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DISTRIBUTION OF CATCH-PER-UNIT-OF-EFFORT AND FISHING EFFORT FOR TUNA IN THE EASTERN TROPICAL PACIFIC OCEAN BY MONTHS OF THE YEAR, 1951-1960

DISTRIBUCION MENSUAL DE LA PESCA POR UNIDAD DE ESFUERZO Y DEL ESFUERZO EN LA PESCA DE ATUN DEL OCEANO PACIFICO ORIENTAL TROPICAL DURANTE EL PERIODO 1951-1960

by — por
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La Jolla, California
1962

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by

John Wilson Martin[1]

INTRODUCTION

The Inter-American Tropical Tuna Commission has systematically collected catch and effort data from logbooks of baitboats and purse-seiners fishing for yellowfin *(Neothunnus macropterus)* and skipjack *(Katsuwonus pelamis)* tuna in the Eastern Tropical Pacific Ocean since 1951, the primary purpose being to monitor changes in fishing effort, abundance and yield for these species. Detailed descriptions of the methods of collection, tabulation and analyses of these data are given by Schaefer (1953), Shimada and Schaefer (1956) and Shimada (1958). Much of the basic data has been published in the Commission *Bulletin* series by Shimada and Schaefer (1956), Alverson (1959 and 1960), Griffiths (1960), and Calkins (1961).

Comparison of physical and biological environmental factors affecting the aggregation of tunas with the success of fishing by the commercial fleets, requires that catch and effort data be examined in greater detail than has been presented in these publications. Consequently, the United States Bureau of Commercial Fisheries Biological Laboratory, San Diego, to serve the needs of its program of research on causes of variations in tuna abundance, made arrangements with the Tuna Commission to summarize these catch and effort data by month, by one-degree area, by fishing vessel size-class, for the years 1951-1960 for baitboats and 1953-1960 for purse-seiners. The present paper describes the techniques employed in summarizing these data by automatic data processing methods. It also presents the catch and effort information by months, by five-degree areas and certain combinations of five-degree areas for use by fishermen, industry personnel, and research agencies. Because of space limitations and other considerations, the one-degree tabulations are not included but are available at the Tuna Commission and Bureau laboratories.

An International Business Machines (IBM) 650 computer system, made available to the Bureau by General Dynamics-Convair, San Diego, was used for standardizing fishing effort, for pro-rating unidentified catch and for computing apparent abundance of each species by time and area strata. The author prepared special computer instructions to facilitate the rapid handling of the basic data.

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ACKNOWLEDGEMENTS

The basic data were made available to the U. S. Bureau of Commercial Fisheries Biological Laboratory, San Diego, by Dr. M. B. Schaefer, Director of Investigations, Inter-American Tropical Tuna Commission. D. L. Greenland and A. B. Chapman, of the Bureau staff, assisted in assembling data for the graphs and in checking the accuracy of the data presented. Keith Quigley of the Tuna Commission prepared the figures. G. C. Broadhead of the Tuna Commission staff provided information which assisted in the tabulation of the data and also reviewed the manuscript critically. The author gratefully acknowledges the assistance of these persons.

METHODS

The basic data utilized in this report are a product of the logbook system established by the Tuna Commission in 1951, to monitor, on a current basis, the activities of the tropical tuna fishing fleets. The methods used in this system have been reported in detail by Schaefer (1953) and Shimada (1958) and are discussed here only superficially. Data respecting fishing effort and resulting catches of yellowfin and skipjack tuna are obtained from the trip records contained in the logbooks kept by the masters of baitboats and purse-seiners fishing in the Eastern Tropical Pacific Ocean.

Personnel from the Tuna Commission staff transcribe, analyse and tabulate these data on a current basis. To facilitate the handling of this large quantity of information, the tabulated data are recorded, at the end of each year, on punch cards in a format which lists area fished by one-degree rectangle, month, size-class and type of vessel, days fished and catch of yellowfin and skipjack tuna. These punch cards were loaned to the U. S. Bureau of Commercial Fisheries and provided the information necessary to prepare this report.

The Commission's statistical areas and their assigned code numbers are shown in Figure 1. The smallest divisions are one-degree areas which combine to form the larger five-degree areas. Areas north of the equator are identified in code by seven digits. An additional prefix, the digit "2", is used to denote areas south of the equator and is so shown in the tables.

The five-degree areas are designated by the latitude and longitude of their southeast corner and are sub-divided into 25 one-degree areas which are serially numbered from the southeast corner, as shown in Figure 1. Area 25-110 is divided by the peninsula of Baja California. The eastern and western portions of this five-degree area are denoted by "A" and "B", respectively, for the purse-seine data since seiners fish in both portions. No such designations are given for the baitboat material because baitboats do not normally do much fishing in the upper Gulf of California.

Standardization of Fishing Effort

The success of fishing for yellowfin and skipjack tuna is related to vessel size. Shimada and Schaefer (1956) described a method of adjusting effort to a standard vessel size-class to permit comparison of fishing success by vessels of the various size categories which operate throughout the Eastern Tropical Pacific Ocean. Six size-classes of vessels were established by them, based on fish-carrying capacity: Class 1, up to 50 tons; Class 2, 51-100 tons; Class 3, 101-200 tons; Class 4, 201-300 tons; Class 5, 301-400 tons; and Class 6, 401 tons and over. Size-classes 4 and 3 were established as the standard for baitboats and purse-seiners, respectively, and all fishing effort is then adjusted to equivalent days fishing by these classes of vessels. The yearly efficiency factors for baitboats and purse-seiners for the ten years, 1951-1960, are being published by Broadhead (1962).

For the purpose of this report, mean efficiency factors obtained from the eight-year period, 1951-1958 were used in the standardization of the fishing effort of the baitboat fleet for the years 1951-1960. The mean efficiency factors for the period 1953-1958 were used for the purse-seine vessels over the period 1953-1958. However, a new set of mean values for standardizing purse-seine data, beginning in 1959, was required by the sudden change in the composition and character of the purse-seine fleet. This was brought about by the mass conversion of baitboats to purse-seiners which is discussed by Broadhead and Marshall (1961). Since the 1959 purse-seine data were processed early in 1960, efficiency factors calculated from the 1959 data were used for that year. Average values, obtained from the 1959 and 1960 data, were used to standardize the 1960 purse-seine effort. The following table lists the sets of efficiency factors, employed for standardization of fishing effort, for the two types of gear, according to size-class.

Gear and Period	Size-classes					
	1	2	3	4	5	6
Baitboats 1951-1958	0.40	0.55	0.84	1.00	1.18	1.16
Purse-seiners 1953-1958	—	0.88	1.00	1.37	—	—
Purse-seiners 1959	0.60	0.82	1.00	1.30	1.20	—
Purse-seiners 1959-1960	0.66	0.73	1.00	1.35	1.27	1.01

Species Recorded

The catches reported in the logbooks are tabulated under four categories: yellowfin; skipjack; mixed yellowfin and skipjack; and yellowfin or skipjack, not separately identified. The computer was instructed to prorate tonnages in the latter two categories in the ratio of identified tonnage of yellowfin and skipjack reported for each one-degree area by quarters of the year. Alverson (1960) reported that the two categories of mixed or unidentified tuna together contained, for the period 1951-1958, some 9.7 per cent of the baitboat and 6.4 per cent of the purse-seine tonnage logged.

Modifications in Data

Some minor key-punch errors were detected in the original detail cards when processing the data with the IBM 650 computer. These defective cards, which were rejected by the computer, were estimated to contain less than one per cent of the data, based on comparisons among quarterly and annual totals of catch and effort compiled by the Commission and the Bureau. The use of mean efficiency factors, rather than the yearly values, for standardization of effort also resulted in minor differences between the data presented in this paper and those published by Alverson (1960). Comparison of the present machine-run tabulations from a series of areas with those of the Commission indicated that the differences are insignificant, when the data are used to examine changes in tuna availability by time and area strata.

RESULTS

Tables 1 and 2 list the standardized effort and corresponding catch-per-standard-day's-fishing (SDF) logged by baitboats and purse-seiners, for yellowfin and skipjack tuna, by five-degree area, by month and by year, for each type of gear. As noted by Griffiths (1960), data which are based on less than five days fishing should be viewed with caution, because small amounts of effort often generate unreliable measures of apparent abundance of tuna.

To examine seasonal trends in apparent abundance, the data of five-degree areas were consolidated into ten large geographical divisions of the fishery, as shown in Figure 2. These regions correspond rather closely to those employed by the Tuna Commission in their studies of age, growth, spawning, and sexual maturity of the tropical species but do not necessarily indicate natural population boundaries.

The monthly trends in catch-per-standard-day's fished are shown in Figures 3-12, utilizing only the baitboat data. Data for yellowfin are indicated by the solid lines and for skipjack by the broken lines. The amount of fishing effort used to calculate catch-per-standard-day-fished is given by the number adjacent to the point for each month and those months without effort have been left blank. Logged tonnage by species may be estimated by the product of the number of days fished and the catch (in tons)-per-standard-day-fished. The tonnage logged in an area is less than the total catch for the area, because a few of the large baitboats and purse-seiners do not keep logbook records and logbooks are not maintained aboard miscellaneous small craft fishing for the tropical tunas. Alverson (1960) notes that logbook coverage varied from a low of 61.4 per cent in 1951, when the Commission first began its logbook system, to a high of 82.1 per cent in 1958; 75.6 and 80.8 per cent coverage was obtained in 1959 and 1960, respectively. The overall average for the ten-year period was 76.6 per cent. The fact that logbook data are not obtained for 100 per cent

of the catch does not significantly affect the catch-per-standard-day-fished because the logbook sampling is sufficiently large and well-stratified as to time and area.

