FISHING CONDITIONS OF THE JAPANESE LONGLINERS IN THE WESTERN ATLANTIC DURING 1982-1985

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SUMMARY

Fishing conditions of the Japanese longliners during 1982-1985 in the western Atlantic Ocean were reported. High CPUE during the period of January to March in 1985 was due to the unusually heavy catch of small tuna, while the catch varied considerably among the vessels.

RESUME

Les conditions de pêche des palangriers japonais en 1982-85 dans l'Atlantique ouest sont décrites. La CPUE élevée de la période janvier-mars 1985 était due à l'inhabituelle forte prise de petits thonidés, tandis que la prise a considérablement varié entre les bateaux.

RESUMEN

Se informa acerca de las condiciones pesqueras de los palangreros japoneses en el Atlántico Oeste durante el periodo 1982-85. Los altos valores de CPUE observados de enero a marzo de 1985 se deben a que se obtuvo una gran captura de pequeños túnidos, hecho poco corriente, distribuyéndose esta captura en forma muy desigual entre los barcos.

Four years have passed since the catch quota was changed to the catch for scientific monitoring in 1982 as a part of the fishing regulations for the bluefin tuna in the western Atlantic Ocean. The purpose of this paper is to report the outline of the fishing conditions of the Japanese longliners for four years from 1982 to 1985.

Materials and methods

Catch and effort

The number of operating vessels and the number of sets in the northern Atlantic west of 40°W and north of 10°N were examined based on the data from the reporting system of fishing activity of the Japanese longliners. The catch in number of bluefin tuna in the same water was obtained from the fishing log books submitted from the fishing vessels after each cruise. In the present report, the catch per set was calculated by month from the number of sets and the catch in number. Although the catch per set is nominal, it seems to be sufficient to grasp the fishing condition of the Japanese longliners. To be exact, the catch in number needs to be raised as the coverage rate does not reach 100% though it is beyond 95%.

Size data

This size category composition in number of the catch caught by two vessels each in 1982 and 1983 fishing seasons (each fishing season begins in autumn and ends in spring in the following year) was obtained. The fishing vessels operated in the fishing ground of bigeye tuna from the water off Halifax to the water off Grand Bank, 40°- 45°N and 53°- 64°W. All the weights below are gilled and gutted weights.

Results

Fishing ground and fishing season

The fishing season of bluefin tuna for Japanese longliners is from autumn to next spring and most of them are incidentally taken by the fishery targetting at bigeye tuna. The catch in weight of bluefin tuna in the above season is said to occupy 10 to 20% of the total catch. Figure 2 shows the annual catch in number by 5°-squares from 1981 to 1983. According to the figure, the vessels still operated in the Gulf of Mexico and also in the extensive water of the north western Atlantic north of 35°N in 1981. Hoever after 1982, the operation in the Gulf of Mexico was discontinued and the catch in the water west of 65°W decreased and no catch was reported from the water between 35°and 40°N.

In 1982, the catch by 5°-squares varied widely possibly because 305 MT of the catch for scientific monitoring allotted to the Japanese vessels is small. In 1983, the highest catch in number was reported from the 5°-squares area of 40°- 45°N and 60°- 65°W. The geographical distribution of the catch in number in the spring of 1984 and 1985 has not been studied yet.

Monthly catch per set

Figure 3 shows the monthly catch per set from January, 1982 to April, 1985. It shows that the catch per set is generally high from November to March. In addition, the catch per set was as high as 4.2 to 5.8 fish from November, 1983 to March 1984 which increased further thereafter, compared to 2.2 to 3.9 fish at the highest before March, 1983. That is, the catch per set ranged between 2.1 and 2.8 from November to December in 1984 which is normal, but it rose sharply to 8.4 - 15.0 during the period of January to March in 1985.

According to the fishermen, the high catch per set during the period of January to March in 1985 is due to the unusually large number of small tuna less than 40 kg. A reason for the heavy catch is not known at present, but in any case the nominal catch per set of bluefin tuna has been increasing year by year. This suggests that the stock condition has been improving year by year.

Size category composition in number

According to Fugure 4, tuna weighing more than 100 kg accounted for 50% of the catch in one vessel, while in the other vessel those weighing 40 to 70 kg and above 100 kg accounted for 30% of the catch respectively in the 1982 fishing season. In the 1983 fishing season, tuna weighing 40 to 70 kg was dominant accounting for 38% of the catch in one vessel, while in the other vessel those weighing 70 to 100 kg was dominant. Thus even in the same fishing season, the dominant size category varies according to the vessel. Furthermore, when the weight is over 40 kg, one size category includes several age groups which makes the tracking of the year class strength impossible.

