PRELIMINARILY COMPARISON BETWEEN JAPANESE CATCH, EFFORT AND SIZE DATA OF YELLOWFIN TUNA STORED IN THE ICCAT AND NRIFSF DATA BASES

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SUMMARY

There were basically good consistencies between two data bases in ICCAT and NRIFSF in regards to the catch data of yellowfin, the number of hooks and the size data of yellowfin. However there were occasionally certain discrepancies in these data. The differences of size data were not negligible in some cases.

RÉSUMÉ

Les deux bases de données, ICCAT et NRIFSF, étaient cohérentes dans les grandes lignes en ce qui concerne les données sur les captures d'albacore, le nombre d'hameçons et les données sur la taille de l'albacore. Cependant, ces données présentaient occasionnellement quelques divergences. Les différences de données de taille ne sont pas négligeables dans certains cas.

RESUMEN

Básicamente, existen coincidencias importantes en las dos bases de datos, de ICCAT y de NRIFSF, en lo que concierne a los datos de captura de rabil, el número de anzuelos y los datos de talla de rabil. Sin embargo, hubo algunas discrepancias ocasionales en estos datos. Las diferencias en los datos de talla no fueron insignificantes en algunos casos.

KEYWORDS

Atlantic, Longline, Catch/effort

1. Introduction

The report of the data preparatory meeting for bigeye in 2015 mentioned that there is discrepancy between catch-at-size (CAS) which have been stored in ICCAT database and newly submitted one from Japan in this meeting. Thus the group recommended that Japanese scientists review the protocols for CAS.

In the eastern Pacific Ocean, the Japanese longline size data show differences in size composition, with smaller fish caught prior to 1990 and larger fish after 1990. Recent stock assessment of bigeye in the eastern Pacific Ocean have shown a prominent residual pattern in size frequency of the longline fishery. The pattern consists that a positive residual (observations larger than model predictions) in the medium size fish (around 75-125 cm) around the late 1980s shift to larger fish (around 125-175 cm) after 1990. Thus the 6th scientific advisory committee (SAC6) requested that the collaborative work of IATTC and Japan to deal with the problem have been required (Okamoto 2014, IATTC 2015). The collaborative investigation between IATTC and NRIFSF showed that the combined effects of the change of methodology for measuring fish (weight to length) and the underestimation of fish size from the weight-length conversion probably leads to the shift of size composition artificially. Update Japanese size data with the information about the measuring unit (weight, length) have been conducted in 2016. During the collaborative work we found discrepancy of the size data between the two institution. Thus we need to investigate the inconsistency of the catch and effort and size data stored between ICCAT and NRIFSF.

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2. Materials and methods

The longline statistics for ICCAT is provided from ICCAT secretariat Feb 22 2016, while the statistics of NRIFSF is as of Feb 15 2016. The number of hooks, number of yellowfin and number of size data of yellowfin tuna from 1956 to 2014 were compared between the two databases.

3. Results and discussion

Annual number of hooks and number of yellowfin

The comparison between annual number of hooks and number of yellowfin showed pretty good consistency during almost period (**Table 1**, **Figure 1**). However some discrepancies were detected occasionally. The percentage of differences ((number of data in NRIFSF – number of ICCAT) / number of data in NRIFS) ranged from -3.5 % to 11.5%. The negative percentage means ICCAT stored more data than NRIFSF.

Annual number of size data

The comparison between annual number of size of yellowfin showed good consistency (**Table 2**, **Figure 2**). However certain discrepancies were larger than that of catch and effort data, that is, the percentage of differences ranged from -325 % to 99%. Before 1960 the size data stored in the ICCAT was not absolutely registered in the NRIFS database. The weight data in NRIFSF seemed to be converted into length data and then submit to ICCAT before 1992.