Examination of the tables and charts demonstrates that success of tuna fishing in particular five-degree areas is frequently highly variable from month to month in the same year, and among years for the same month. These variations are even greater for one-degree areas. Factors affecting or controlling availability of the tropical tunas are highly complex. No attempt is made, at this time, to relate variations in the catch rate and the total catch to environmental and biological conditions. These basic data, however, will be useful to scientists of the Bureau of Commercial Fisheries, the Tuna Commission, and Scripps Institution of Oceanography in such studies which are presently underway.

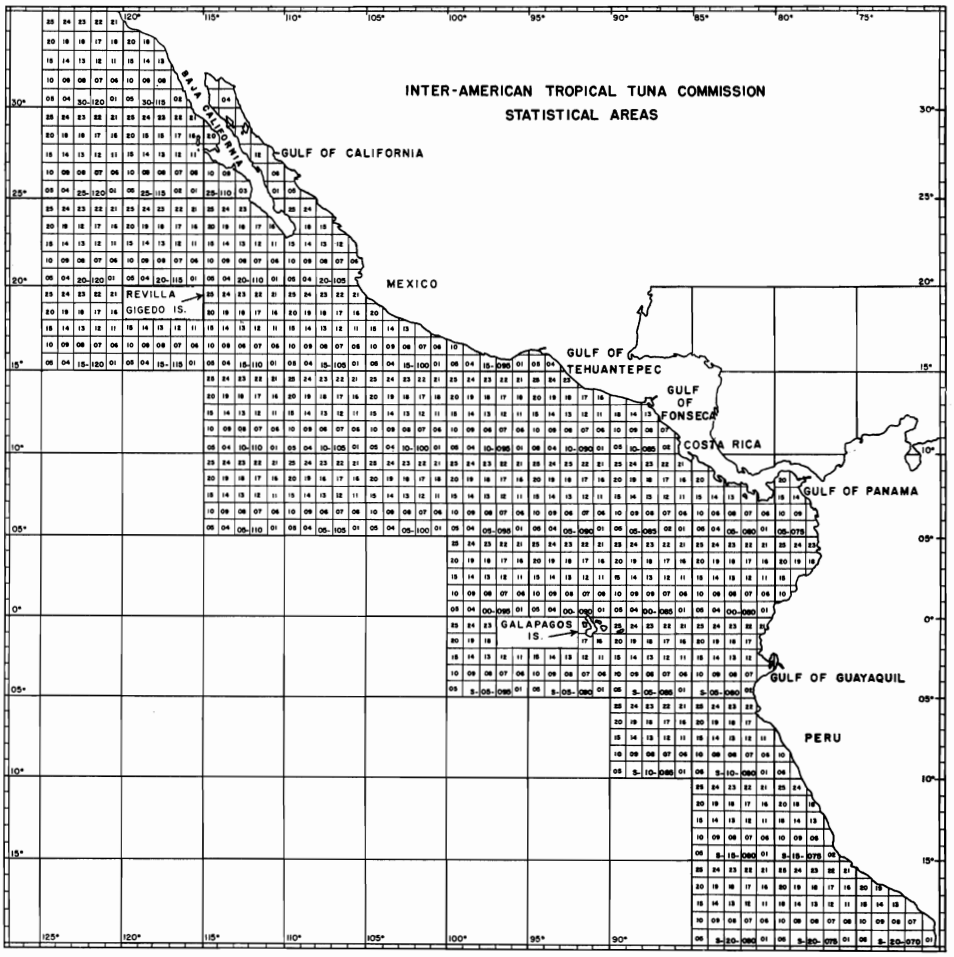

FIGURE 1. Statistical areas employed by the Inter-American Tropical Tuna Commission.

FIGURA 1. Areas estadísticas empleadas por la Comisión Interamericana del Atún Tropical.

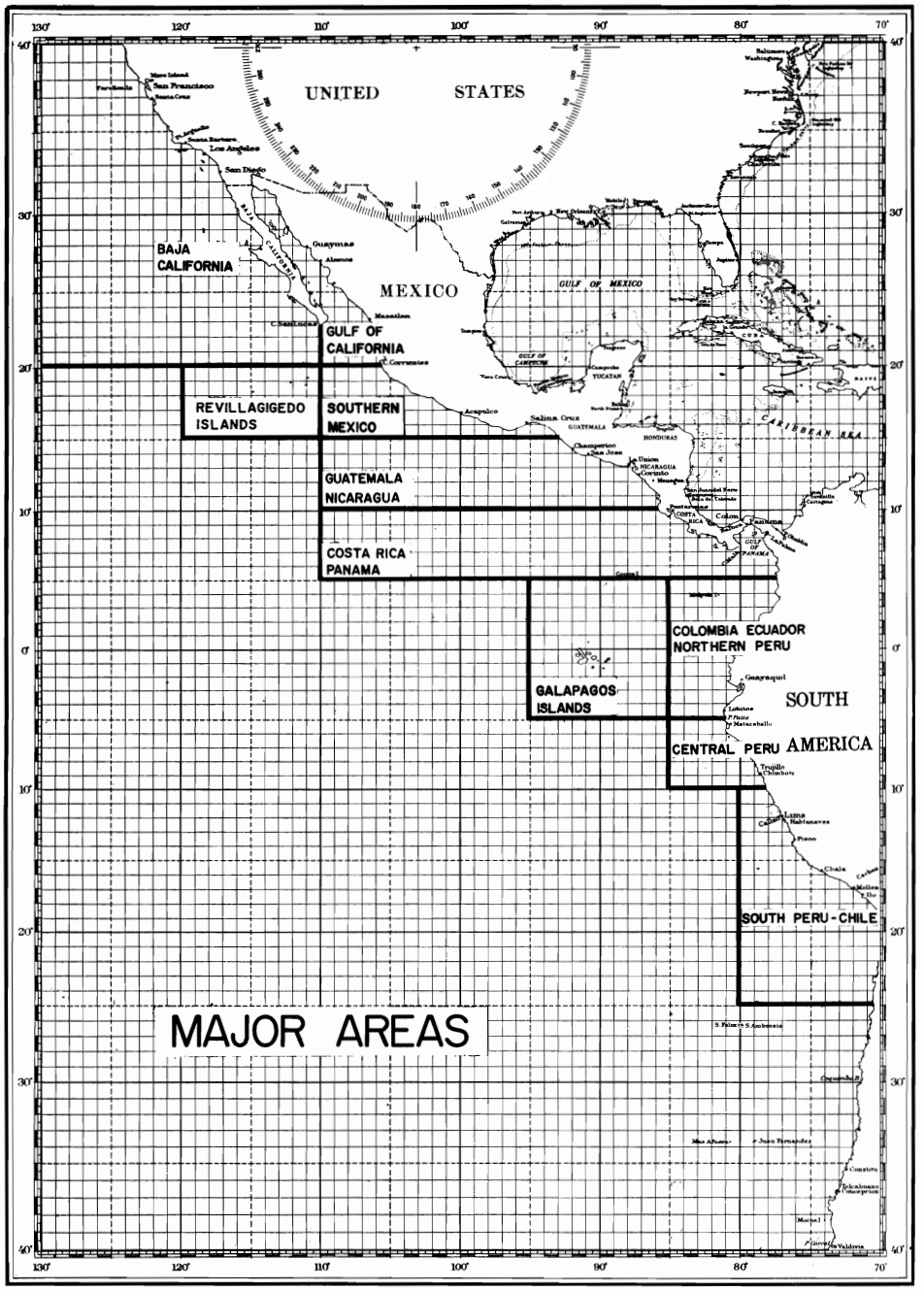

FIGURE 2. Major geographical areas of the tuna fishery.

FIGURA 2. Areas geográficas mayores de la pesquería del atún.

