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A REVIEW OF THE JAPANESE FISHERY AND RESEARCH ON SHARKS IN THE ATLANTIC OCEAN

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SUMMARY

The longline fishery is the only large-scale Japanese fishery in the Atlantic that has been catching sharks as by-catch since 1956. In addition, scientific surveys have been conducted using longline gear from 1955 to 1974. Very few studies have been made and research conducted up to now due to the low market value and the lack of statistics on sharks. Available information on the shark catches and species caught by the longline fishery was briefly analyzed and future research plans were introduced.

RESUME

La pêcherie palangrière est la seule pêcherie japonaise travaillant à grande échelle dans l'Atlantique qui ait capturé des requins en tant que prise accessoire depuis 1956. Par ailleurs, des prospections scientifiques ont été menées à la palangre de 1955 à 1974. Très peu d'études et de recherches ont été effectuées jusqu'à maintenant du fait de la valeur commerciale réduite et du manque de statistiques sur les requins. L'information disponible sur la capture de requins et les espèces capturées par la pêcherie palangrière a été brièvement analysée, et le programme de recherches pour l'avenir est présenté.

RESUMEN

Desde 1956 únicamente la pesquería de palangre ha capturado tiburones a gran escala, como captura secundaria de las pesquerías japonesas del Atlántico. Además, se han llevado a cabo prospecciones científicas utilizando el arte de palangre durante 1955 a 1974. Se han efectuado muy pocos estudios e investigación hasta la fecha, debido al escaso valor comercial y a la falta de estadísticas de tiburones. Se analizó someramente la información disponible sobre los tiburones y otras especies capturadas por la pesquería de palangre, y se introdujo el programa futuro de investigación.

1.Introduction

From 1956, the Japanese longline fishery started at the Atlantic Ocean and have been continued to the present. The longline fishery is only fishery operating over a fairly extensive area which have some significant shark by-catch. The effort of Japanese longline fishery (hooks) increased rapidly in the early 1960s then decreased in the late 1960s and increased again with fluctuation. It has been ranged between 40 and 90 million hooks (Fig.1). The Atlantic effort amounts about 10-20% of Japanese total longline effort in the world.

The Japanese longline fishery covered its fishing ground in equatorial waters for targeting yellowfin tuna and albacore at early stage in the Atlantic (Uozumi and Nakano 1992). Then they shifted target species to bigeye, bluefin and southern bluefin tunas after development of super cold freezer equipped on vessels for the Japanese "sashimi" market. The fishing ground of Japanese longliners consists of three major fishing grounds temperate North Atlantic for bluefin tuna and bigeye tuna, tropical and adjacent waters for bigeye tuna and off south Africa for southern bluefin tuna (Fig. 2). In the tropical waters, "deep longline gear" has been dominantly used for targeting bigeye tuna since 1975 (Koido and Yonemori 1986).

2.Japanese shark catch and landing statistics

The Japanese longline fishery has been caught sharks as bycatch. The blue shark (*Prionace glauca*), salmon shark (*Lamna ditropis*), mako shark (*Isurus oxyrinchus*) thresher sharks (Alopiidae), hammerhead sharks (Sphyrnidae) and the sharks of Carcharhinidae are landed at the Japanese fishing market from longline fishery near Japan. Especially, there is small scale shark longline fishery for targeting salmon shark in coastal waters of Japan. However, the sharks landed by far seas longline fishery like the longline in the Atlantic consist of mako, thresher and Carcharhinidae sharks which have high economic value at the market. The shark fins are taken from almost of all sharks. However, sharks which has low economic value are discarded from vessels after finning.

Unfortunately, Japanese landing statistics are not divided by fishing ground. As other information, the logbook reports are submitted to the Japanese government which have a column for shark catch but combined sharks all together. There are possibilities not all fishermen do not report shark catches because they are not interested in the catches and others only report certain species which have economic value. Considering such situation, the reporting rate (operations with shark catch / total operations) are 15-30% during 1983 and 1990 (Fig.3). The CPUE of sharks (catch in No. of fish / 100 hooks) was calculated only using operations which shark caught because of the reason given above. It ranged 0.1-0.4 and shown a stable trend during the period (Fig.4).

3. The research on sharks in the Atlantic Ocean

The scientific researches using longline gear were held by the Fishery Agency of Japan (e.g. Shiohama et al. 1965) 1955-1970 and Japan Marine Fishery Resource Research Center during 1971-1974. However, those researches are not focused on shark studies and only two research cruise reported all species list of sharks taken (FAJ 1966,1967).

