

CATCH STATISTICS OF JAPANESE ATLANTIC TUNA PURSE SEINE FISHERY.

1973

by

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SUMMARY

The Japanese tuna purse seine fishermen have submitted logbooks and length data to the Fishery Agency since their first operation in the eastern Atlantic Ocean in 1964. These data were already reviewed at various occasions (Honma *et al.* 1961, Hayasi 1972, 1973, 1974). Honma and Suzuki (1972, 1973a, b) reported the catch statistics from 1967 through 1972 compiled by 1° square and the sample length composition by 5° x 10° quadrangle from 1967 to 1971. The present paper comprises the series of data in 1973. Also presented here are year-to-year changes of amount of catch and fishing effort, and catch-per-unit-effort for the ten years up to 1973.

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RESUME

Les pêcheurs japonais qui effectuent la pêche des thonidés à la senne ont transmis livres de bord et données de longueur à la Fisheries Agency depuis leur première expédition dans l'Atlantique Orientale en 1964. Ces données ont déjà été révisées à diverses occasions (Honma *et al.*, 1961, Hayasi 1972, 1973, 1974). Honma et Suzuki (1972, 1973a, b) ont communiqué les statistiques de capture de 1967 à 1972 compilées par carrés de 1° x 1° et la composition de longueur de l'échantillonnage par carrés de 5° x 10° de 1967 à 1971. Le présent document contient les séries de données pour 1973, ainsi que les changements du volume des prises et de l'effort de pêche d'une année sur l'autre, et les prises par unité d'effort pour les dix années jusqu'à 1973.

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RESUMEN

Los armadores del sector pesquero de cerco japonés han facilitado a la Administración de Pesquerías los registros de los libros de bitácora y los datos de tallas de sus operaciones pesqueras en el Océano Atlántico oriental desde 1964. Dichos datos ya fueron examinados en distintas ocasiones (Honma *et al.* 1961, Hayasi 1972, 1973, 1974). Honma y Suzuki (1972, 1973a, b) comunicaron las estadísticas de capturas del período 1967-1972, recopiladas por cuadrículas de 1° y la composición de tallas de muestras desglosadas por cuadrángulos de 5° x 10°, de 1967 a 1971. Este documento comprende la serie de datos correspondientes a 1973. Asimismo, se presenta la variación entre años del volumen de la captura y del esfuerzo pesquero y la captura-por-unidad-de-esfuerzo para la década anterior al año 1973.

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Appendix Table reproduced in Data Record Vol. 6.

Appendice Tableau reproduit dans le Vol. 6 du Recueil de Données Statistiques.

Apendice Cuadro reproducido en la Colección de Datos Estadísticos Vol. 6

## 1. Number and size of boats

The Japanese purse seine fleet comprises single-boat and double-boat seiners. The size of vessel is officially recorded in gross tonnage and, in case of double-boat seiner, in that of larger net operating boat. Table 1 lists gross and capacity tons of all the seiners in the Atlantic Ocean in 1973 for convenience of referring to the ICCAT single-boat statistics. Names and sizes of seiners operated in the preceding years were already listed by Honma and Suzuki (1972).

## 2. Catch and effort statistics

Recording format of catch and effort was already described at various occasions (Honma and Suzuki 1972, 1973a,b). Compiled from the logbooks are number of boats, number of days of operation and catch by species in the whole Ocean (Tables 2 and 3), and number of hauls and amount of catch by 1° square (Appendix Table).

Total catch was 3,348 tons in 1973. Most of the catch for yellowfin tuna and skipjack was experienced from June to September in the FIS Area 1, and in January, February and during July through December in the FIS Area 2 (Fig 1). No boat operated in the FIS Area 3.

## 3. Brief review of fishing activity, 1964 to 1973

In the Atlantic Ocean, only limited numbers of purse seiners were sent from Japan. Here we present year-to-year fluctuations in amount of fishing effort and catch, and catch-per-unit-effort, basing on combined data of both single-boat and double-boat seiners for the recent ten years.

### 3-1. Amount of fishing effort

The Japanese fleet increased from one unit (or to in Japanese) of double-boat seiner in 1964 and 1965 to seven units being composed of three single-boat seiners and four tons of double-boat seiners in 1968 and 1969. Since then, less boats operated and five units in 1973. The same trend of change in number of boats is also found in yearly change of such indices of fishing effort as "number of days at sea", "number of days of operation" and "number of hauls", having reached the peaks in 1968 (Table 3).