Table 1. Difference of number of yellowfin and hooks in the ICCAT and NRIFSF databases.

year	NRIFSF		ICCAT		Difference (NRIFSF-ICCAT)	
	hooks	yellwofin	hooks	yellowfin	hooks	yellowfin
1956	131,300	12,001	131,300	12,001	0	0
1957	3,375,772	258,544	3,375,772	258,544	0	0
1958	8,001,027	746,490	8,001,027	746,490	0	0
1959	15,311,541	1,097,535	15,311,541	1,097,535	0	0
1960	20,727,004	1,158,534	20,727,004	1,158,534	0	0
1961	26,672,573	980,349	26,672,573	980,349	0	0
1962	54,963,280	990,472	54,963,280	990,472	0	0
1963	55,003,941	885,796	55,003,941	885,796	0	0
1964	84,997,948	879,188	84,997,948	879,188	0	0
1965	97,580,550	927,267	97,580,550	927,267	0	0
1966	53,813,970	394,538	53,813,970	394,538	0	0
1967	31,153,973	366,046	31,153,973	366,046	0	0
1968	30,254,502	274,181	30,254,502	274,181	0	0
1969	29,675,972	241,832	29,673,872	241,832	2,100	0
1970	41,579,525	189,569	41,536,563	187,265	42,962	2,304
1971	55,873,158	292,062	55,873,158	292,062	0	0
1972	44,138,682	159,010	44,138,682	159,010	0	0
1973	35,975,939	108,715	35,975,939	108,715	0	0
1974	38,494,918	94,700	38,492,668	94,700	2,250	0
1975	58,701,417	115,854	58,686,660	115,854	14,757	0
1976	32,837,374	103,879	32,837,374	103,879	0	0
1977	32,501,311	41,483	32,497,027	41,483	4,284	0
1978	44,747,130	56,332	44,747,130	56,332	0	0
1979	55,457,833	62,883	55,457,833	62,883	0	0
1980	59,845,883	69,779	58,102,393	69,732	1,743,490	47
1981	71,985,193	111,932	70,855,677	111,723	1,129,516	209
1982	77,017,567	137,923	74,645,034	137,246	2,372,533	677
1983	43,837,272	52,944	43,827,216	52,842	10,056	102
1984	64,779,412	91,552	64,779,412	91,552	0	0
1985	72,525,415	125,008	72,525,415	125,008	0	0
1986	54,280,087	83,406	54,280,087	83,406	0	0
1987	45,494,173	83,968	45,494,173	83,968	0	0
1988	68,442,716	143,264	68,442,716	143,264	0	0
1989	91,395,915	172,728	91,395,915	172,728	0	0
1990	96,739,404	146,101	96,739,404	146,101	0	0
1991	91,205,981	113,727	91,205,981	113,727	0	0
1992	78,780,081	65,355	78,780,081	65,355	0	0
1993	108,031,004	91,880	95,624,538	78,940	12,406,466	12,940
1994	99,788,985	118,048	100,112,870	114,325	−323,885	3,723
1995	101,215,082	124,555	104,760,958	128,556	−3,545,876	−4,001
1996	122,518,251	119,955	122,031,018	125,282	487,233	−5,327
1997	108,844,324	91,315	108,844,324	91,315	0	0
1998	108,645,947	139,506	106,096,498	133,353	2,549,449	6,153
1999	92,658,318	83,753	92,658,318	83,753	0	0
2000	98,950,312	111,848	98,950,312	111,848	0	0
2001	77,797,453	69,026	77,797,453	69,026	0	0
2002	69,034,729	52,511	69,034,729	52,511	0	0
2003	94,609,815	78,376	92,844,523	70,565	1,765,292	7,811
2004	95,189,118	133,748	92,896,922	130,742	2,292,196	3,006
2005	84,500,408	88,879	84,500,408	88,879	0	0
2006	74,405,593	106,211	74,405,593	106,211	0	0
2007	75,867,126	250,212	75,867,126	250,212	0	0
2008	85,382,709	163,106	85,382,708	163,106	1	0
2009	66,103,966	136,395	66,103,966	136,395	0	0
2010	66,307,442	136,282	66,252,198	136,282	55,244	0
2011	55,304,710	124,838	55,298,870	124,838	5,840	0
2012	56,846,004	145,036	56,846,004	145,036	0	0
2013	47,997,366	109,781	47,997,366	109,781	0	0
2014	46,708,161	90,463	46,832,493	90,643	−124,332	0

