RECENT STATUS OF BLUE AND WHITE MARLIN CATCHES BY THE JAPANESE LONGLINE FISHERY IN THE ATLANTIC OCEAN

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SUMMARY

The recent status of white marlin (Tetrapturus albidus) *and blue marlin* (Makaira nigricans) *catches by the Japanese longline fishery during 1994 to 1998 was reviewed briefly. The annual fishing effort of the Japanese longline fishery fluctuated at around 100 million hooks since 1994, with the peak of 120 million hooks in 1996. Fishing effort was mainly concentrated in the southeast Atlantic in the early 1990s, and shifted moved to the northeast Atlantic in recent years. The Japanese catch of white marlin decreased to about 53 t, and was less than 10% of the total Atlantic white marlin catch in 1998. The Japanese catch of blue marlin in recent years decreased from 1,600 to 1,100 t, and remained stable at about 35% of the total Atlantic blue marlin catch.*

RESUMEN

Se examina brevemente la actual situación de las capturas de aguja blanca (Tetrapturus albidus) *y de aguja azul* (Makaira nigricans) *por la pesquería japonesa de palangre entre 1994 y 1998. El esfuerzo de pesca anual de esta pesquería ha fluctuado en torno a los 100 millones de anzuelos desde 1994, con un máximo de 120 millones de anzuelos en 1996. El esfuerzo de pesca se concentró sobre todo en el sudeste del Atlántico a principios de la década de los 90, desplazándose hacia el nordeste en los últimos años. La captura japonesa de aguja blanca descendió hasta aproximadamente 53 t, constituyendo menos del 10% de la captura total de esta especie en el Atlántico en 1998. La captura japonesa de aguja azul descendió en los últimos años, de 1.600 t a 1.100 t, permaneciendo estable en un 35% de la captura total de aguja azul en el Atlántico.*

RÉSUMÉ

Le présent document fait un examen rapide de la situation récente des prises de makaire blanc (Tetrapturus albidus) *et de makaire bleu* (Makaira nigricans) *de la pêche palangrière japonaise de 1994 à 1998. L'effort de pêche annuel de la palangre japonaise a fluctué aux alentours de 100 millions d'hameçons depuis 1994, avec un maximum de 120 millions d'hameçons en 1996. L'effort de pêche s'est surtout concentré dans l'Atlantique sud-est au début des années 1990, puis s'est déplacé ces dernières années vers l'Atlantique nord-est. La capture japonaise de makaire blanc a baissé à environ 53 TM, et constituait en 1998 moins de 10% de la prise atlantique totale de cette espèce. La capture japonaise de makaire bleu a baissé ces dernières années de 1.600 TM à 1.100 TM, et est restée stable aux alentours de 33 % de la prise atlantique totale de l'espèce.*

KEYWORDS

Fish catch statistics, Fishing effort, Annual variations, Commercial fishing, Longlining, Tuna fisheries, Bycatch

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INTRODUCTION

The Japanese longline fishery began in the Atlantic Ocean in 1956 in the western part of equatorial waters. The fishing grounds expanded throughout the tropical regions in the mid-1960s. In the 1970s, the Japanese longline fishery changed its strategy on target species from albacore to many other species of tunas with the development of super-cold freezers. As a result of the change in targeting, the fishing grounds and gear configuration changed very quickly in the 1970s. Effort has concentrated in a few restricted areas, such as off Nova Scotia, Morocco/Sahara, Angola, and South Africa. In the 1980s, the distribution pattern of fishing effort has been stable in these four major fishing grounds. A detailed description of these historical changes was presented by Uozumi and Nakano (1994). In 1996, ICCAT introduced a Recommendation to reduce catches of blue marlin and white marlin by at least 25% from 1996 levels. This reduction was initiated in 1998 and fully implemented by the end of 1999. In this paper, the recent status of blue and white marlin catches made by the Japanese longline fishery in the 1990s is described. The data for 1998 are still preliminary.