Table 1 shows the list of sharks which has been caught during the researches. Those researches were mainly made in the central high sea areas in the Atlantic. Eleven species of elasmobranchs, one Psuedocarchariidae, two Alopiidae, three Lamnidae, four Carcharhinidae and one pelagic ray, were reported from two research cruise.

4.Future Research

The NRIFSF (National Research Institute of Far Seas Fisheries) is planning observer research in the Atlantic Ocean in near future. The NRIFSF already starts the shark research at the equatorial water of the Pacific Ocean using the training vessels of fishery high school and research vessels of prefectual fishery experimental stations, and trilateral cooperative observer research in the southern bluefin tuna fishing ground of the Indian Ocean.

On the other hand, for collecting the statistics of shark catch, the new format of log book report will be used from next year. It includes catch report of major sharks such as blue, mako, salmon and other sharks. Those observer researches and catch statistics on sharks will give the details of shark catch.

5.Reference

FAJ (Fishery Agency of Japan) 1966: Research cruise report of "Shoyo-maru" in 1965. pp.272. [In Japanese]

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Koido, T. and T. Yonemori 1986: Trend in hook rate of Atlantic swordfish. ICCAT, CVSP. Vol. XXVI:396-401.

Shiohama, T., M. Myojin and H. Sakamoto 1965: The catch statistic data for the Japanese long-line fishery in the Atlantic Ocean and some simple consideration on it. Bull. Nankai Regional Fish. Res. Lab. No.21:1-131.
[In Japanese with English abstract]

Uozumi, Y. and H. Nakano 1992: A historical review of Japanese longline fishery and billfish catches in the Atlantic Ocean during 1975-1989. SCRS/92/65.

Table 1. The list of sharks caught by Japanese longline research vessel "Shoyo-maru" during 1965-1966.

English name	Species
Psuedocarchariidae	
Crocodile shark	*Pseudocarcharias kamoharai*
Alopiidae	
Bigeye thresher	*Alopias superciliosus*
Thresher sharks	*Alopias* sp.
Lamnidae	
Shortfin mako shark	*Isurus oxyrinchus*
Longfin mako shark	*Isurus paucus*
Porbeagle	*Lamna nasus*
Carcharhinidae	
Copper shark	*Carcharhinus brachyurus*
Oceanic whitetip shark	*Carcharhinus longimanus*
Requiem sharks	*Carcharhinus* sp.
Blue shark	*Prionace* glauca
Dasyatidae	
Sting ray	*Dasyatis* sp.

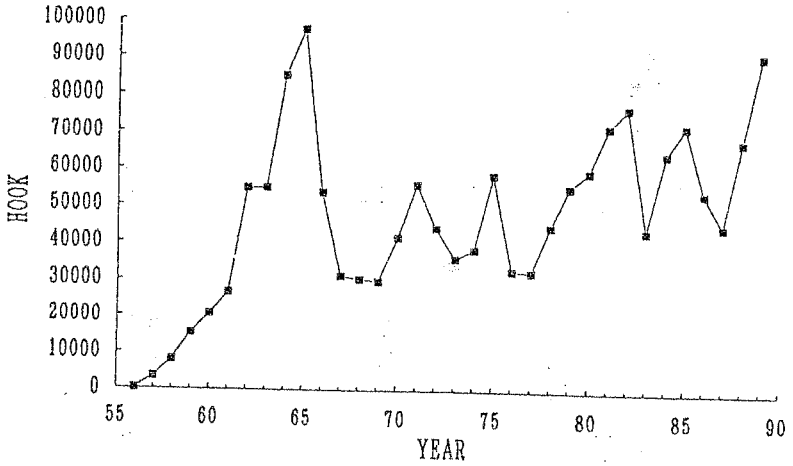

Fig.1. Historical change of Japanese longline effort (hooks) in the Atlantic Ocean from 1956 to 1989. Nominal hook number in thousand hooks.