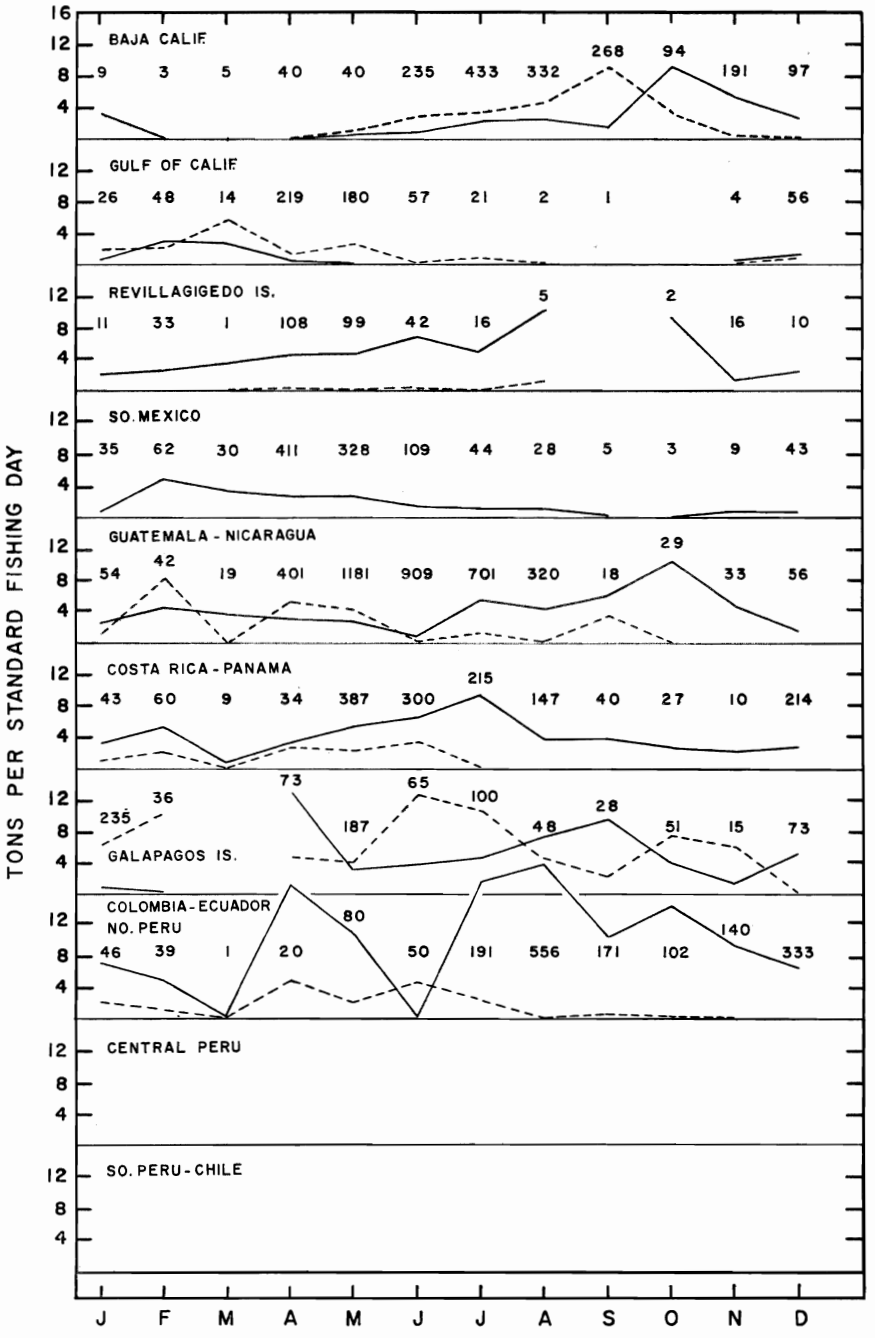

FIGURE 3. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1951 Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 3. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1951. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

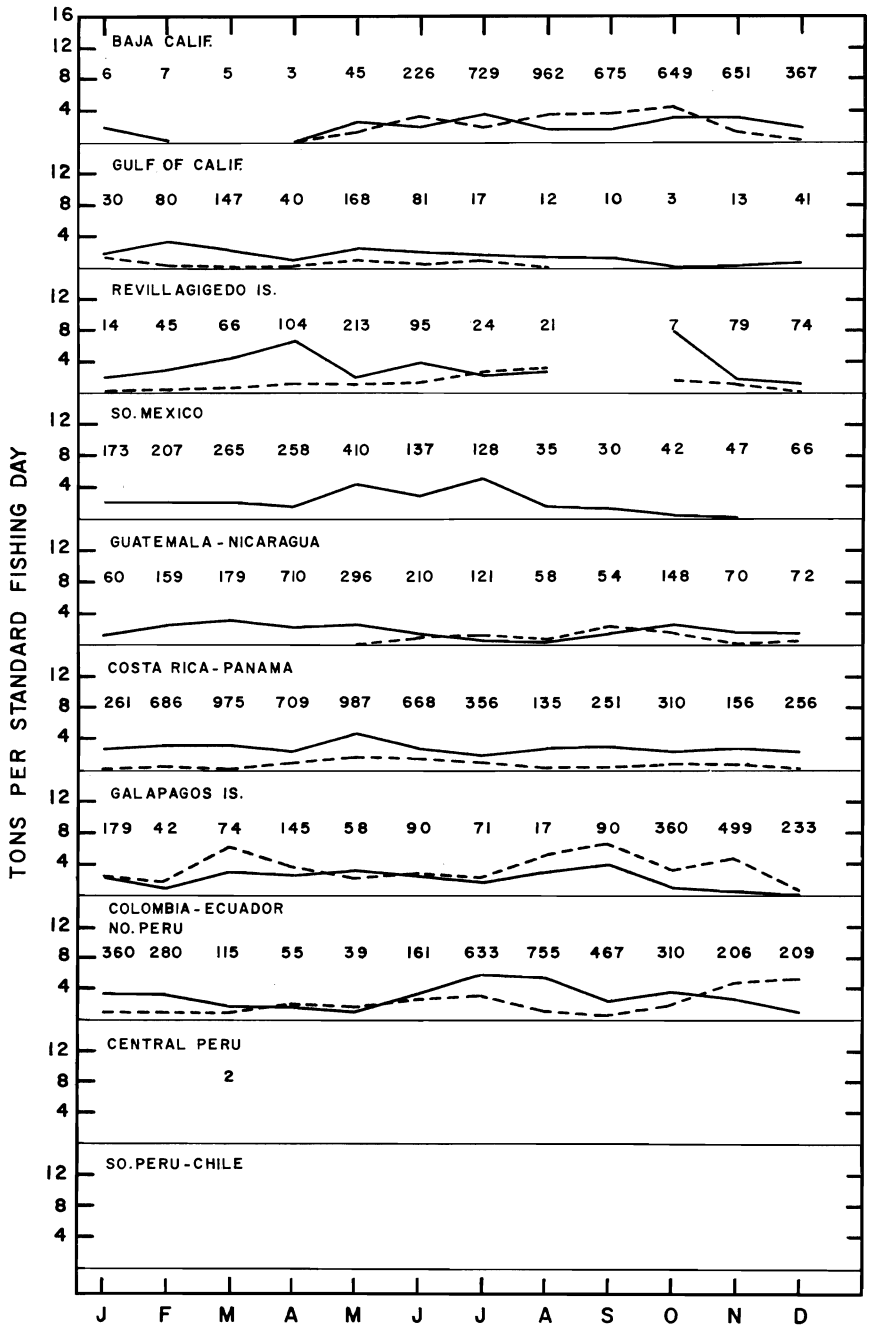

FIGURE 4. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1952. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 4. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1952. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

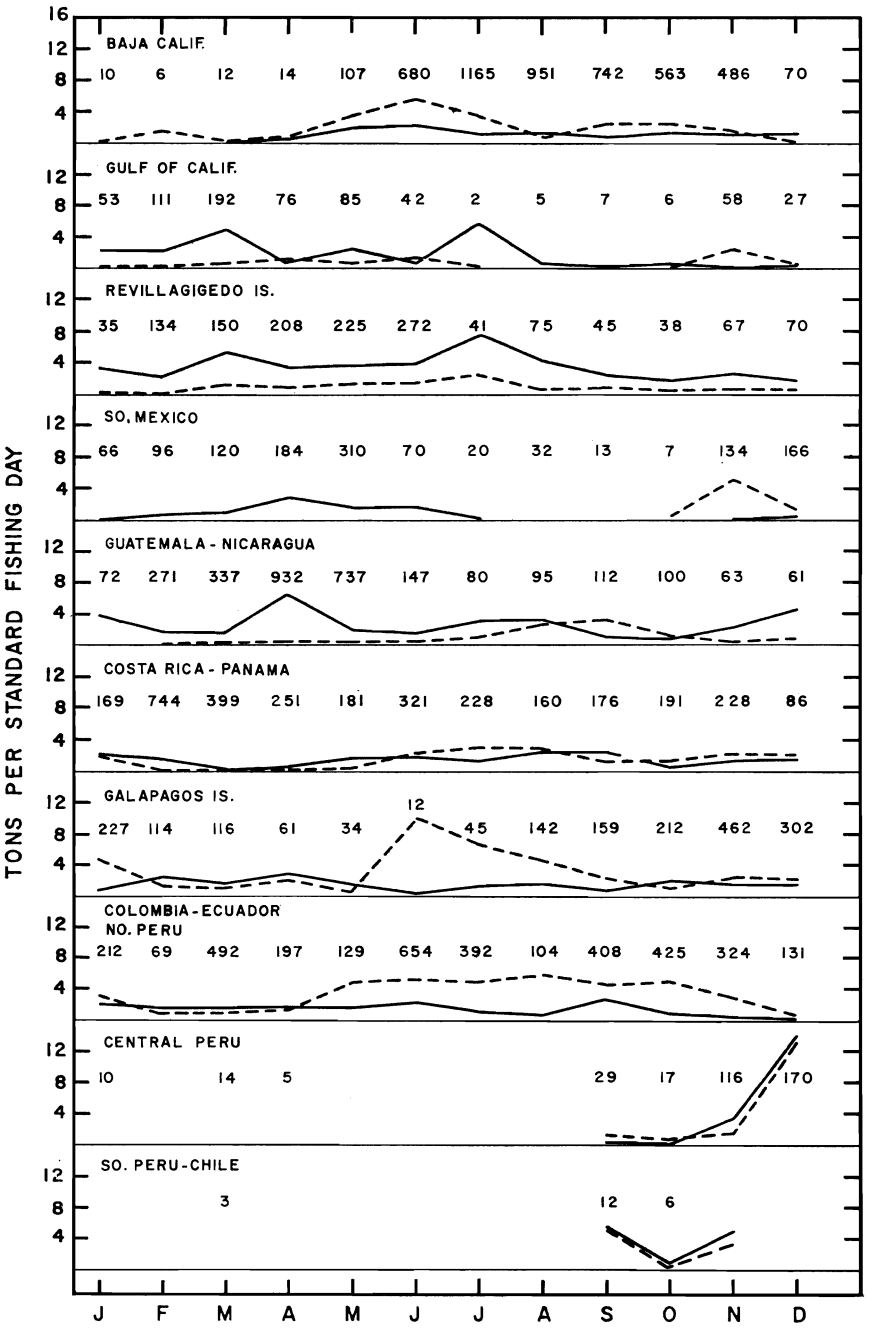

FIGURE 5. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1953. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 5. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1953. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

