korea

Sun-Do Hwang
National Fisheries Research and Development Institute
408-1 Sirang-ri, Gijang-eup, Gijang-gun, Busan
619-705, Republic of Korea
82-51-720-2334, 82-51-720-2337 (fax)
sdhwang@nfrdi.re.kr

Mexico

Michel Dreyfus

Instituto Nacional de la Pesca
CRIP-Ensenada,B.C. Mexico
dreyfus@cicese.mx

United States

Kevin Piner
NOAA/NMFS SWFSC
8604 La Jolla Shores Dr.
La Jolla, CA 92037 U.S.A.
858-546-5613, 858-546-7003 (fax)
Kevin.Piner@noaa.gov

Gary Sakagawa
NOAA/NMFS SWFSC
8604 La Jolla Shores Dr.
La Jolla, CA 92037 U.S.A.
858-546-7177
Gary.Sakagawa@noaa.gov

Ray Conser
NOAA Fisheries
Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, CA 92037
U.S.A.
858-546-7081
ray.conser@noaa.gov

Sarah Shoffler
NOAA Fisheries
Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, CA 92037
U.S.A.
858-546-5678
Sarah.Shoffler@noaa.gov

Appendix 2
List of Documents

ISC/07/PBF-2/01	Re-examination of estimation of the catches of small-sized fish of PBF by Japanese small pelagic purse seine fisheries in the East China Sea (H. Yamada [hymada@fra.affrc.go.jp] and Y. Takeuchi)
ISC/07/PBF-2/02	Reviews of weight-length relationships on PBF (M. Kai: kaim@fra.affrc.go.jp)
ISC/07/PBF-2/03	Estimates of the age-length relationship of Pacific bluefin tuna with description of problems to be resolved in further study (T. Tanabe [katsuwo@fra.affrc.go.jp] and M. Kai)
ISC/07/PBF-2/04	Review of stock condition in relation to the strength of 2001 year class (K. Oshima; oshimaka@fra.affrc.go.jp])
ISC/07/PBF-2/05	The systematic error of standardized CPUE's trend by historical change of fishing area coverage (M. Kanaiwa [m3ikanaiw@bioindustry.nodai.ac.jp], Y. Takeuchi and K. Yokawa)

Appendix 3

BLUEFIN WORKING GROUP
STOCK ASSESMENT REVIEW MEETING

Agenda

19-21 July 2007

1. Opening, adoption of the Agenda and meeting arrangements.
2. Updates of fisheries indicator
3. Review of progress of work assignments of category 1 in April workshop, and other assignments
4. Review of stock condition in relation to the strength of 2001 year class
5. Further specification of SS2 modeling and general issues for next stock assessment
6. Election of the chair of the working group
7. Review of schedule and assignments
8. Other matters
9. Adoption of reports and closure

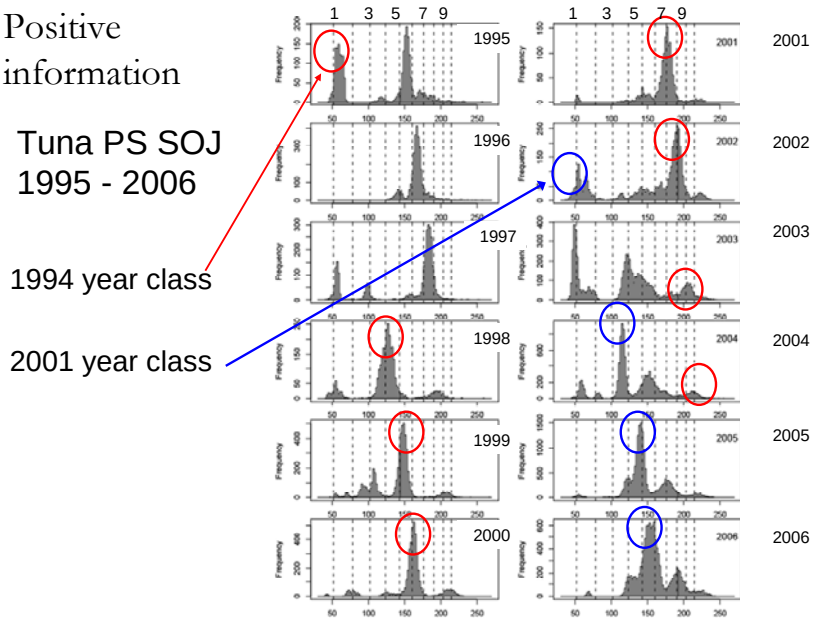

Figure 1 Tracks of 1994 year class and 2001 year class in nominal length frequency of tuna purse seine fishery operating in Sea of Japan. Red circles represent tracks of 1994 year class. Blue circles represent tracks of 2001 year circles

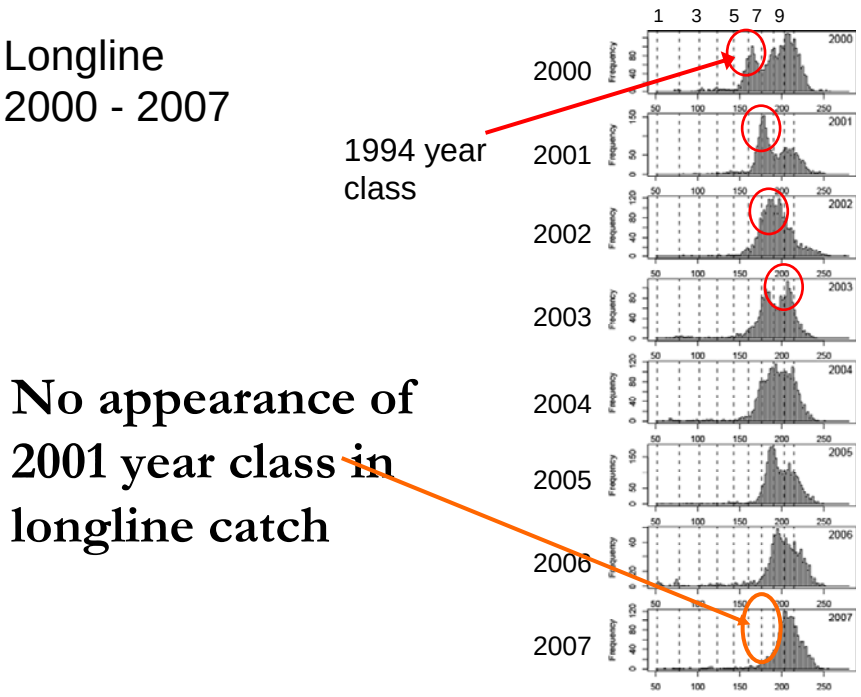

Figure 2 Tracks of 1994 year class found in the nominal length frequency of Japanese longline. Red circles represent track of 1994 year class. In 2007 length frequency of Japanese longline 2001 year class should have appeared at about the same size where 1994 year class appeared in 2000.