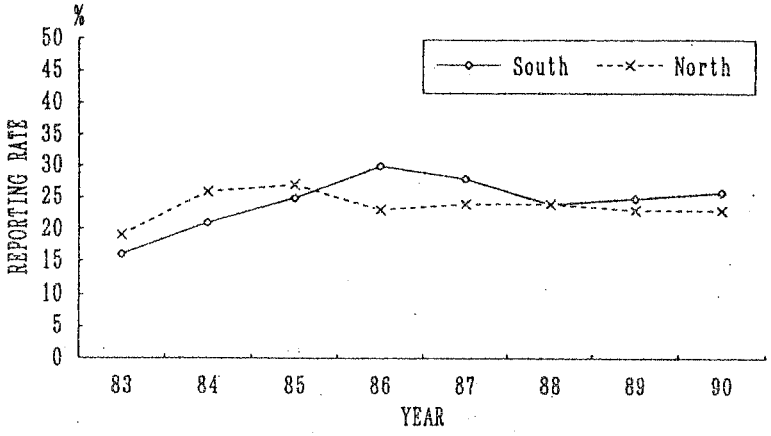

Fig. 3. Reporting rate of shark catch in the log book of Japanese longline Fishery in the Atlantic Ocean.

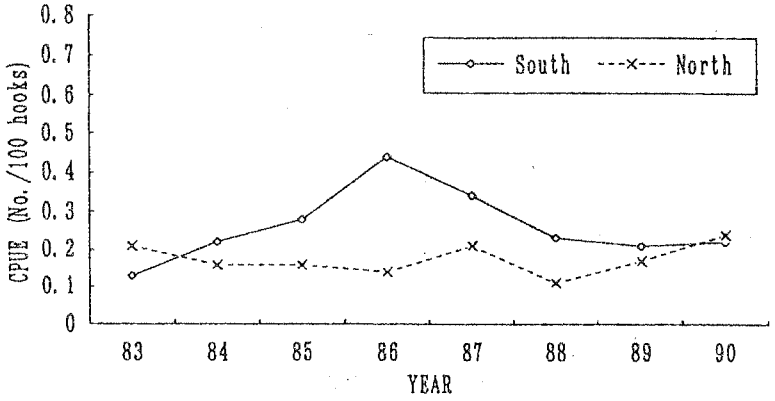

Fig. 4. Japanese nominal longline CPUE (No. / 100 hooks) of sharks calculated only from reported operations with sharks.

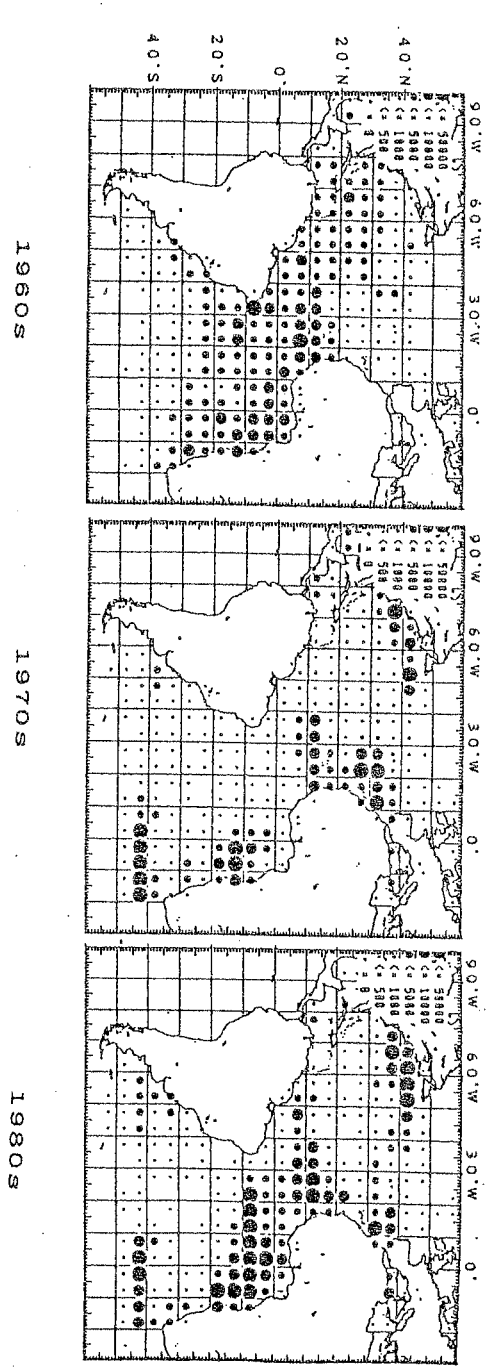

Fig.2. Effort distribution of Japanese longline fishery in the Atlantic Ocean in each decade from 1960 to 1989. Numbers in keys indicate accumulated nominal hook numbers in thousand in each decade. (From Uozumi and Nakano, 1992)