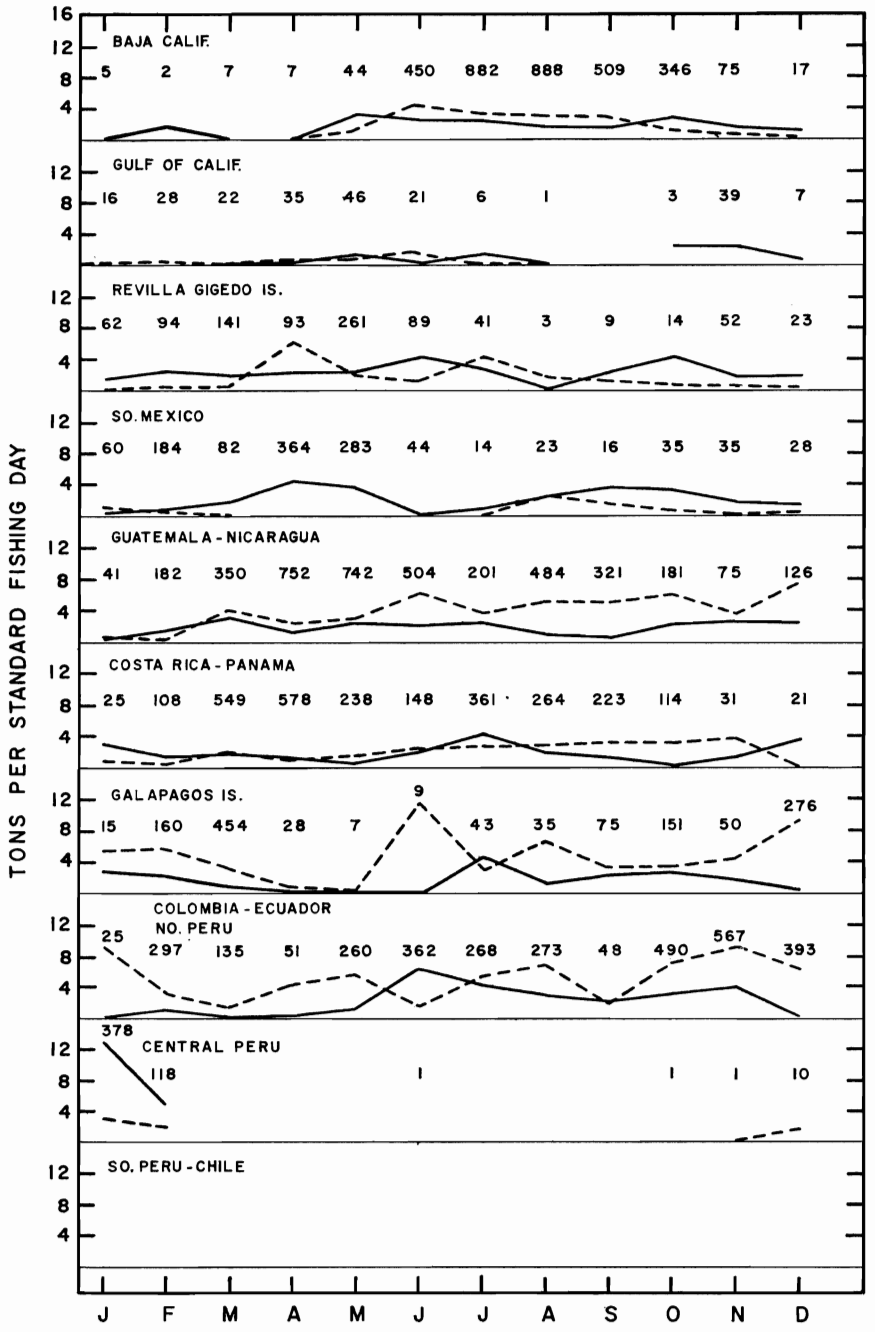

FIGURE 6. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1954. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 6. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1954. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

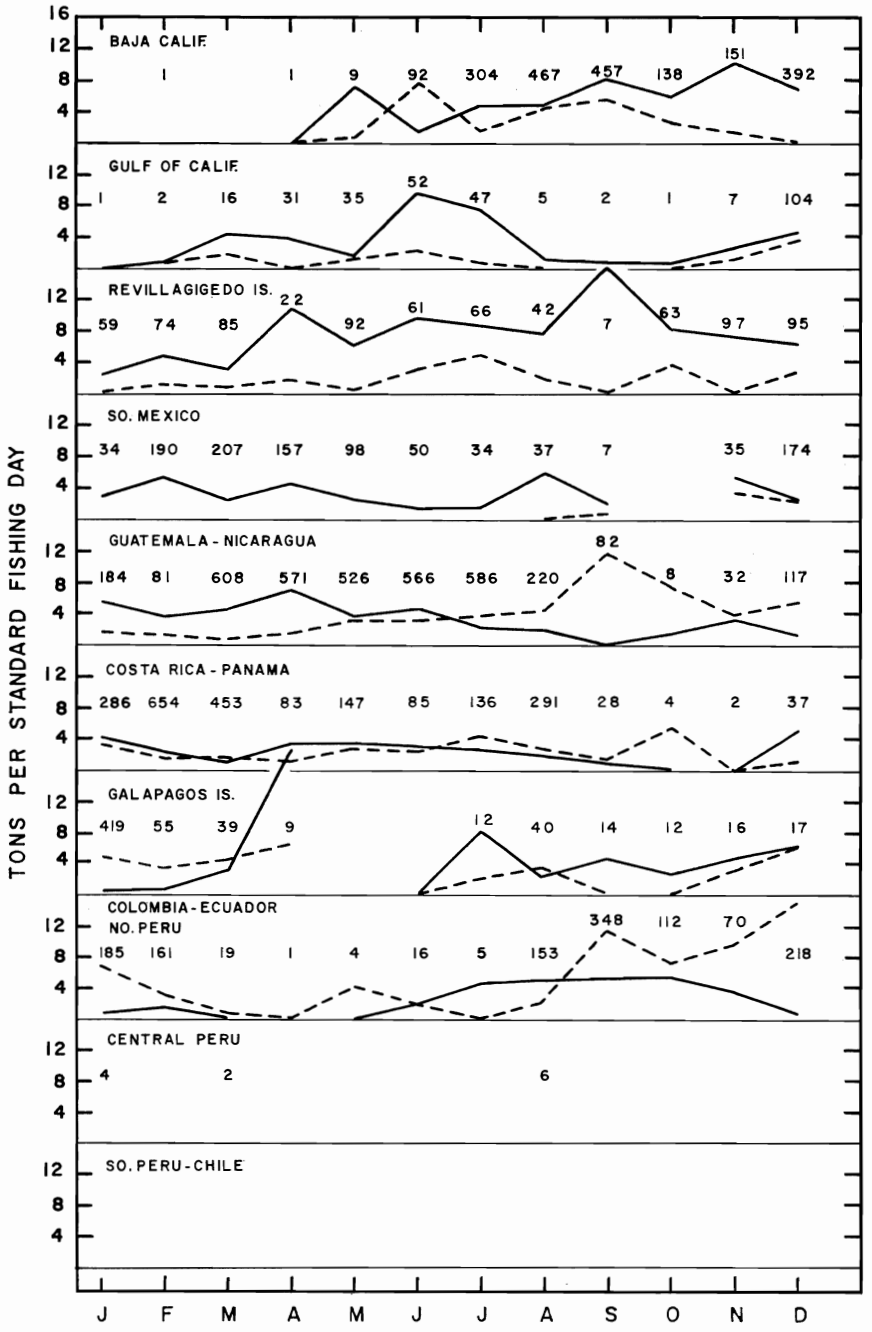

FIGURE 7. Monthly values of catch-per-standard-day's fishing, for baitboats by major geographical areas, 1955. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 7. Valores mensuales de la pesca por día estándar de actividad, para lo sbarcos de carnada, por áreas geográficas mayores, en el año 1955. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

