

OVERALL FISHING INTENSITY AND YIELD BY THE
ATLANTIC LONGLINE FISHERY FOR ALBACORE, 1956-1974

by

T. Shiohama

SUMMARY

Fishing intensity and catch in weight of the entire Atlantic longline fishery for the North and South albacore stocks were estimated from the data of the Japanese and Taiwanese fisheries. Such an estimation is somewhat different from the method used in the preceding year. The catches showed a slight upward tendency in the North and levelled off in the South, with an increase in fishing intensity.

RESUME

L'intensité de pêche et la prise en poids de l'ensemble de la pêcherie palangrière portant sur les stocks de germon du nord et du sud atlantiques ont été estimées à partir de données sur la pêche japonaise et taiwanaise. Cette estimation diffère quelque peu de la méthode employée les années précédentes. Les prises montrent une légère tendance à la hausse dans le nord, et se stabilisent dans le sud avec une augmentation de l'intensité de pêche.

RESUMEN

La intensidad de pesca y la captura (en peso) de la pesquería palangrera en el conjunto del Atlántico, de los stocks de atún blanco Norte y Sur, se calcula a partir de los datos de las pesquerías de Japón y Taiwan. El método empleado para la evaluación es algo diferente al del año anterior. Las capturas muestran una ligera tendencia ascendente en el Norte, y se nivelan en el Sur, con aumento en la intensidad de pesca.

Appendix Tables reproduced in Data Record Vol. 9.

Appendice Tableaux reproduits dans le Vol. 9 du Recueil de Données

Apendice Cuadros reproducidos en la Colección de Datos Estadísticos Vol. 9

2 - 2 Southern stock

Longline yield from the southern stock has been roughly between 20,000 tons and 30,000 tons. In the 1970's, catch from the area S-2 where the immature albacore predominate has become increasingly larger in the total longline yields. Yield of 21,000 tons with fishing intensity of 1,120,000 hooks in 1974 was remarkably low compared with yield in 1973.

Yield in weight, catch in number and CPUE plotted against fishing intensity are shown in Figure 2. CPUE on the southern stock has been in a downward trend. It is noted that this trend in CPUE still persisted in 1973 and 1974 in spite of decrease in fishing intensity. This may suggest that, as shown in Figure 2, the substantial increase in yield would not be expected with an additional fishing intensity over the 1972 level, the largest ever had.

References

- Fisheries Agency of Japan, 1976. Annual report of effort and catch statistics by area on Japanese tuna longline fishery, 1974.
- ICCAT, 1976. Statistical Bulletin Vol. 6.
- Inst. of Ocean., National Taiwan Univ., et al. 1973. "Annual catch statistics of Taiwan's tuna longline fishery, 1971"
- Inst. of Ocean., National Taiwan Univ., et al. 1974. "Annual catch statistics of Taiwan's tuna longline fishery, 1972"
- Inst. of Ocean., National Taiwan Univ., et al. 1975a. "Annual catch statistics of Taiwan's tuna longline fishery, 1973"
- Inst. of Ocean., National Taiwan Univ., et al. 1975b. "Annual catch statistics of Taiwan's tuna longline fishery, 1974"
- Shiohama, T., 1976. Overall fishing intensity and catch by length class of albacore in Japanese Atlantic longline fishery, 1956-1973. ICCAT/SCRS/75/25, Coll. Vol. of Sci. Pap. Vol. V (SCRS-1975), 210-215.
- Shiohama, T. and S. Morita, 1975. Overall fishing intensity and catch by length class of albacore in Japanese Atlantic longline fishery, 1956-1972. ICCAT/SCRS/74/25, Coll. Vol. of Sci. Pap. Vol. IV (SCRS 1974), 89-108.

Modified procedures were employed in this manuscript to estimate yield in weight catch in number and fishing intensity by the whole longline fisheries for the northern and southern albacore stocks, with the new 1974 data added to the values from the previous report (Shiohama 1975).

1 Data and method

Total longline yields and those by countries were cited from the ICCAT Statistical Bulletin Vol. 6 as well as from the above report. Newly used here were data from the Annual Report of Effort and Catch Statistics by Area on Japanese Longline Fishery for 1974 and from the Taiwanese longline statistics by area for 1967-1974, provided by the Oceanographic Institute, National Taiwan University and other sources.

Procedures for estimating yield and fishing intensity by stocks, described in detail in our previous report (Shiohama and Morita 1974), were modified in the following points:

- 1) Average year's values in density distribution of fish were given as mean values for 10 years from 1965 to 1974.
- 2) The same procedures used to have estimates on data from the Japanese fishery were applied to data from the Taiwanese fishery.
- 3) Fishing intensity by the whole longline fisheries from 1967 to 1974 was obtained by expanding the summed Japanese and Taiwanese fishing intensity values by the ratio of the whole longline yields to the summed Japanese and Taiwanese yields.
- 4) CPUE by stocks was obtained by dividing the summed Japanese and Taiwanese catches in number by their summed effective effort.

2 Result

Yields in weight, catches in number, fishing intensity and CPUE estimated by stocks for the Japanese, Taiwanese and whole Atlantic longline fisheries, respectively, are given in Appendix table 1 - 6.