RESULTS

Fishing effort

Figures 1, 2 and Table 7 show the recent fishing effort of the Japanese longline fishery in terms of number of hooks in the Atlantic Ocean. In 1994, the amount of fishing effort in the North and South Atlantic were about 32 and 66 million hooks, respectively. The total number of hooks in the Atlantic Ocean has been stable at around 100 million hooks in the recent five years. Among these small recent fluctuations, fishing effort reached about 120 million hooks in 1996, the base year for calculating the recommended catch reduction of blue and white marlins. Thereafter, fishing effort decreased slightly to about 100 million hooks in 1998. The percentage of hooks compared with 1996 was 90% and 84 % in 1997 and 1998, respectively.

The fishing effort in the south Atlantic tended to decrease between 1994 and 1998, but it has increased in the north Atlantic (Fig. 1). Fishing effort in the north Atlantic has become larger than in the south since 1996. The fishing effort in the eastern Atlantic Ocean ranged from about 78 to 93 million hooks, which is about four times higher than in the west Atlantic in the recent five years. This tendency has been continued since the mid-1980s and maintained stable during the recent five years. A detailed description of historical changes for the Japanese longline fishery was presented by Uozumi (1998).

Among the ICCAT Billfish Areas, fishing effort of the Japanese longliners about doubled in Areas 94-A and 94-B from 1994 to 1998 (Tables 1 and 2). The decrease during this period in the south Atlantic was substantial. The number of hooks in Areas 96 and 97 decreased from 10 million to 2 million, and from 56 million to 37 millions, respectively (Tables 3 and 4). Fishing effort south of 20 º S in Area 96 disappeared (Figure 3). Very minor fishing effort has been distributed in Areas 92 and 93, and it has fluctuated with no clear tendency (Tables 5 and 6).

The fishing effort of the Japanese longliners has been concentrated in the eastern Atlantic in the recent years as shown in Figure 3. The fishing effort has been concentrated in the tropical waters off the west coast of Africa, the major fishing ground for bigeye. Another concentration occurred in the temperate waters in the northeastern central Atlantic Ocean, the fishing grounds for bluefin tuna. Additionally fishing effort has concentrated in the waters off South Africa, the fishing grounds for southern bluefin tuna.

Catch and CPUE

White marlin

The catch of white marlin by the Japanese longline fishery is shown in Table 7. Japanese catch of white marlin in the Atlantic Ocean fluctuated between 50 to 100 t in the Atlantic with the highest catch of 112 t in 1996. The Japanese catch has made up a very minor portion of the total white marlin catch in the Atlantic Ocean; as a percentage, it was stable at around about 5% of the total in the recent five years. Compared with the catch in 1996, the base year for the catch reduction, this catch decreased to 51% and 47% in 1997 and 98, respectively.

The catch of white marlin decreased in almost all ICCAT Billfish Areas as shown in Tables 1 to 6, except for the Area 94B, where the fishing effort increased significantly. In Areas 96 and 97 (in the south Atlantic), the level of decrease was very substantial, especially in Area 96, where the fishing effort decreased very much. Based on this information, the significant reduction of the catch in the recent three years is mainly caused by the decrease of the total fishing effort shown in Figure 1. In addition, the change in effort distribution in the tropical area from the south to the north Atlantic also caused this reduction, because the fishing effort was reduced in the high-density area of white marlin and increased in the marginal distribution area of this species.

Blue marlin

The catch of blue marlin by the Japanese longline fishery in the Atlantic Ocean is shown in Table 8. Japanese catch fluctuated between 1,100 and 1,500 t with the peak of 1,589 t in 1996. The percentage of the Japanese catch in the total Atlantic catch has been stable at about 35%. Compared with the catch in 1996, the base year for catch reduction, the blue marlin catch decreased to 80% and 68% in 1997 and 98, respectively.