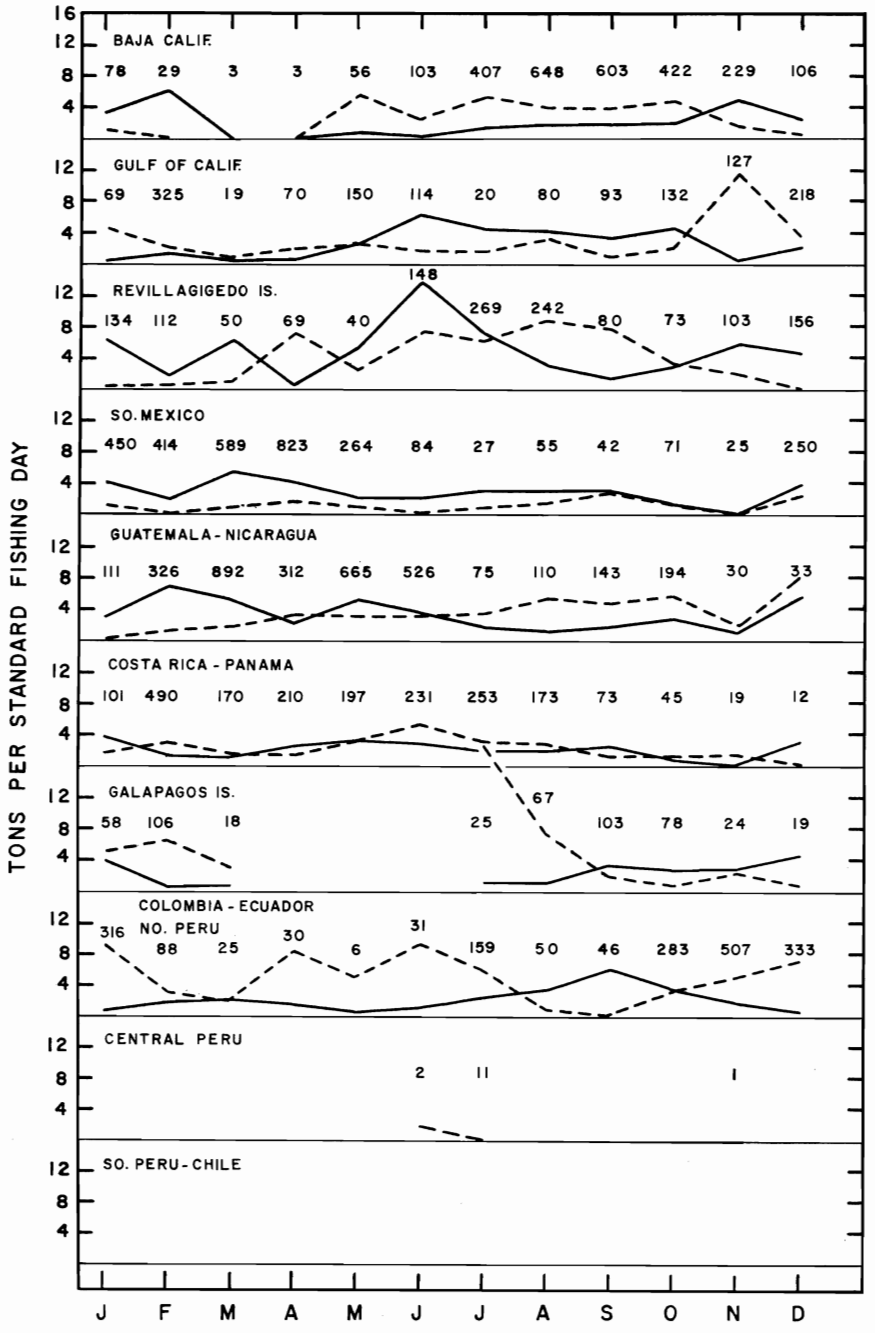

FIGURE 8. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1956. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 8. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1956. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

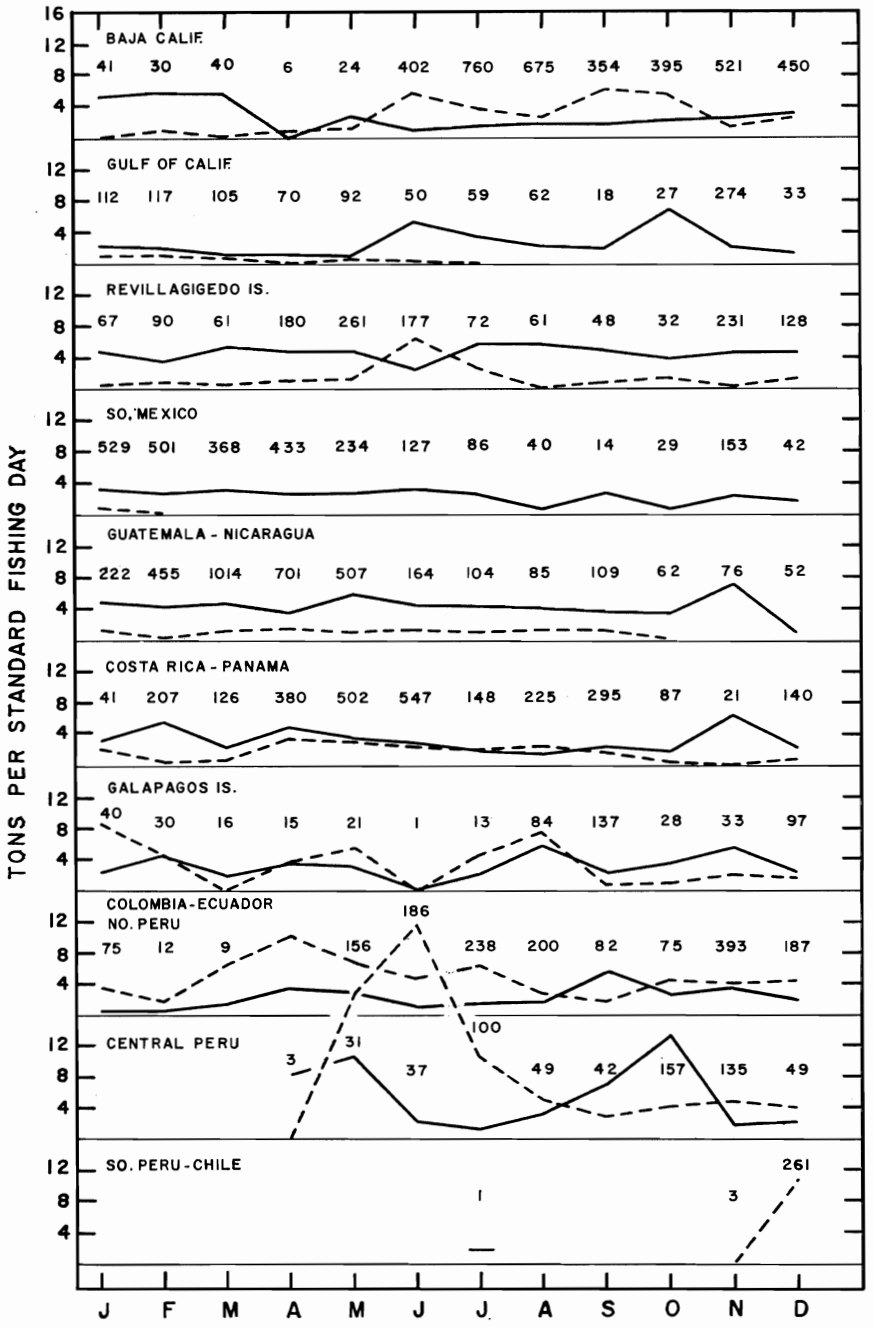

FIGURE 9. Monthly values of catch-per-standard-day'sfishing, for baitboats by major geographical areas, 1957. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 9. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1957. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida correspondiente al atún aleta amarilla y la línea a guiones al barrilete.

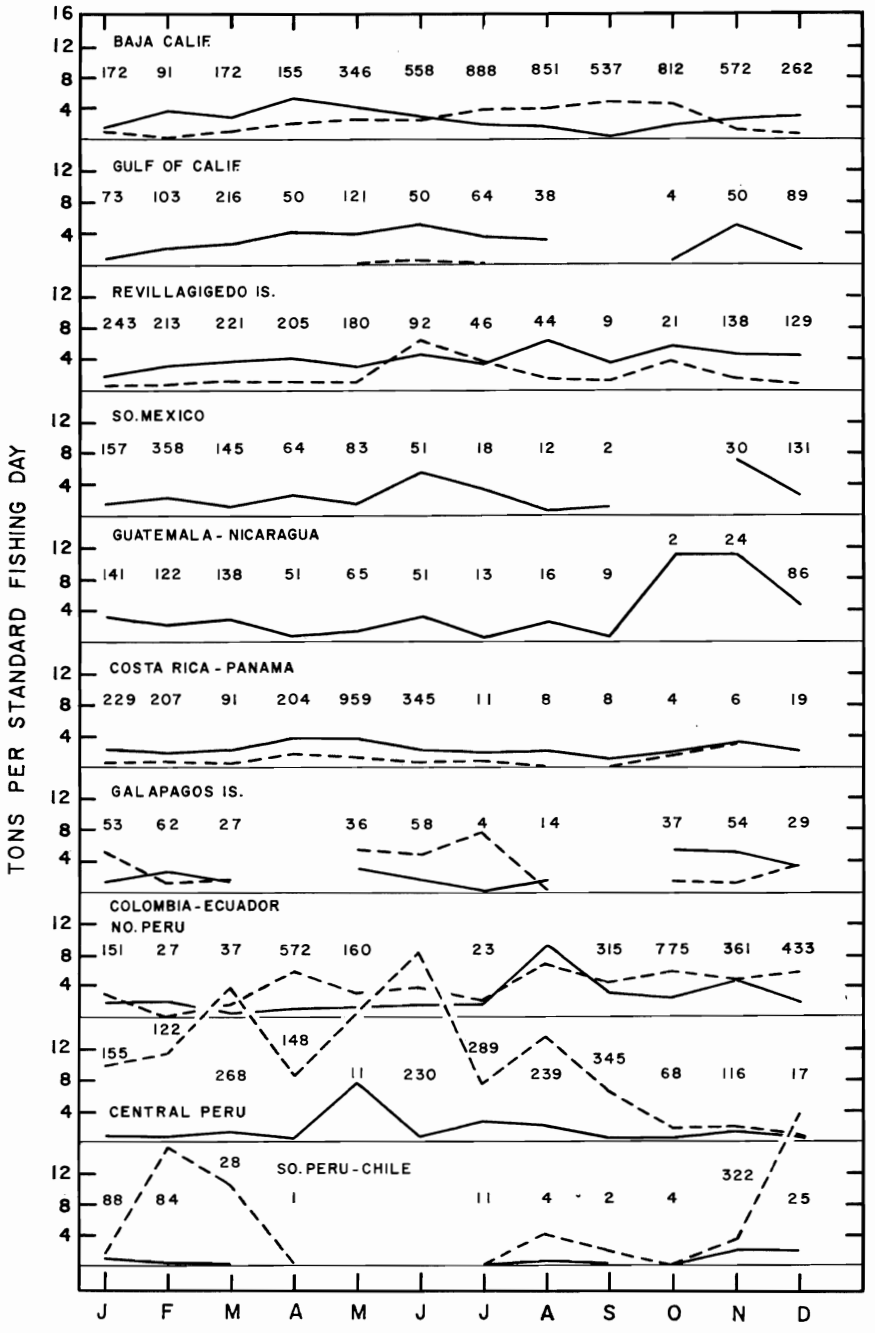

FIGURE 10. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1958. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 10. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1958. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida corresponde al atún aleta amarilla y la línea a guiones al barrilete.