The first Japanese purse seining in the Atlantic Ocean was made by a double-boat seiners (145 gross tons) in November 1964. Other two double-boat seiners participated in June 1966, and another double-boats in December 1967. All these three units of double boats are about 90 gross tons each (Honma and Suzuki 1972). One unit (90 gross tons) withdrew from the Atlantic Ocean in January 1969, and the rest three tons had continued to work there up to January 1973. Three single-boat seiners (one 90-gross-tonner and two 499-gross-tonners) started to operate in July 1968. But, the 90-tonner left the Atlantic Ocean in January 1969, and one 499-tonner in November 1971. A large-sized single-boat seiner of 999 gross tons joined to the Atlantic purse seining in August 1971.

In 1973, three double-boat seiners left Atlantic Ocean after February, and substantially only two single-boat seiners have operated in the Atlantic. Among the two single-boat seiners, a larger one made operation in the eastern Pacific Ocean from January to June; and after July, she moved to the eastern Atlantic for seining. Therefore, the 499 tons seiner has operated throughout the year in the Atlantic Ocean.

## 3-2. Amount of catch

The data show that amount of catch increased from less than 500 tons in 1964 to nearly 16,000 tons in 1968, and later on until 1972, fluctuated between 6,000 tons and 9,000 tons (Fig. 2). The catch in 1973 was only 3,300 tons. Yellowfin tuna exceeded skipjack in amount of catch up to 1969, but skipjack dominated in and after 1970. Sharp decline of large-sized yellowfin tuna was accounted for the change of species composition of catch (Fig. 2). Another major species is frigate mackerels that have constituted 2 to 15 percent of the total catch. Bigeye tuna were caught only 4 percent or less (Table 3).

## 3-3. Catch-per-unit-effort

Almost the same year-to-year fluctuations appeared in CPUEs calculated on the bases of three types of indices of fishing effort: "number of days at sea", "number of days of operation" and "number of hauls". Fig. 3 shows the yearly averages of "catch per day of operation", for which longest series of data are made available.

The CPUE index for all fishes combined has considerably fluctuated for the ten years. Yellowfin tuna contributed to the yearly fluctuation in total CPUE up to 1969, but this situation changed drastically in 1970. Due to decreased amount of catch of yellowfin in 1970 and after, the CPUE index of all species combined fluctuated in accordance with that of skipjack. The CPUE of skipjack also varied widely, but it is difficult to find that there is any decreasing trend in CPUE of skipjack.

## References

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Table 1. Names and sizes of Japanese purse seiners in the Atlantic Ocean, 1973

| Type        | Name                        | Gross ton | Carrying capacity (Ton)   |
|-------------|-----------------------------|-----------|---|
| Single-boat | <u>Nippon Maru</u>          | 999.09    | 551.08  |
|             | <u>Genpuku Maru</u> No. 82  | 499.66    | 225   |
| Double-boat | <u>Kuroshio Maru</u> No. 81 | 145.54    | Virtually, double-boat seiners do not hold their catches. Reefers are included in a fishing unit. |
|             | " " No. 82                  | 145.28    |   |
|             | <u>Seisei Maru</u> No. 10   | 90.68     |   |
|             | " " No. 13                  | 90.64     |   |
|             | <u>Seisei Maru</u> No. 17   | 90.74     |   |
|             | " " No. 18                  | 90.66     |   |

Table 2. Number of boats and days of operation, and catch in the Japanese Atlantic tuna purse seine fishery, 1973