The catch of blue marlin increased in the north Atlantic, but decreased significantly in the south Atlantic (Tables 1 to 6, and 8). The reduction in the south Atlantic amounted to more than 50% in the most recent three years. The reasons for the recent reduction of the catch for blue marlin are very similar to those in white marlin: The significant reduction of the catch in the recent three years is mainly caused by the decrease in fishing effort in the south Atlantic Ocean. The main catch was obtained from the area where the CPUE of blue marlin is relatively low, as shown in Figure 5. The fishing effort is now concentrated in tropical waters of the western Atlantic, where blue marlin are less abundant, and more effort has expanded to the more temperate waters, beyond the distribution range of the blue marlin. The recent trend of fishing effort distribution has affected heavily on the catch trend of blue marlin.

REFERENCES

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Table 1. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 94-A.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	8,333	275	7	0.033	652	68	0.078
1995	7,698	240	5	0.031	805	92	0.105
1996	18,003	346	9	0.019	1,834	197	0.102
1997	15,509	170	5	0.011	1,165	125	0.075
1998	17,925	155	4	0.009	1,318	152	0.074

Table 2. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 94-B.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	21,854	852	24	0.039	2,206	254	0.101
1995	30,752	459	15	0.015	2,318	263	0.075
1996	41,512	1,406	38	0.034	3,325	363	0.080
1997	45,162	445	15	0.010	2,751	318	0.061
1998	42,437	907	26	0.021	2,820	359	0.066

Table 3. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 96.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	10,343	1,047	27	0.101	3,256	345	0.315
1995	5,316	232	6	0.044	1,349	151	0.254
1996	6,612	262	7	0.040	1,455	148	0.220
1997	7,801	386	11	0.049	1,919	194	0.246
1998	2,345	84	2	0.036	949	85	0.405

Table 4. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 97.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	55,935	1,062	31	0.019	6,832	841	0.122
1995	55,485	795	24	0.014	7,068	860	0.127
1996	52,324	939	30	0.018	7,660	878	0.146
1997	37,723	647	21	0.017	5,271	637	0.140
1998	36,731	473	14	0.013	3,512	469	0.096

Table 5. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 92.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	1,287	42	1	0.033	28	5	0.022
1995	334	-	-	-	1	0	0.003
1996	264	-	-	-	25	3	0.095
1997	96	23	0	0.239	9	1	0.093
1998	997	155	3	0.156	140	20	0.140

Table 6. Hooks in thousands, catch in meric tons and CPUE in number of 1,000 hooks of billfishes in the Area 93.

Year	Hooks	White marlin			Blue marlin		
		Catch		CPUE	Catch		CPUE
		Number	Weight		Number	Weight	
1994	297	0	3	0.441	126	11	0.424
1995	415	0	4	0.451	-	-	-
1996	1,078	1	28	0.912	1,011	90	0.938
1997	1,386	0	6	0.197	805	73	0.581
1998	560	0	3	0.216	370	24	0.660

Table 7. Hooks in thousands and catch (mt) of white marlin in the Atlantic Ocean. % denotes the percentage of the Japanese longline catch in the total Atlantic catch.

Year	Hooks	Total catch			Japanese catch	
		All Countries	JAPAN?	%	North	South
1994	98,050	1,895	92	4.9	35	57
1995	100,000	1,461	55	3.8	25	30
1996	119,793	1,517	112 (100%)	7.4	75	37
1997	107,677	913	58 (52%)	6.4	26	32
1998	100,995	1,118	53 (47%)	4.7	36	17

? % in parenthesis show the percentage compared with the weight in 1996.

Table 8. Hooks in thousands and catch (mt) of blue marlin in the Atlantic Ocean. % denotes the percentage of the Japanese longline catch in the total Atlantic catch.

Year	Hooks	Total			Japanese catch	
		All Countries	JAPAN?	%	North	South
1994	98,050	3,993	1,524	37.9	338	1,186
1995	100,000	3,818	1,365	35.8	355	1,010
1996	119,793	4,461	1,679 (100%)	35.6	653	1,026
1997	107,677	4,069	1,349 (80%)	31.4	518	831
1998	100,995	3,198	1,109 (66%)	33.9	554	554

? % in parenthesis show the percentage compared with the weight in 1996.