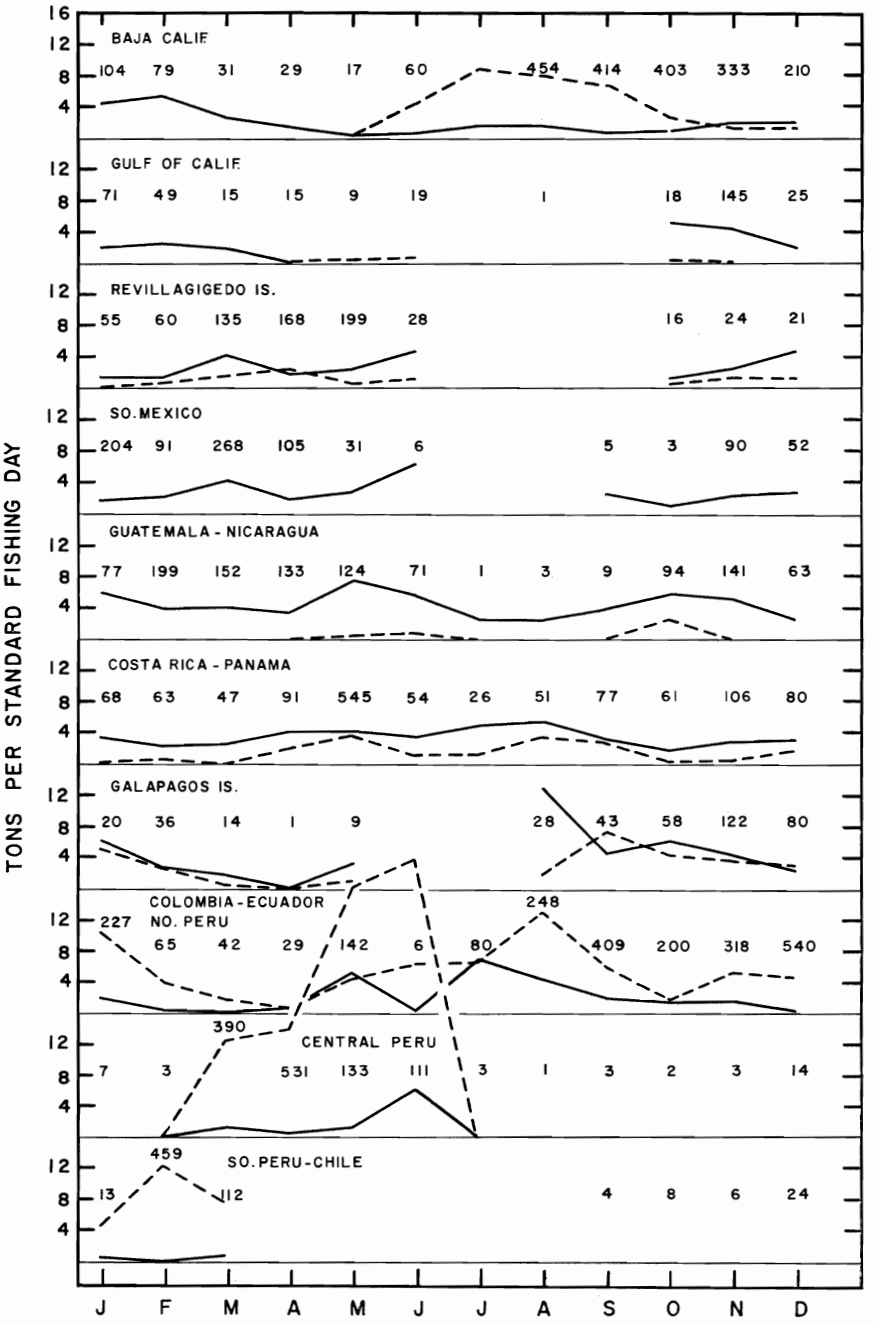

FIGURE 11. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1959. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 11. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1959. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida corresponde al atún aleta amarilla y la línea a guiones al barrilete.

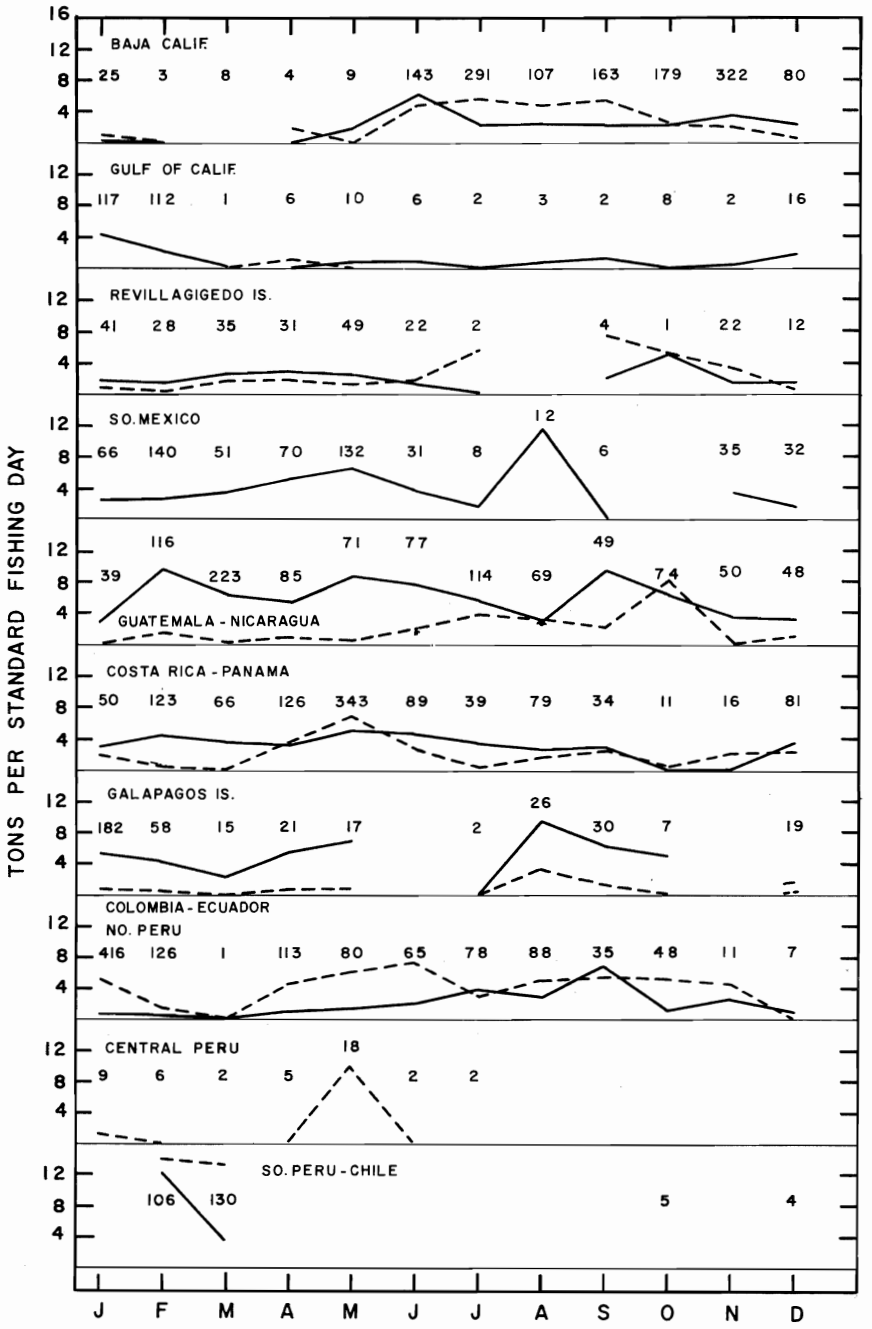

FIGURE 12. Monthly values of catch-per-standard-day's-fishing, for baitboats by major geographical areas, 1960. Numbers for each month indicate effort logged in standard days (see p. 183). Solid line — yellowfin; broken line — skipjack.

FIGURA 12. Valores mensuales de la pesca por día estándar de actividad, para los barcos de carnada, por áreas geográficas mayores, en el año 1960. Los números correspondientes a cada mes indican el esfuerzo registrado en los cuadernos de bitácora en días estándar (ver pág. 225). La línea ininterrumpida corresponde al atún aleta amarilla y la línea a guiones al barrilete.

TABLES — TABLAS

Table 1. Standard days fished (SDF) and catch-per-standard-day's-fishing for yellowfin (YF/SDF) and for skipjack (SJ/SDF) by five-degree area and month for baitboats, 1951-1960.

Tabla 1. Días estándar de pesca (SDF) y pesca de atún aleta amarilla por día estándar de actividad (YF/SDF) y pesca de barrilete por día estándar de actividad (SJ/SDF) por área de cinco grados y por mes, para los barcos de carnada, en el período 1951-1960.

Table 2. Standard days fished (SDF) and catch-per-standard-day's-fishing for yellowfin (YF/SDF) and for skipjack (SJ/SDF) by five-degree area and month for purse seiners, 1953-1960.

Tabla 2. Días estándar de pesca (SDF) y pesca de atún aleta amarilla por día estándar de actividad (YS/SDF) y pesca de barrilete por día estándar de actividad (SJ/SDF) por área de cinco grados y por mes, para los barcos rederos, en el período 1953-1960.