2 - 1 Northern stock

Longline yield from the northern stock reduced from 18,000 tons in 1973 to 14,000 tons in 1974. A fishing intensity/CPUE relationship in Figure 1 indicates that, although CPUE dropped abruptly from 7.0 to 2.5 in earlier years, 1957 - 1961, there has been a slowly decreasing trend in CPUE associated with the increasing fishing intensity since 1962. After 1971, it has leveled off at about 1.2 on the average. This level of CPUE still remained in 1974. Both fishing intensity/yield and fishing intensity/catch relationships are nearly identical and have a downward tendency, as expected from the CPUE trend. It seems, however, that there will still be some room for increase in effort with the resultant increase in catch, although it is not very large.

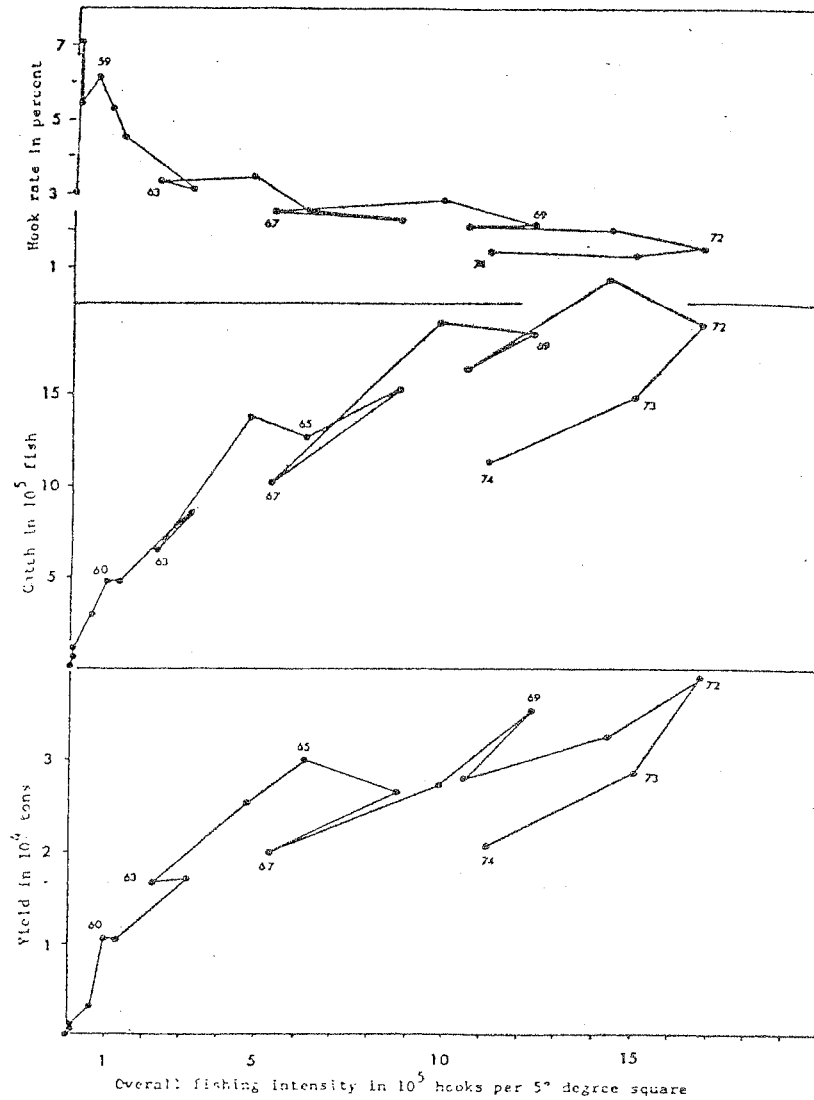


Fig. 2. Hook rate, catch and yield of albacore against overall fishing intensity in the South Atlantic longline fishery, 1956-1974.

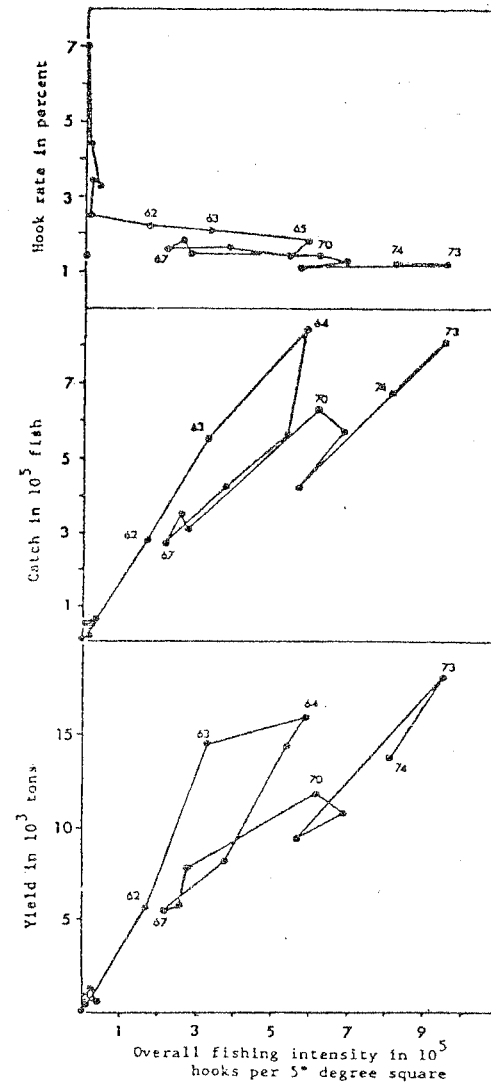


Fig. 1. Hook rate, catch and yield of albacore against overall fishing intensity in the North Atlantic longline fishery 1956-1974.