| Type of boats | Month       | Number of boats | Number of days of operation | Number of hauls | Total  | Bigeye | Catch in ton |       |        | Skipjack | Frigate mackerels | Others & Unidentified |
|---------------|-------------|-----------------|-----------------------------|-----------------|--------|--------|--------------|-------|--------|----------|-------------------|-----------------------|
|               |             |                 |                             |                 |        |        | Subtotal     | Small | Large  |          |                   |                       |
| Grandtotal    |             | 5               | 235                         | 396             | 3348.0 | 17.7   | 1541.7       | 330.2 | 1211.5 | 1544.0   | 216.2             | 28.4                  |
| Single-boat   | Total       | 2               | 211                         | 366             | 2751.3 | 16.9   | 1328.1       | 221.2 | 1106.9 | 1247.7   | 148.2             | 10.4                  |
|               | Jan.        | 1               | 17                          | 27              | 176.7  |        | 49.8         | 19.6  | 30.2   | 114.4    | 12.5              |                       |
|               | Feb.        | 1               | 17                          | 33              | 276.9  | 1.0    | 242.0        | 31.7  | 210.3  | 33.4     | 0.5               |                       |
|               | Mar.        | 1               | 4                           | 6               | 4.7    |        | 2.7          |       | 2.7    |          | 2.0               |                       |
|               | June        | 1               | 9                           | 21              | 236.0  | 8.7    | 47.5         | 1.9   | 45.6   | 179.8    |                   |                       |
|               | July        | 2               | 24                          | 43              | 456.3  | 0.2    | 406.2        | 6.5   | 399.7  | 42.4     | 0.3               | 7.2                   |
|               | Aug.        | 2               | 34                          | 58              | 595.7  |        | 158.2        | 28.2  | 130.0  | 423.2    | 14.1              | 0.2                   |
|               | Sept.       | 2               | 30                          | 54              | 212.0  | 6.0    | 53.5         | 30.7  | 22.8   | 138.5    | 11.0              | 3.0                   |
|               | Oct.        | 2               | 32                          | 50              | 297.2  |        | 140.6        | 69.5  | 71.1   | 79.1     | 77.5              |                       |
|               | Nov.        | 2               | 23                          | 35              | 231.6  | 1.0    | 110.6        | 15.2  | 95.4   | 112.0    | 8.0               |                       |
|               | Dec.        | 1               | 21                          | 39              | 264.2  |        | 117.0        | 17.9  | 99.1   | 124.9    | 22.3              |                       |
|               | Double-boat | Total           | 3                           | 24              | 30     | 596.7  | 0.8          | 313.6 | 109.0  | 104.6    | 296.3             | 68.0                  |
| Jan.          |             | 3               | 24                          | 30              | 596.7  | 0.8    | 313.6        | 109.0 | 104.6  | 296.3    | 68.0              | 18.0                  |

Table 3. Amount of effort and catch in the Japanese Atlantic purse seine fishery, 1964-1973.

| Year | Number of boats | Number of days at sea | Number of days of operation | Number of hauls | Total    | Bigeye tuna | Catch in tons |         |         | Skipjack | Frigate mackerels | Others & unidentified |
|------|-----------------|-----------------------|-----------------------------|-----------------|----------|-------------|---------------|---------|---------|----------|-------------------|-----------------------|
|      |                 |                       |                             |                 |          |             | Subtotal      | Small   | Large   |          |                   |                       |
| 1964 | 1               | -                     | 25                          | 34              | 488.9    | -           | 455.4         | -       | 455.4   | 32.4     | -                 | 1.1                   |
| 1965 | 1               | -                     | 227                         | 293             | 4,202.6  | -           | 1,133.5       | -       | 1,133.5 | 1,802.3  | -                 | 1,266.8               |
| 1966 | 3               | -                     | 267                         | -               | 6,563.0  | -           | 4,812.4       | 948.6   | 3,863.8 | 1,447.7  | -                 | 302.9                 |
| 1967 | 4               | 949                   | 590                         | 856             | 8,005.1  | 82.0        | 5,244.2       | 508.2   | 4,736.0 | 2,171.1  | 442.7             | 65.1                  |
| 1968 | 7               | 1,610                 | 953                         | 1,292           | 15,860.5 | 412.7       | 7,462.7       | 2,666.4 | 4,796.3 | 6,255.5  | 1,253.5           | 476.1                 |
| 1969 | 7               | 1,162                 | 611                         | 827             | 6,988.9  | 161.3       | 5,805.2       | 650.0   | 5,155.2 | 678.8    | 177.3             | 166.3                 |
| 1970 | 4               | 724                   | 401                         | 558             | 5,638.6  | 92.1        | 1,317.7       | 966.1   | 351.6   | 3,519.0  | 686.9             | 22.9                  |
| 1971 | 6               | 834                   | 522                         | 871             | 9,439.9  | 248.8       | 2,232.1       | 1,208.8 | 1,023.3 | 6,221.8  | 685.3             | 51.9                  |
| 1972 | 5               | 953                   | 545                         | 877             | 7,750.2  | 308.1       | 2,826.8       | 995.6   | 1,831.2 | 3,386.3  | 1,188.7           | 40.3                  |
| 1973 | 5               | 419                   | 235                         | 396             | 3,348.0  | 17.7        | 1,541.7       | 330.2   | 1,211.5 | 1,544.0  | 216.2             | 28.4                  |