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	1	28.9	5.1	3.5	72.0	5.2	.2	102.9	1.7	3.7	3.6	.1	4.9	17.5	2.0	6.0	17.3	2.6	1.3	10.0	.7	2.8	93.4	2.7	1.7	12.7	1.6	.0	34.8	.5	4.0
00	80	1	1.0	.0	.0	23.0	2.6	.0	11.1	.4	1.6	2.4	2.9	.0	11.3	.7	.0	7.0	3.7	.1	1.8	.0	.0	23.0	.7	.9	1.8	.0	.0	10.3	.1	2.1
00	85	1	1.0	.0	.0	7.9	1.5	.0	6.5	.0	2.0	1.2	.0	.0	60.3	.1	4.7	2.9	.0	.0	1.5	1.3	.0	.5	.0	1.0	1.1	3.6	.0	1.8	.0	.0
00	90	1	44.9	1.0	3.1	87.4	1.7	3.6	193.6	.8	5.8	9.9	4.8	8.4	256.3	.7	5.5	40.6	4.6	7.3	35.0	2.8	9.5	47.5	1.5	5.5	14.9	5.2	7.0	121.3	4.4	.4
05	75	1	.0	.0	.0	5.5	.0	.0	35.2	1.2	.7	1.2	.0	.0	15.7	7.1	3.8	31.2	3.8	2.1	3.0	.0	.0	35.2	.6	.3	7.2	1.8	.0	5.2	.6	.2
05	80	1	26.2	3.6	.7	106.9	1.8	1.0	64.9	.5	4.8	12.4	3.7	2.1	169.8	3.0	4.4	47.1	4.9	1.4	8.4	.4	.0	117.1	2.8	.9	25.4	4.3	.0	12.2	1.8	.0
05	85	1	17.0	2.7	1.6	148.5	3.7	.1	69.3	4.1	.4	8.9	4.0	.1	100.2	6.1	2.6	23.0	2.2	2.7	29.2	4.3	2.9	76.4	2.8	.3	35.1	3.3	.5	32.6	3.7	2.7
05	90	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	95	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	85	1	41.9	2.3	1.8	30.0	1.0	.0	44.4	4.7	.1	14.4	.5	1.8	83.0	3.1	3.7	67.0	2.4	.4	22.3	.9	10.1	50.5	2.9	.2	21.1	2.4	.0	6.0	3.0	.2
10	90	1	7.6	.0	.0	26.5	.9	.0	21.6	2.8	.1	7.0	.0	.0	83.3	8.9	.2	21.1	1.8	.0	82.4	6.1	.0	22.8	2.0	.0	33.3	10.1	.0	3.3	.3	.0
10	95	1	.0	.0	.0	.8	2.1	.0	.0	.0	.0	4.4	.1	.0	9.6	1.6	.0	16.7	7.7	.4	102.9	4.4	.6	44.1	3.4	.0	2.0	2.8	.0	2.5	.2	.0
10	100	1	.0	.0	.0	2.1	3.8	.0	2.0	.1	.0	4.9	.0	.0	.8	17.5	.0	.6	.0	.0	6.8	1.4	.0	1.8	.0	.0	2.6	.8	.0	2.7	1.9	.0
10	105	1	4.7	8.6	.0	.8	.0	.0	3.5	.4	.0	10.3	1.3	.0	7.1	5.8	.0	5.5	2.0	.0	7.2	4.8	.0	21.7	5.7	.0	18.3	4.2	.0	24.1	3.4	.0
15	90	1	.8	.0	.0	2.7	.0	.0	3.5	.0	.0	.8	.0	.0	1.3	5.4	.0	3.1	.0	.0	5.0	.2	.0	4.7	.3	.0	2.5	.6	.0	.0	.0	.0
15	95	1	6.0	.0	.0	19.8	.0	.0	17.0	.0	.0	14.5	.7	.6	14.5	2.6	.0	59.6	3.1	.2	189.8	3.2	.9	42.3	2.3	.0	50.8	1.6	.0	12.1	3.2	.0
15	100	1	19.8	.9	.0	74.7	2.0	.0	33.8	.2	.0	30.1	.9	1.9	11.1	2.3	.0	208.3	3.7	.8	274.3	3.4	1.0	64.3	1.3	.1	123.5	1.9	.0	34.4	1.4	.0
15	105	1	8.3	1.4	.0	75.9	2.5	.0	11.2	.7	.1	14.7	.4	.1	3.4	3.7	.0	179.3	5.4	2.6	60.0	2.0	.0	45.3	1.2	.0	27.0	2.2	.0	19.0	4.0	.0
15	110	1	11.2	2.1	.0	14.4	1.9	.0	35.4	3.1	.1	61.9	1.5	.1	58.6	2.4	.2	133.6	6.7	.6	66.5	4.6	.5	150.1	1.2	.2	45.4	1.7	.1	21.5	.2	.0
15	115	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	92.5	3.0	1.3	9.4	1.1	.0	19.5	3.6	1.9
20	105	1	25.8	.7	2.0	29.9	1.7	1.1	53.0	2.1	.1	16.4	.0	.0	.8	.0	.0	68.7	.4	4.5	112.2	2.1	.8	72.7	.8	.0	71.0	2.0	.0	117.2	4.1	.0
20	110	1	5.3	.1	.0	1.7	.0	.0	7.2	.2	.0	1.6	.0	.0	.0	.0	.0	78.3	3.4	1.1	8.8	.8	.0	61.1	1.3	.0	24.2	.6	.1	10.3	.0	.0
20	115	1	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0	9.4	.0	6.6	3.6	.5	14.4	5.4	.0	.0	.0	.0
25	105	1	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	110	1	3.5	8.3	.3	3.3	2.9	.0	1.4	.0	.0	2.2	.0	.0	.0	.0	.0	.0	.0	.0	22.5	5.3	1.0	102.0	1.9	1.5	64.1	5.6	.4	15.0	.7	1.5
25	115	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	.0	3.7	1.5	6.0	.0	.0	.0	.0
205	80	1	16.0	12.1	.0	265.0	2.9	1.2	97.8	2.7	3.3	19.2	.0	11.2	155.8	.3	7.6	291.9	.7	9.8	63.6	.5	3.5	34.5	.6	3.5	212.3	2.3	10.3	371.3	.3	5.3
205	85	1	2.0	.0	.0	2.2	.9	.0	3.0	2.3	.3	1.0	.0	.0	46.5	.6	4.3	7.1	3.1	.6	1.0	.0	.0	2.4	.0	2.5	3.0	11.7	.0	19.5	4.7	1.1
205	90	1	187.1	1.0	7.6	81.9	3.1	1.3	23.8	4.5	.9	2.4	.0	.0	56.0	.9	2.6	7.3	3.1	1.0	2.5	.4	1.2	2.3	.0	.0	.5	.0	.0	38.9	9.0	1.6
210	75	1	.0	.0	.0	.0	.0	.0	4.0	.8	.0	370.8	13.8	3.4	1.4	.0	.0	.0	.0	.0	1.0	.0	.0	141.2	.6	9.0	6.7	.0	.0	4.4	.0	.0
210	80	1	.0	.0	.0	.0	.0	.0	5.6	.2	.0	7.5	.1	.3	2.2	.0	.0	.0	.0	.0	.0	.0	.0	13.3	.2	17.5	.0	.0	.0	4.2	.0	3.1
215	75	1	.0	.0	.0	.0	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.4	.0	.0	.0	.0	.0	.0	.0	.0
220	70	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	23.0	.3	1.1	12.7	.3	4.5	.0	.0	.0
220	75	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.7	.0	.0	.0	.0	.0	.0	.0	.0
225	70	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	47.4	1.0	1.5	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951 SDF	1951 YF/SDF	1951 SJ/SDF	1952 SDF	1952 YF/SDF	1952 SJ/SDF	1953 SDF	1953 YF/SDF	1953 SJ/SDF	1954 SDF	1954 YF/SDF	1954 SJ/SDF	1955 SDF	1955 YF/SDF	1955 SJ/SDF	1956 SDF	1956 YF/SDF	1956 SJ/SDF	1957 SDF	1957 YF/SDF	1957 SJ/SDF	1958 SDF	1958 YF/SDF	1958 SJ/SDF	1959 SDF	1959 YF/SDF	1959 SJ/SDF	1960 SDF	1960 YF/SDF	1960 SJ/SDF
00	75	2	26.5	3.4	1.9	87.5	3.0	1.1	37.1	1.0	1.0	34.3	1.0	3.4	126.3	1.8	3.6	43.9	4.0	1.3	3.2	.0	1.6	12.1	3.9	.0	11.4	.8	.1	28.3	.5	2.2
00	80	2	1.0	2.0	2.0	49.0	3.7	.2	11.0	.0	.0	22.1	.6	.5	10.7	.0	.1	26.9	.2	8.8	2.4	.0	.0	5.4	.3	.0	1.6	.0	.0	8.3	1.3	.0
00	85	2	.8	.0	.0	1.2	.0	.0	3.5	.0	.0	4.5	.0	.0	3.1	.0	1.3	6.9	.3	4.1	2.4	.1	.0	3.2	.0	.0	1.0	3.5	.0	2.8	.0	.0
00	90	2	13.5	.3	4.1	30.5	.5	1.5	65.0	.9	2.9	90.4	3.1	5.3	27.4	.5	4.2	90.2	.5	7.5	21.8	3.6	3.8	25.4	1.3	1.0	25.6	2.9	3.9	36.7	4.3	.7
00	105	2	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	2	10.5	5.2	2.4	92.1	5.5	.1	96.2	2.9	.1	14.1	.4	.1	207.7	3.3	1.7	153.2	1.5	3.6	4.8	.2	.0	15.3	1.6	.1	10.3	.1	.0	33.7	2.9	1.4
05	80	2	37.6	6.4	1.0	312.0	2.2	.7	259.0	1.0	.6	66.9	2.3	1.2	366.3	1.5	2.0	186.8	1.3	2.1	90.0	5.6	.2	101.0	1.7	.4	26.9	3.1	.1	53.2	5.3	.3
05	85	2	12.1	2.3	6.3	281.7	3.9	.1	388.4	2.1	.1	26.9	.7	.4	79.8	2.6	1.1	149.5	1.7	4.3	112.2	5.7	.6	90.8	2.0	.7	24.1	2.9	1.5	36.3	5.2	.3
05	105	2	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	115	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0
