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REPORT ON INFORMATION OF BYCATCH FISHES OBTAINED FROM OBSERVER PROGRAM FOR JAPANESE TUNA LONGLINE FISHERIES IN THE ATLANTIC OCEAN

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SUMMARY

From 1995 till 1998, ten observer trips in all were made in the Atlantic Ocean. Seven of them were in the northwest area and three of them were in the central area. From the data which observers collected, the number of catches and CPUE by species were calculated. In the central area, a total of 40 species and 1149 individuals were recorded. In the northwest area, a total of 36 species and 11483 individuals were recorded. Sharks was the dominant group and blue shark was the dominant species in both areas. The ratio and CPUE of blue shark were different between the two areas (42% and 2.4 in the central, 59% and 8.2 in the northwest). The CPUE of shortfin mako, tiger shark and stingray were high to some extent (0.23-0.85) in the northwest area and very low (0-0.04) in the central. Crocodile shark and bigeye thresher indicated the reverse tendencies.

RÉSUMÉ

De 1995 à 1998, dix sorties avec observateurs ont été effectuées dans l'Atlantique. Sept d'entre elles se sont déroulées dans le nord-ouest, et trois dans la zone centrale. La prise numérique et la CPUE par espèce ont été calculées d'après les données recueillies par les observateurs. Dans la zone centrale, 40 espèces et 1.149 poissons ont été enregistrés. Les requins constituaient le groupe le plus important, et le requin peau bleue prédominait dans les deux zones. Le ratio et la CPUE du requin peau bleue différaient entre les deux secteurs (42 % et 2.4 dans la zone centrale, 59 % et 8.2 dans le nord-ouest). La CPUE du requin-taupe bleu, du requin-taureau et des pastenagues étaient relativement élevés (0.23-0.85) dans le nord-ouest, et très faibles (0-0.04) dans la zone centrale. Le requin-crocodile et le requin-renard à gros yeux montraient une tendance inverse.

RESUMEN

De 1995 a 1998 se realizaron diez salidas con observadores en el Atlántico. Siete de ellos tuvieron lugar en la zona noroeste y tres en la zona central. Basándose en los datos recogidos por observadores, se calcularon el número de capturas y la CPUE por especies. En la zona central, se registró un total de 40 especies y 1.149 individuos. En la zona noroeste, se registró un total de 36 especies y 11.483 individuos. Los tiburones eran el grupo dominante y la tintorera fue la especie predominante en ambas zonas. La ratio y la CPUE de la tintorera difería entre ambas zonas (42% y 2.4 en la central, 59% y 8.2 en el noroeste). Las CPUEs del tiburón maco, tiburón tigre y del águila marina eran bastante altas (0.23-0.85) en el noroeste y muy bajas (0-0.04) en la central. El tiburón cocodrilo y el zorro ojón mostraban tendencias inversas.

1. Introduction

Fishery Agency of Japan began Atlantic tuna longline vessel observer program from 1995 in order to get more detailed and correct data than logbook data for stock assessment of tunas and other bycatch species. Outlines of this program mainly on the tunas in 1997 and 1998 were already reported by Matsumoto and Miyabe.(1997, 1998). Therefore, this paper reports on the summary of bycatch fishes information, which means the exclusion of tunas, obtained from this observer program in the central and northwest Atlantic Ocean until now (1995-98).

2. Observers and trips

Ten observer trips in all were made from 1995 till 1998. Seven of them were made in the northwest Atlantic and three of them were made in the central Atlantic. Summaries of the operations are given in Table 1 and 2. Gear types (number of hooks per baskets) are 6-10 in the northwest area and 13-17 in the central area. Two ships (No.11 Kotoshiro-maru and No.68 Shoushin-maru) aimed at bluefin tuna in the northwest Atlantic. Other ships aimed mainly at bigeye and yellowfin tunas. Total number of operations and hooks in the northwest area are 380 and 899×10^3. Those in the central area are 101 and 208×10^3. The areas of operations are shown in Fig.1.

3.Methods

Observer collected the information on fishing operations such as gear characteristics, operating positions and a number of hooks. Moreover in principle, all the catches during observations were identified to the species level, measured and recorded. From these data, a number of catches and CPUE by species were calculated.

4.Results

The list of bycatch fish species and a number of catches by species in the two areas is shown in Table 3. They can be divided into 4 species groups. Those are billfishes, finfishes (bony fishes excluding billfishes), sharks and rays. Other than fishes, marine mammals and seabirds were rarely observed.

In the central Atlantic, a total of 40 species (including 7 unidentified species) were observed. They consisted of 6 billfishes, 20 finfishes, 12 sharks and 2 rays. As to the number of catches, 1149 individuals were recorded. They consisted of 270 billfishes, 274 finfishes, 602 sharks and 3 rays.