According to Figure 4, bluefin tuna weighing 20 to 40 kg accounted for only 3 to 5% while relatively large number of fish below 20 kg was caught which accounted for 13 to 22% in the 1982 fishing year (autumn of 1981 spring of 1982). In the 1983 fishing season fish weighing between 20 and 40 kg occupied 16 to 27% while those below 20 kg was only less than 5%. The mode was observed at 30 kg (age 4), 50 kg (age 5) and 88 kg in the 1983 fishing year.

Conclusion

The above facts indicate that 1979 year class which was 3 year old fish weighing less than 20 kg in the 1982 fishing season was more dominant than the 1980 year class and that it supported a stable catch of 20 to 40 kg size category as 4 year old fish.

High CPUE during the period of January to March in 1985 was due to the unusually heavy catch of small tuna. However, the catch varied considerably among the vessels. A detailed analysis of the catch per set and the catch-by-size is desired in future.

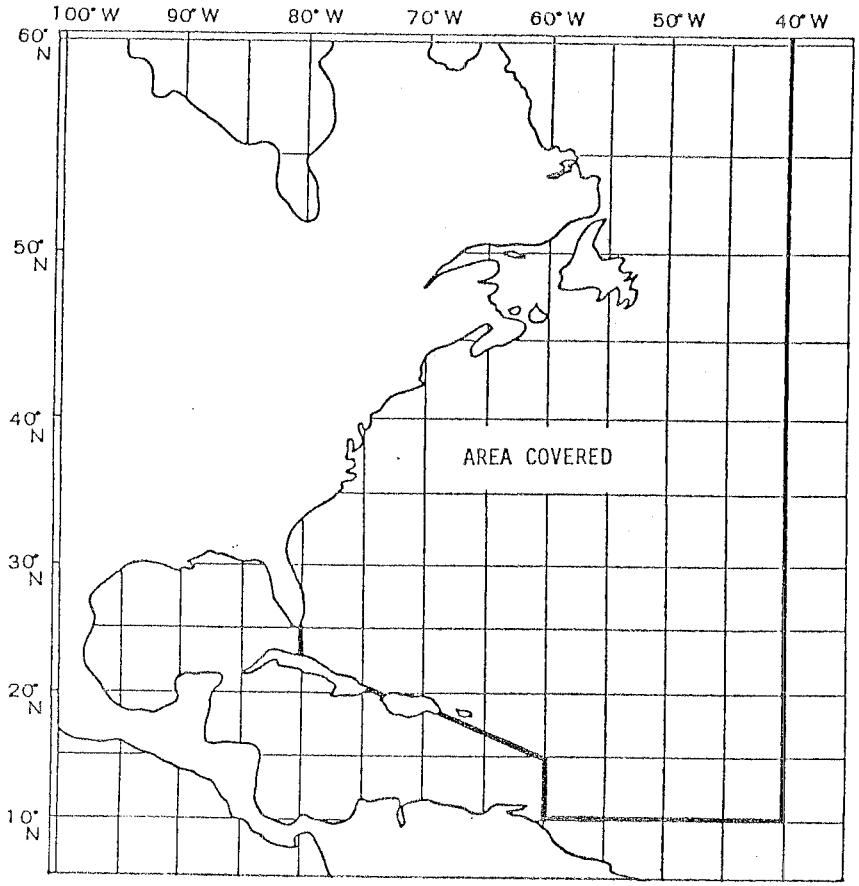


Fig. 1. Map showing the area covered.