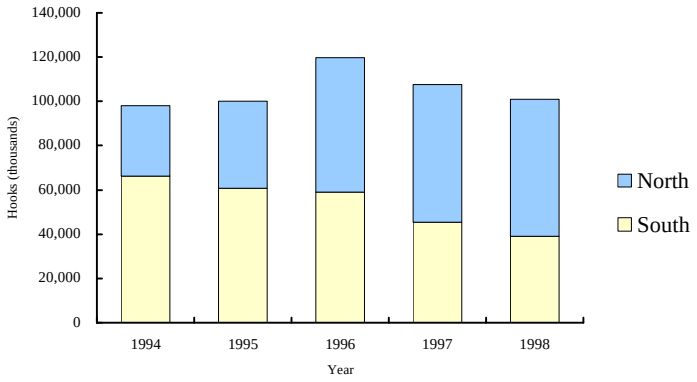

Figure 1. Changes in fishing effort for the Japanese longline fishery for North and South Atlantic.

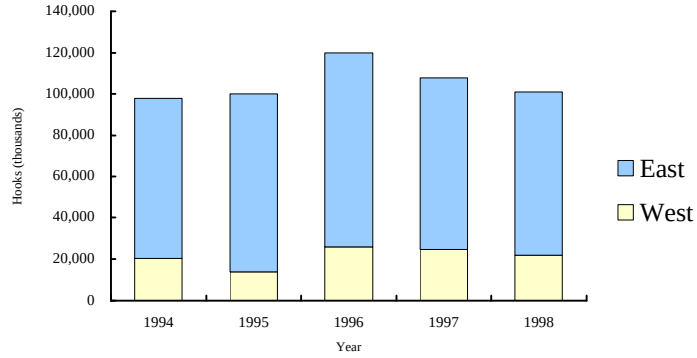

Figure 2. Changes in fishing effort for the Japanese longline fishery for East and West Atlantic.

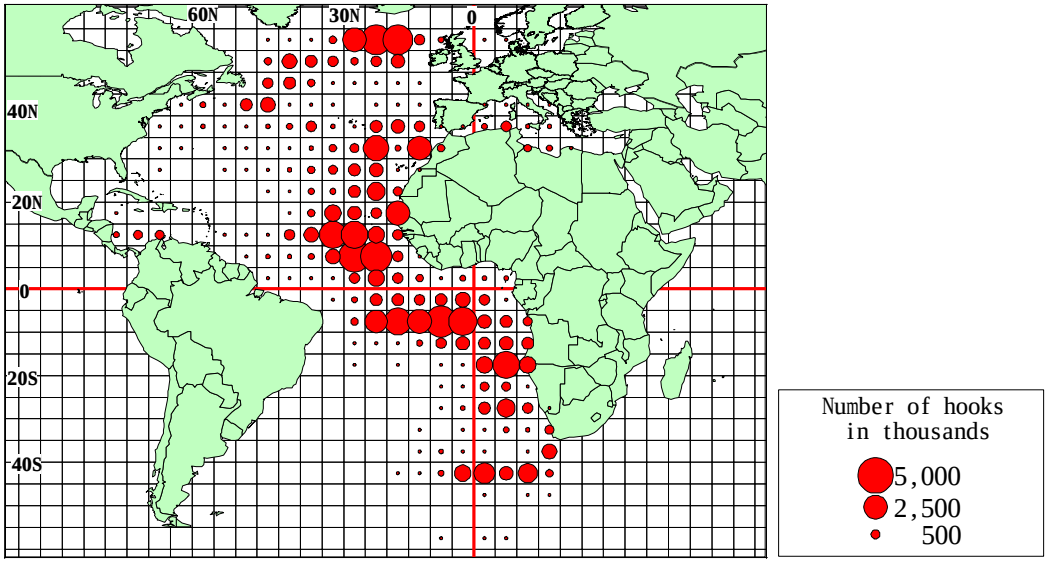

Figure 3. Distribution of average fishing effort (number of hooks in thousands) for the Japanese longline fishery in the Atlantic Ocean from 1996 to 1998.