In the northwest Atlantic, a total of 36 species (including 6 unidentified species) were observed. They consisted of 5 billfishes, 18 finfishes, 10 sharks and 3 rays. And 11483 individuals were recorded. They consisted of 830 billfishes, 2445 finfishes, 7771 sharks and 437 rays.

Species groups composition in each area is shown in Fig.2. The group of sharks is the dominant species one in both areas, but it occupied more part in the northwest area (68%) than central area (53%). On the contrary, the ratio of billfishes in the northwest (7%) is less than a third of that in the central (23%). Finfishes group indicated a little difference between the two areas. Rays were only 4% in the northwest and seldom caught in the central area.

Fig. 3 represents the ratio of each species. In the central area, blue shark was the dominant species and occupied 42% of all bycatch fishes, followed by swordfish (14%), lancetfishes (8%), Atlantic blue marlin (7%), crocodile shark (4%) and bigeye thresher (3%). In the northwest area, blue shark was also the dominant species and occupied 59%, followed by lancetfishes (11%), shortfin mako (6%), dolphin fish (4%), stingray (4%) and wahoo (3%).

Total CPUE (number of catches per 1000 hooks) in the central area was 5.8 (sharks; 3.0, billfishes; 1.4, finfishes; 1.4, rays; 0.0). That in the northwest was 13.9 (sharks; 9.4, finfishes; 2.9, billfishes; 1.0, rays; 0.5). The difference between the two areas was striking in sharks, which contributed the difference in total CPUE.

Fig. 4 represents the CPUE of each species. The CPUE of blue shark were highest in both areas, but the levels were much different (central; 2.4, northwest; 8.2), which caused the difference of shark's CPUE between the two areas mentioned above. The CPUE of shortfin mako, tiger shark and stingray, which are temperate species, were high to some extent (0.23-0.85) in the northwest area and very low (0-0.04) in the central. Similar tendencies were observed in white marlin, longbill spearfish, lancetfishes, dolphin fish and wahoo. In reverse, the CPUE of crocodile shark and bigeye thresher, which are tropical species, were a little high (0.16-0.22) in the central area and very low (0-0.01) in the northwest. Those of swordfish and Atlantic blue marlin indicated similar tendencies.

We present the outline of species composition and CPUE of bycatch fishes in this report. From now on, we intend to analyze more in detail, taking the difference of some factors such as seasons, areas and gear types, into consideration.

Reference

Matsumoto, T. and N. Miyabe. 1997: Report of 1997 observer program for Japanese tuna longline fishery in the Atlantic Ocean. ICCAT SCRS/97/56.

Matsumoto, T. and N. Miyabe. 1998: Report of 1998 observer program for Japanese tuna longline fishery in the Atlantic Ocean. ICCAT SCRS/98/161.

Table 1. Summary of the operations in the northwest Atlantic.

vessels	Year	month	gear type	number of operations	Number of Hooks (×1000)
No.11 Kotoshiro-maru	1995-96	Dec.-Jan.	6-8	27	54
No.68 Shoushin-maru	1995-96	Dec.-Jan.	9	13	34
No.8 Touei-maru	1997	Apr.-Jun.	10	69	160
No.52 Seikou-maru	1997	Apr.-Jul.	8-10	71	172
No.71 Sumiyoshi-maru	1997	Apr.-Jul.	9-10	67	156
No.8 Touei-maru	1998	May-Jul.	10	50	120
No.52 Seikou-maru	1998	Apr.-Jul.	8-10	83	203

Table 2. Summary of the operations in the central Atlantic.

Vessels	Year	month	gear type	number of operations	Number of Hooks (×1000)
No.11 Kotoshiro-maru	1996	Jan.	13-16	13	33
No.11 Choukyu-maru	1997	Jan.-Mar.	15	42	50
No.88 Eishin-maru	1997	Jan.-Mar.	17	46	125