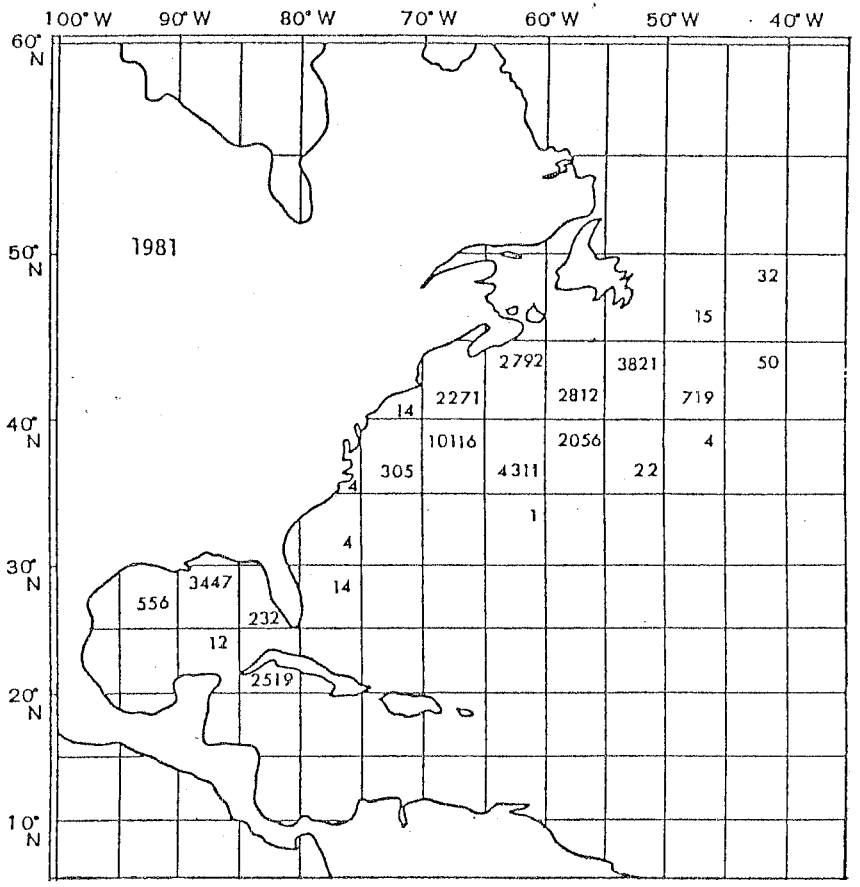


Fig. 2. Distribution of bluefin tuna annual catches by Japanese longliners on 5°-square basis.