Table 2. Difference of size data of yellowfin in the ICCAT and NRIFSF databases. FL; Fork length, WGT weight.

year	NRIFSF			ICCAT			Difference (NRIFSF-ICCAT)		
	FL	WGT	Total	FL	WGT	Total	FL	WGT	Total
1956			0	2915		2915	-2,915	0	-2,915
1957			0	15258		15258	-15,258	0	-15,258
1959			0	730		730	-730	0	-730
1960			0	386		386	-386	0	-386
1962	359		359	1440		1440	-1,081	0	-1,081
1963	5327		5327	8829		8829	-3,502	0	-3,502
1964	3208		3208	6130		6130	-2,922	0	-2,922
1965	5656	1081	6737	6737.9		6737.9	-1,082	1,081	-1
1966	4399		4399	4399		4399	0	0	0
1967	1520	367	1887	1887.3		1887.3	-367	367	0
1968	5758	991	6749	6281.1		6281.1	-523	991	468
1969	978	202	1180	1180.1		1180.1	-202	202	0
1970	26	971	997	997.2		997.2	-971	971	0
1971	5190	9251	14441	14439.5		14439.5	-9,250	9,251	2
1972	4311	2411	6722	6721.6		6721.6	-2,411	2,411	0
1973	11663	1396	13059	13058.1		13058.1	-1,395	1,396	1
1974	4426		4426	4426		4426	0	0	0
1975	11277	289	11566	11578.8		11578.8	-302	289	-13
1976	31770	10	31780	31811.9		31811.9	-42	10	-32
1977	9571		9571	9776		9776	-205	0	-205
1978	9405		9405	17292		17292	-7,887	0	-7,887
1979	16782		16782	16782		16782	0	0	0
1980	15058		15058	203		203	14,855	0	14,855
1981	15143		15143	15143		15143	0	0	0
1982	7934	426	8360	8360.2		8360.2	-426	426	0
1983	8165	218	8383	8383		8383	-218	218	0
1984	9250	1307	10557	10557		10557	-1,307	1,307	0
1985	13628	689	14317	14316.7		14316.7	-689	689	0
1986	3964	708	4672	4670.2		4670.2	-706	708	2
1987	6284	934	7218	7217.4		7217.4	-933	934	1
1988	9889	2952	12841	12840.7		12840.7	-2,952	2,952	0
1989	13883	828	14711	14711.1		14711.1	-828	828	0
1990	5590	1246	6836	6835.4		6835.4	-1,245	1,246	1
1991	5579	996	6575	6368.3		6368.3	-789	996	207
1992	3577	188	3765	3764.7		3764.7	-188	188	0
1993	3473	425	3898	3469	422	3891	4	3	7
1994	4592		4592	4589		4589	3	0	3
1995	4165	1323	5488	4164	975	5139	1	348	349
1996	4057	615	4672	4057	615	4672	0	0	0
1997	7004	82	7086	5266		5266	1,738	82	1,820
1998	9195	13	9208	6273	9	6282	2,922	4	2,926
1999	5664	2	5666	4920		4920	744	2	746
2000	3800	1	3801	3763		3763	37	1	38
2001	2642	3	2645	2523		2523	119	3	122
2002	2715	5	2720	2360		2360	355	5	360
2003	3069		3069	6055		6055	-2,986	0	-2,986
2004	4690	4	4694	7692		7692	-3,002	4	-2,998
2005	3305		3305	5621		5621	-2,316	0	-2,316
2006	2528	179	2707	4959		4959	-2,431	179	-2,252
2007	8236	15	8251	10208		10208	-1,972	15	-1,957
2008	2799		2799	5614		5614	-2,815	0	-2,815
2009	9595	26	9621	9599	26	9625	-4	0	-4
2010	9374	229	9603	9374	276	9650	0	-47	-47
2011	3870	6	3876	3870	114	3984	0	-108	-108
2012	2449		2449	2449		2449	0	0	0
2013	4020	41	4061	4020		4020	0	41	41
2014	1501		1501	1501		1501	0	0	0