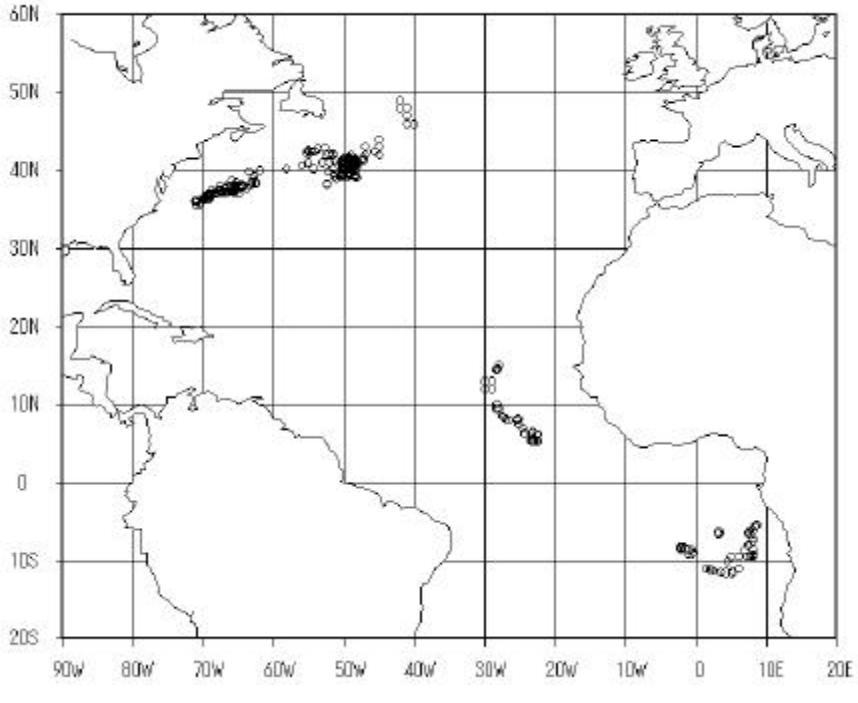

Fig.1. Positions of operations in the Atlantic.

Table 3. Bycatch species list of Osteichthyes and Chondrichthyes and number of catches in each area.

Group	English name	Scientific name	central	Northwest
Tunas	Albacore	*Thunnus alalunga*	10	4756
	Yellowfin tuna	*Thunnus albacares*	267	4846
	Bigeye tuna	*Thunnus obesus*	1892	9830
	Bluefin tuna	*Thunnus thynnus*		423
	Skipjack tuna	*Katsuwonus pelamis*	3	12
Billfishes	Atlantic sailfish	*Istiophorus albicans*	1	5
	Atlantic blue marlin	*Makaira nigricans*	75	85
	Longbill spearfish	*Tetrapturus pfluegeri*	27	300
	Shortbill spearfish	*Tetrapturus platypterus*	2	
	Swordfish	*Xiphias gladius*	158	248
	White marlin	*Tetrapturus albidus*	7	192
Finfishes	Longnose lancetfish	*Alepisaurus ferox*	55	742
	Shortnose lancetfish	*Alepisaurus brevirostris*	3	
	Lancetfishes	Alepisauridae	36	499
	Opah	*Lampris guttatus*	31	140
	Deal fish	*Trachipterus trachipterus*	1	9
	Atlantic pomfret	*Brama brama*	1	8
	Pomfrets	Branidae	11	
	Rough pomfret	*Taractes asper*	3	
	Sickle pomfret	*Taractichtys steindachneri*	22	17
	Bigscale pomfret	*Taractichtys* sp.	3	5
	Rainbow runner	*Elagatis bipinnulata*	1	
	Pompano dolphin	*Coryphaena equisetis*	7	10
	Dolphin fish	*Coryphaena hippurus*	13	495
	Snake mackerel	*Gempylus serpens*	13	4
	Escolar	*Lepidocybium flavorunneum*	21	77
	Oilfish	*Ruvettus pretiosus*	2	43
	Black gemfish	*Nesiarchus nasutus*	1	1
	Wahoo	*Acanthocybium solandri*	18	380
	Spanish Mackerels	*Scomberomorus* sp.	8	3
	Blueback puffer	*Masturus lanceolas*		1
	Ocean sunfish	*Mola mola*	24	10
	Slender mola	*Ranzania laevis*		1
Sharks	Velvet dogfish	*Scymnodon squamulosus*	17	
	Crocodile shark	*Pseudocarcharias kamoharai*	43	
	Bigeye thresher	*Alopias superciliosus*	32	5
	Thresher shark	*Alopias vulpinus*	1	
	Thresher sharks	Alopiidae	2	5
	Shortfin mako	*Isurus oxyrinchus*	8	710
	Longfin mako	*Isurus paucus*	2	12
	Silky shark	*Carcharhinus falciformis*		18
	Oceanic whitetip shark	*Carcharhinus longimanus*	4	9
	Blue shark	*Prionace glauca*	485	6819
	Requiem shark	Carcharhinidae		4
	Tiger shark	*Galeocerdo cuvieri*		188
	Scalloped hammerhead	*Sphyrna lewini*	3	
	Smooth hammerhead	*Sphyrna zygaena*	4	
	Hammerhead sharks	Sphyrnidae	1	1
Rays	Sting ray	*Dasyatis violacea*	2	405
	Rays	Rajiformes		31
	Davil rays	Mobulidae	1	1
Total			1149	11483
(including tunas)			3321	31350