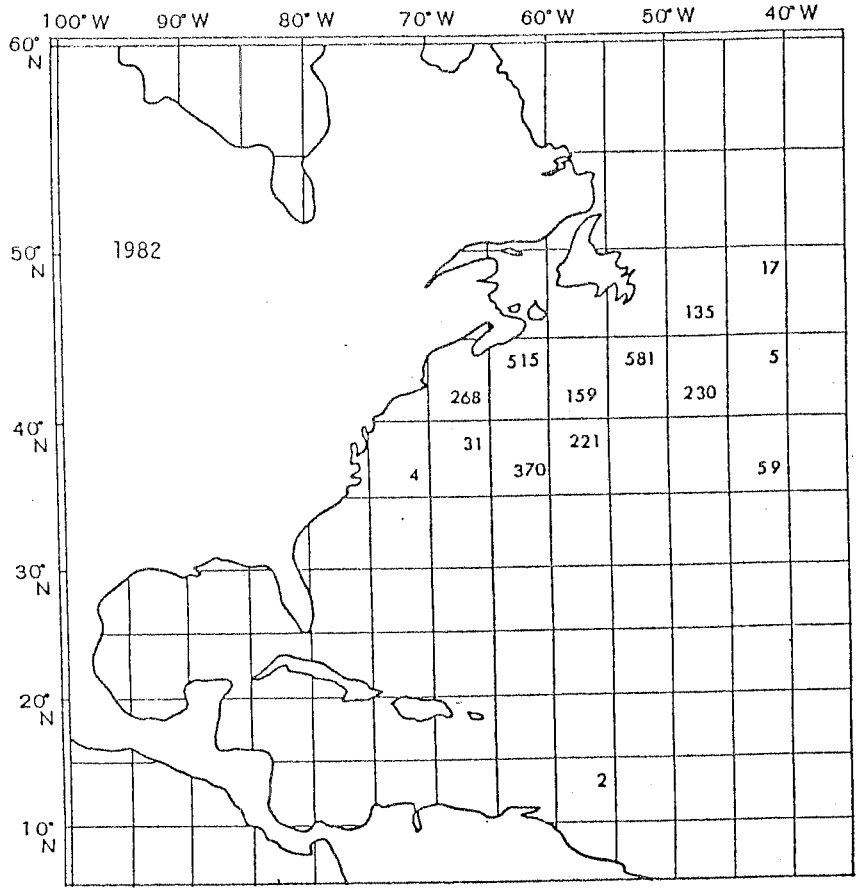
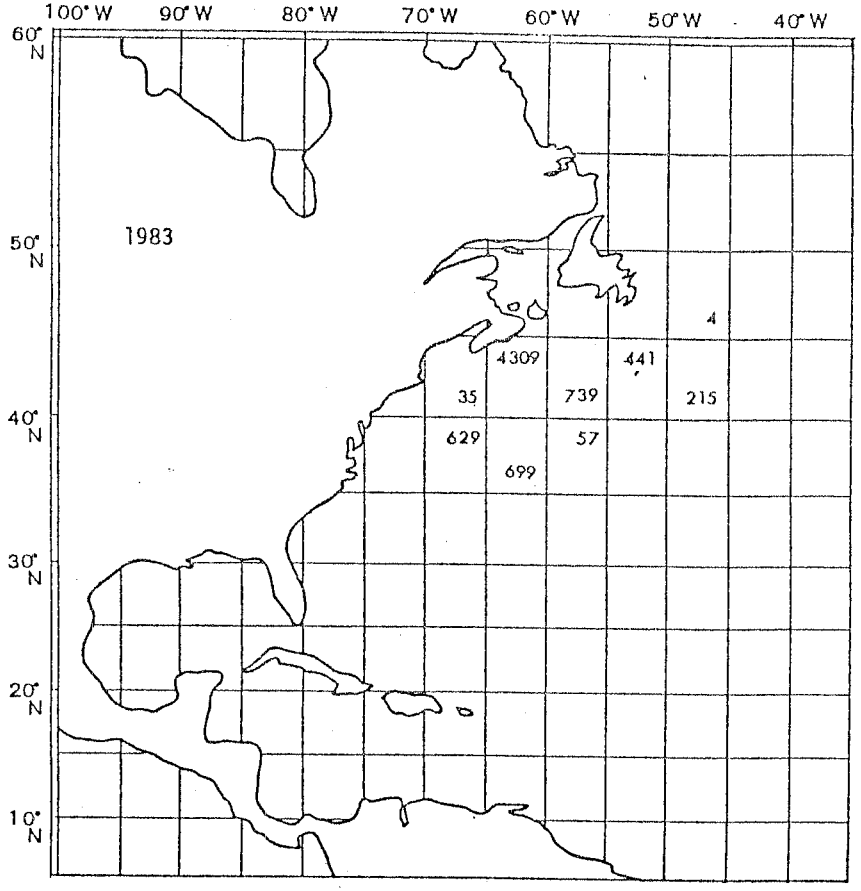


Fig. 2. (Continued)