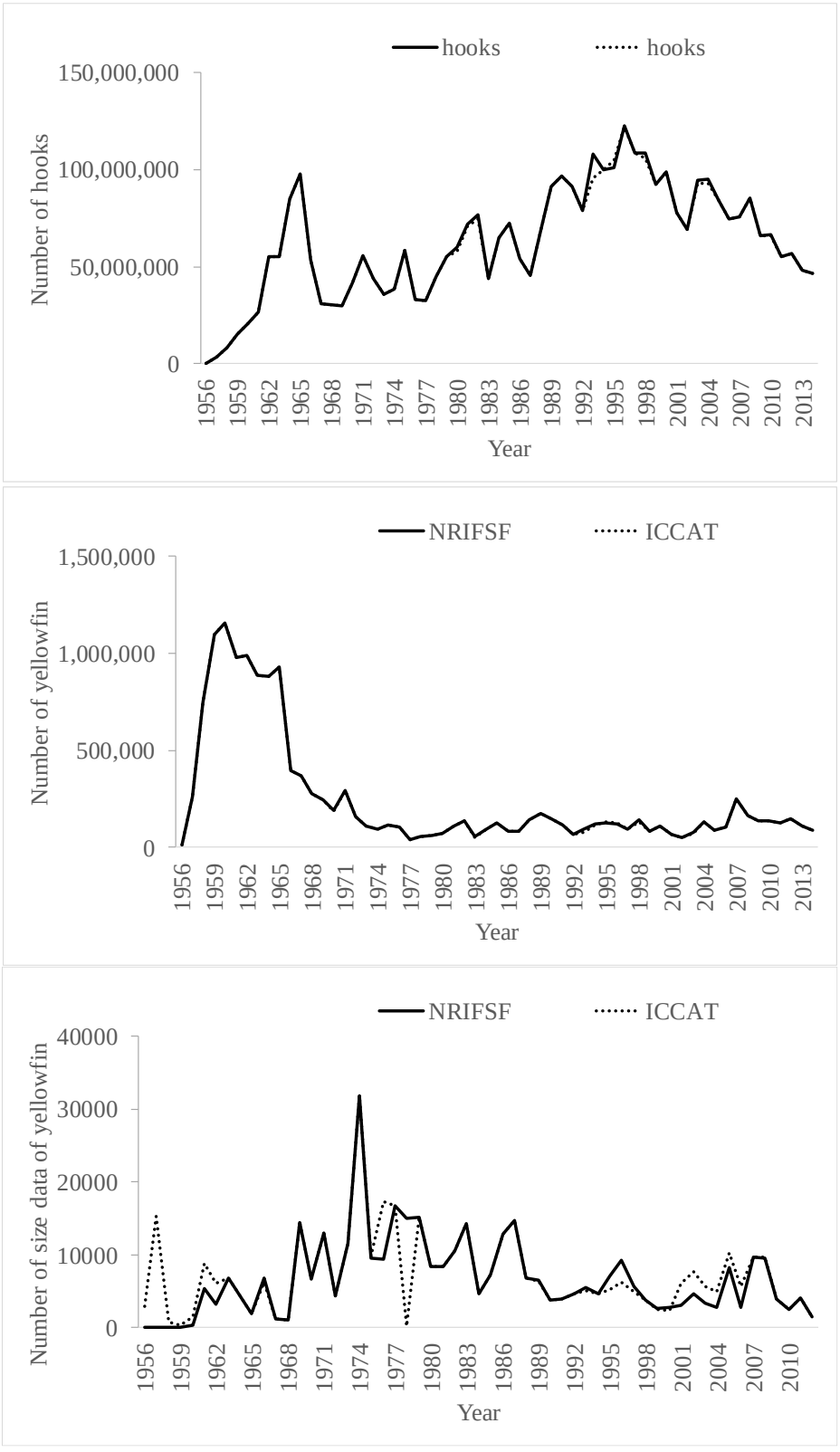

Figure 1. Comparison between ICCAT and NRIFSF data bases for number of hooks (upper), number of yellowfin (middle) and number of size data of yellowfin (bottom).