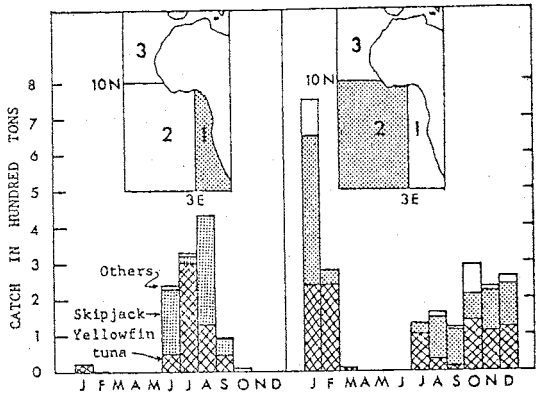


Fig. 1. Monthly catch of tunas by Japanese purse seiners in FIS Areas 1 and 2, in 1973.

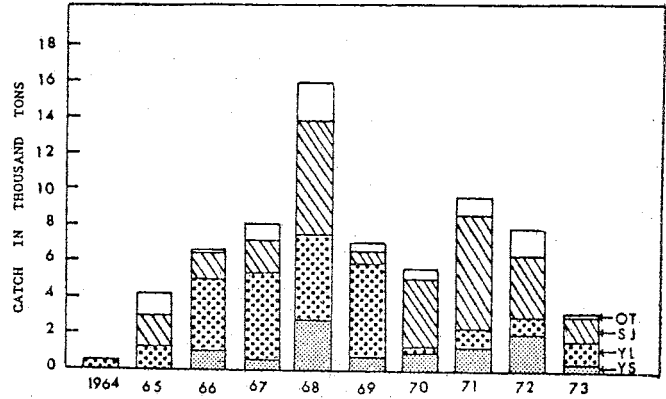


Fig. 2. Yearly catch by species of the Japanese Atlantic purse seine fishery, 1964 - 1973.

YS ; small-sized yellowfin tuna, less than 20 Kg in body weight  
 YL ; large-sized yellowfin tuna, 20 Kg or greater in body weight  
 SJ ; skipjack  
 OT ; others and unidentified

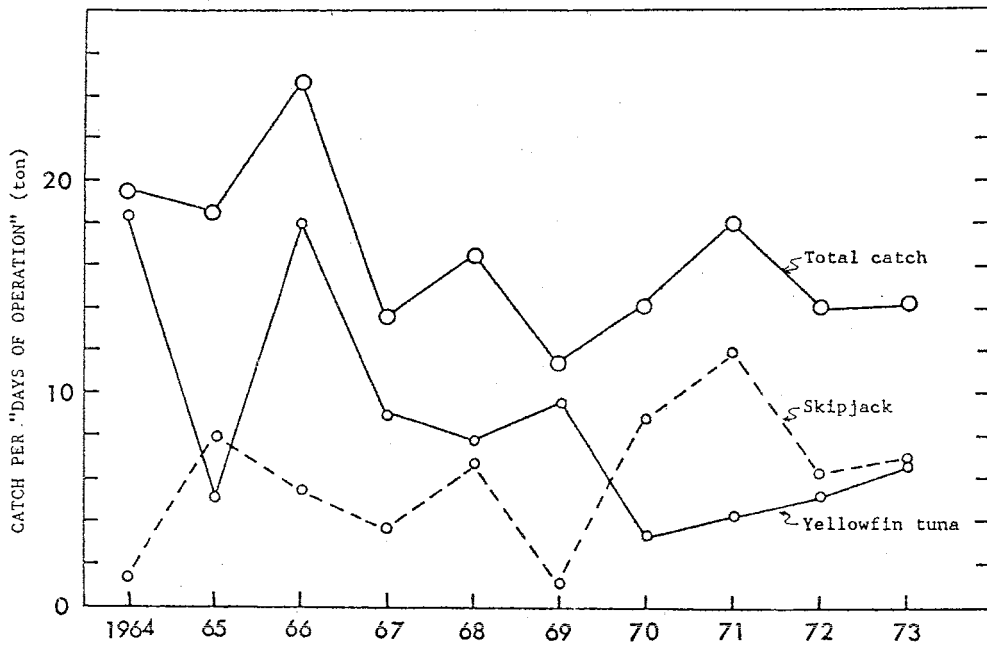


Fig. 3. Yearly averages of catch per "days of operation" in the Japanese Atlantic purse seine fishery, 1964 - 1973.