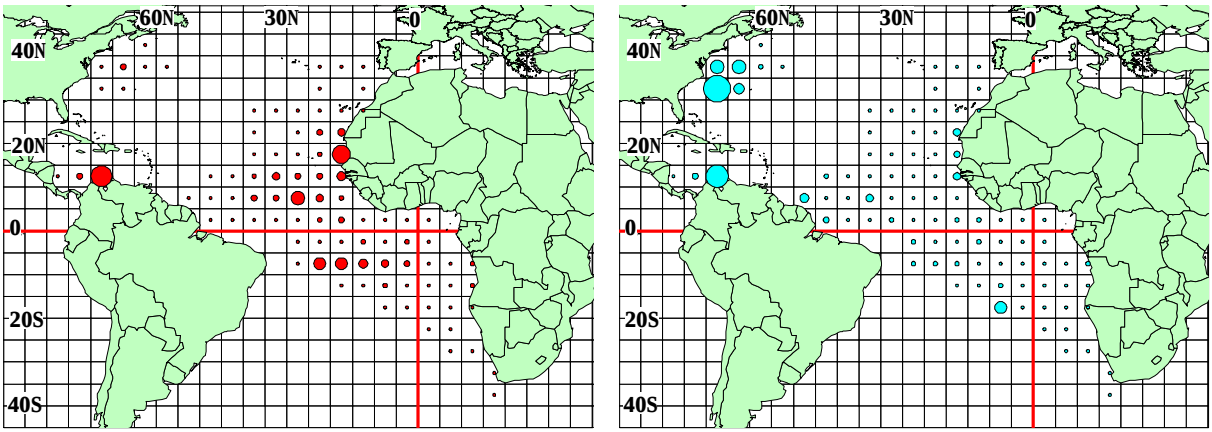

Figure 4. Distribution of average annual catch in number of white marlin (left) and CPUE in number per 1000 hooks (right) in 1996-1998.

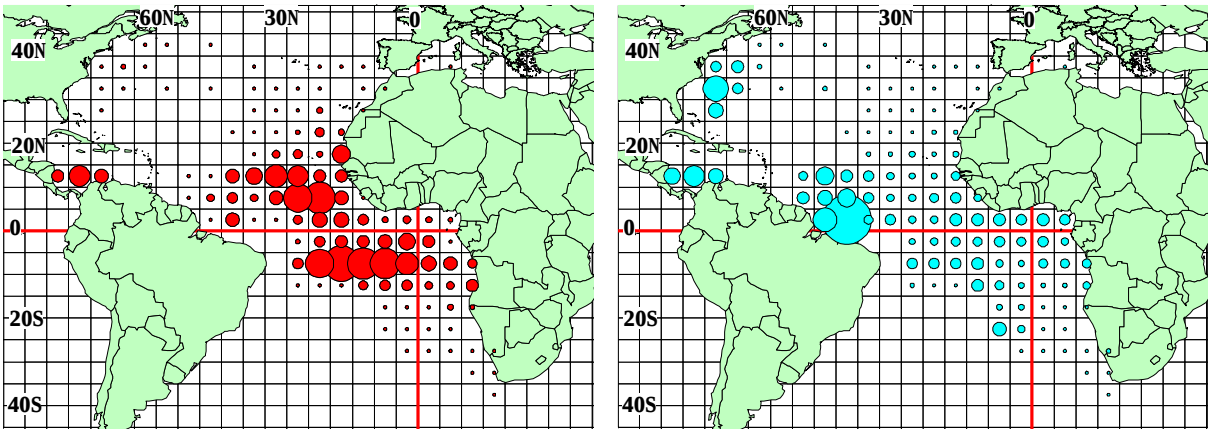

Figure 5. Distribution of average annual catch in number of blue marlin (left) and CPUE in number per 1000 hooks(right) in 1996-1998.