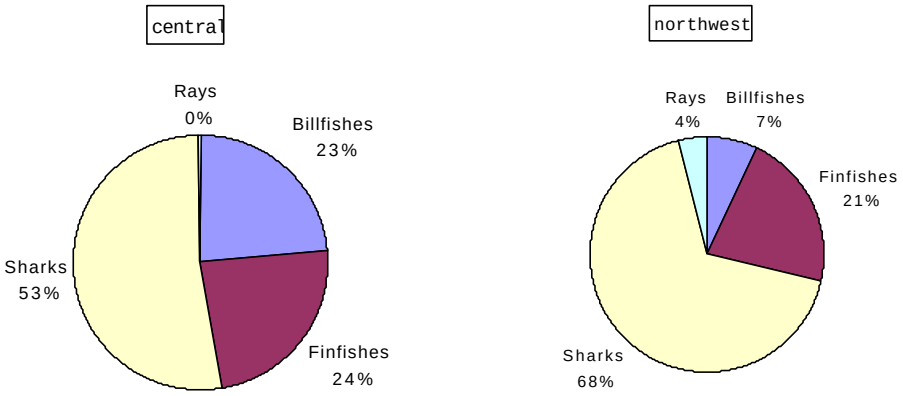

Fig.2. Species group composition of bycatch fishes in each area .

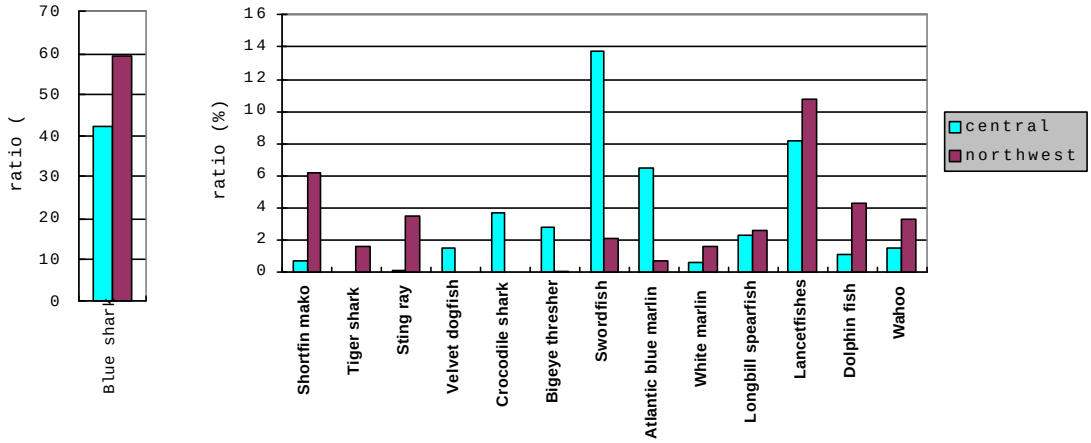

Fig.3. Ratio of bycatch fish species in each area .

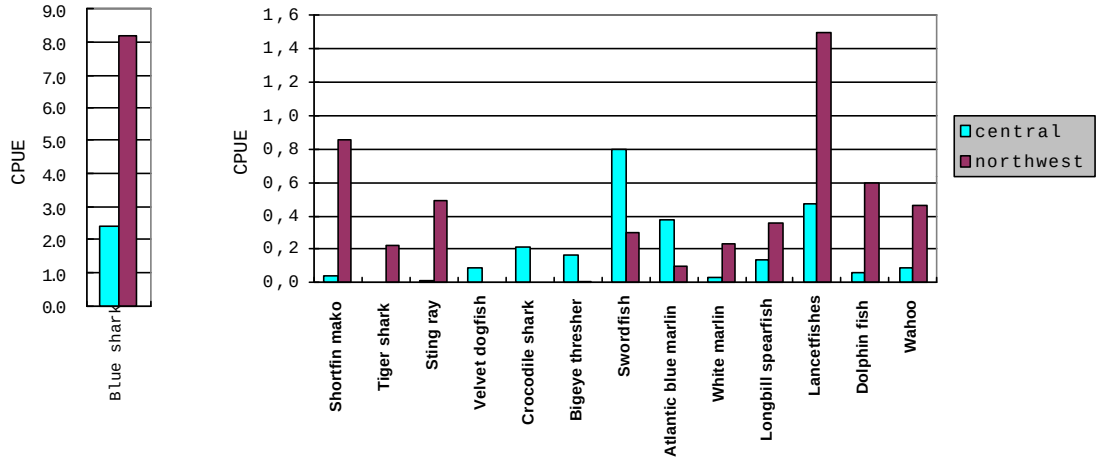

Fig.4 CPUE of bycatch fish species in each area.