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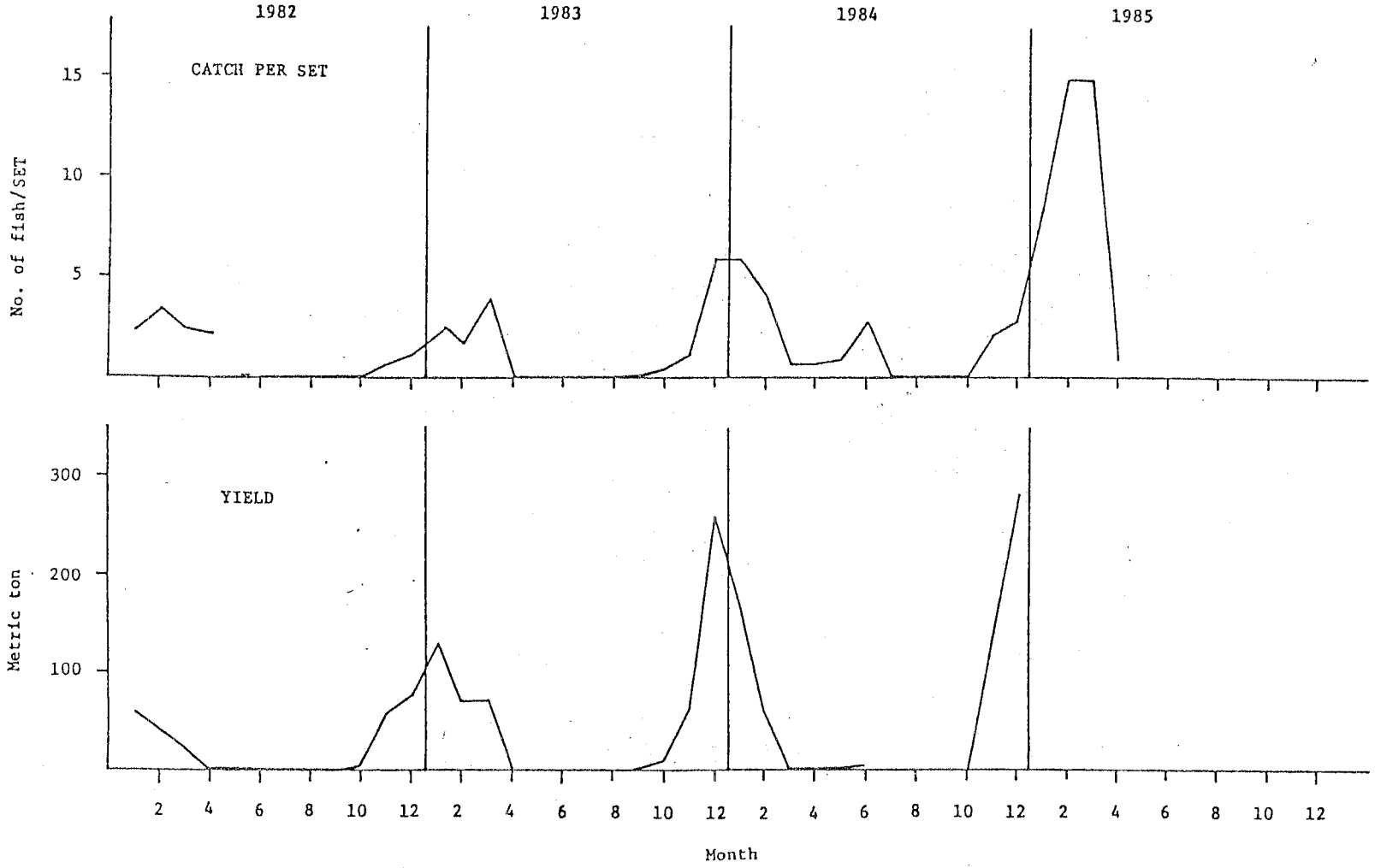

Fig. 3. Monthly catch per set and yield of bluefin tuna by Japanese longliners in the area surveyed.

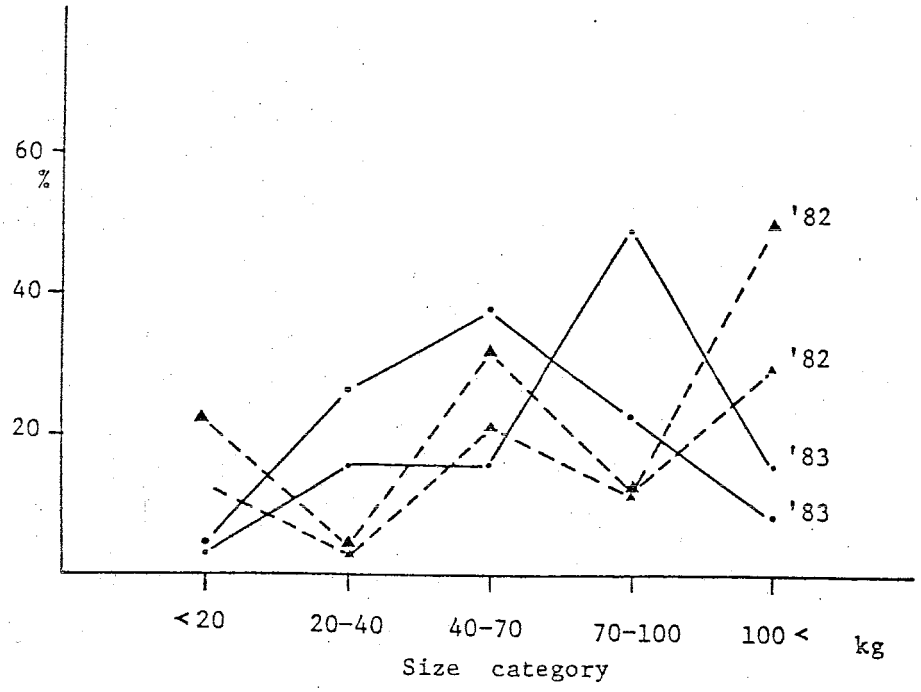

Fig. 4. Size category composition in number of the bluefin tuna catches of four Japanese longliners in the 1982 and 1983 fishing seasons.