10	85	2	23.4	1.6	14.8	106.6	3.3	.0	214.0	2.0	.1	65.7	2.3	1.6	34.6	.9	2.8	69.9	2.0	.9	48.4	1.4	.4	32.6	.5	.0	21.3	.7	.0	75.9	12.8	2.3
10	90	2	.8	.0	.0	37.6	.5	.0	52.4	.2	.0	52.6	1.3	.1	13.4	.3	.0	40.6	3.2	.6	306.9	5.1	.6	35.9	.8	.0	129.2	4.6	.0	23.7	3.0	.2
10	95	2	.0	.0	.0	3.4	2.8	.0	1.2	.0	.0	54.9	.6	.4	32.4	7.6	.3	193.6	9.7	1.8	54.9	1.9	.0	25.2	1.3	.0	40.8	3.2	.0	2.2	3.4	.0
10	100	2	.0	.0	.0	1.7	.3	.0	.4	.0	.0	6.3	.3	.3	.5	.0	.0	10.4	2.0	.6	30.3	3.2	.0	2.1	.0	.0	.0	.0	.0	.0	.0	.0
10	105	2	17.8	9.0	.0	10.1	1.7	.0	2.5	.0	.0	1.6	.0	.0	.0	.0	.0	11.6	9.8	.2	14.4	4.5	.0	25.9	6.0	.0	8.0	6.0	.0	13.9	4.2	.0
10	110	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	38.3	1.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	2	.0	.0	.0	5.6	.0	.0	16.1	.0	.0	13.0	5.0	.0	1.2	.0	.0	2.2	.0	.0	12.5	2.5	.0	5.0	1.0	.0	6.3	1.3	.0	5.5	.6	.0
15	95	2	1.7	.0	.0	86.8	3.2	.0	41.6	.5	.1	30.9	.3	.3	42.4	3.1	.1	65.3	2.6	.3	127.2	2.3	.1	136.1	1.9	.0	32.7	1.0	.0	41.5	2.4	.0
15	100	2	22.7	6.4	.0	75.9	1.1	.0	26.9	.1	.0	121.4	.7	1.3	108.7	5.9	.1	128.4	1.3	.0	275.7	2.6	.1	194.3	2.8	.0	36.5	3.6	.0	82.7	3.4	.0
15	105	2	37.5	4.5	.0	38.4	1.2	.0	11.2	1.4	.0	19.0	.4	.3	37.5	7.1	.2	218.5	2.6	.5	85.8	2.8	.1	22.5	.8	.0	17.5	1.3	.0	10.5	.1	.0
15	110	2	33.0	2.5	.0	45.2	3.1	.2	134.3	2.1	.0	94.1	2.7	.5	74.1	4.8	1.2	112.3	2.0	.5	89.9	3.3	.9	156.5	2.6	.7	57.9	1.7	.7	22.1	1.4	.0
15	115	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	56.9	5.0	1.1	2.0	1.8	.0	6.0	7.2	2.2
20	105	2	47.7	3.0	2.1	80.4	3.4	.1	110.7	2.1	.2	27.8	.0	.2	2.2	.5	.5	324.8	1.7	2.4	117.4	1.9	.9	102.6	2.1	.0	49.2	2.5	.0	112.1	2.2	.0
20	110	2	1.4	.0	.0	4.5	.0	.0	4.7	.0	1.8	.8	.0	.0	1.0	.0	.0	28.2	6.4	.2	25.7	5.9	.9	50.0	2.1	.1	11.5	.1	.0	2.2	.0	.0
20	115	2	.0	.0	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	3.0	8.7	.0	.8	.0	.0	.8	.0	.0	.0	.0	.0
25	105	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	8.2	.0	.0	.0	.0	.0	.0	.0
25	110	2	1.9	.0	.0	2.5	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.6	.0	.0	39.5	5.1	.1	67.1	6.4	.2	.4	.0	.0
25	115	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	80	2	11.0	9.5	.0	143.5	3.0	.9	20.5	2.9	2.3	241.0	1.8	3.7	23.5	.0	1.9	17.6	.0	.5	6.0	.0	2.3	9.7	.1	.0	51.9	.5	5.1	89.3	.2	1.6
205	85	2	.6	.0	.8	.6	.3	.0	3.6	.6	.0	7.7	.3	17.9	3.1	.0	.0	5.1	1.0	.2	.0	.0	.0	2.7	.0	.0	2.8	.4	3.9	3.9	2.1	.0
205	90	2	22.3	.6	14.5	19.2	2.1	2.1	42.0	5.3	.8	57.4	2.4	5.7	21.7	1.2	3.0	3.8	.0	.0	5.3	10.9	9.6	30.2	4.0	1.5	6.7	3.7	.0	14.6	5.6	.2
210	75	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	96.4	6.7	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	115.4	.4	11.5	3.2	.0	.0	2.8	.0	.0
210	80	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.9	.6	1.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.4	.9	5.7	.0	.0	.0	3.2	.0	.0
215	75	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.6	.0	.0	.0	.0	.0
220	70	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	76.1	.1	16.1	441.7	.1	12.4	42.7	2.3	8.0
225	70	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.4	.0	10.6	16.7	.0	11.6	62.7	19.2	18.7
225	80	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA	MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
		SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00 75	3	1.0	.0	.0	59.7	2.2	1.6	97.6	.7	.1	35.5	.6	1.0	11.9	.0	.8	15.9	3.5	.1	5.3	.8	10.9	10.0	.2	2.0	8.5	.4	.1	.0	.0	.0
00 80	3	.0	.0	.0	26.3	2.4	.1	118.2	1.4	2.6	31.6	.2	.1	4.6	.0	.0	8.2	.1	6.5	4.1	1.6	.9	12.5	1.5	.5	7.5	.3	.1	1.2	.0	.0
00 85	3	.0	.0	.0	.0	.0	.0	4.8	.1	.0	18.6	.6	6.0	1.8	.0	5.6	.0	.0	.0	.6	.0	.0	1.7	.0	4.1	.0	.0	.0	.0	.0	.0
00 90	3	.0	.0	.0	25.1	1.5	.8	38.7	1.0	1.0	258.5	1.5	3.4	30.7	2.4	3.9	9.6	1.1	2.0	10.2	.0	.1	18.5	1.2	1.5	6.1	3.0	.9	10.5	1.8	.1
05 75	3	.0	.0	.0	289.7	4.2	.1	43.5	.1	.0	115.3	3.7	2.7	71.5	4.0	.1	37.7	2.0	1.4	5.8	1.4	.0	22.4	2.9	.3	7.2	2.9	.1	8.2	2.6	.9
05 80	3	5.6	.8	.3	374.7	1.6	.7	161.2	.5	.1	307.9	1.3	2.9	283.2	.5	1.9	84.2	.8	2.1	64.3	2.8	.6	39.9	.9	.2	18.9	1.2	.0	24.7	2.6	.0
05 85	3	3.1	1.3	.0	310.1	3.6	.2	183.8	.7	.0	125.9	3.6	.4	98.6	.9	.4	48.3	1.5	.9	55.8	1.5	1.0	27.7	3.0	.2	21.1	4.3	.3	32.6	4.7	.0
05 90	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	4.0	.0	.0	.0	.0	.0	.0	.0
10 85	3	13.7	.9	.5	492.2	3.6	.1	257.4	1.4	.3	230.6	3.5	6.2	516.6	4.9	.7	226.9	1.7	1.6	210.4	4.3	1.2	38.9	3.5	.0	19.9	2.1	.0	76.6	4.7	.6
10 90	3	3.0	.0	.0	67.7	.7	.0	69.5	1.6	.1	42.5	1.2	.0	61.2	1.2	1.0	295.0	5.6	3.3	774.5	4.8	1.0	40.6	1.7	.0	94.8	4.7	.0	105.0	8.0	.1
10 95	3	.4	.0	.0	12.4	2.0	.0	3.8	5.0	.0	51.0	4.0	.2	26.5	4.2	.0	313.2	7.5	1.0	22.6	.6	.0	6.1	.7	.0	30.6	4.1	.0	12.9	3.9	.0
10 100	3	.0	.0	.0	2.1	.0	.0	2.2	.0	.0	10.7	.5	.2	1.0	3.0	.0	51.2	6.9	.1	.0	.0	.0	3.6	1.1	.0	4.6	10.0	.0	22.8	7.0	.0
10 105	3	2.2	28.9	.0	3.8	.1	.0	4.0	.0	.8	14.9	6.9	.0	2.4	.4	.0	5.9	3.3	.1	6.7	3.9	.0	49.1	3.8	.0	2.0	.0	.0	5.9	11.2	.0
10 110	3	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15 90	3	1.0	.0	.0	8.0	.6	.0	7.6	2.1	.1	9.7	.7	.0	5.8	.0	.0	10.4	1.8	1.0	31.5	2.0	.0	10.6	2.1	.0	4.0	.8	.0	3.0	.0	.0
15 95	3	4.5	.0	.0	151.0	2.9	.0	50.4	.8	.1	30.0	1.8	.1	89.9	2.9	.3	297.6	6.2	.9	62.2	2.4	.0	57.8	2.0	.0	72.9	4.1	.0	19.6	2.5	.0
15 100	3	8.1	.8	.0	75.3	.4	.0	42.3	.1	.2	37.9	2.3	.8	79.8	1.7	.0	243.1	5.7	.7	223.8	3.8	.0	61.0	.3	.0	171.1	4.2	.0	27.9	3.8	.0
15 105	3	16.6	6.6	.1	30.8	2.4	.0	19.9	2.0	.6	4.5	.2	.0	31.3	3.3	.2	37.6	1.6	2.6	50.5	2.3	.0	15.1	.0	.0	20.0	3.7	.0	.0	.0	.0
15 110	3	1.1	3.6	.0	66.3	4.2	.4	149.5	5.1	1.1	140.6	2.1	.8	84.6	3.1	.8	50.2	6.4	1.0	60.6	5.2	.6	170.4	3.4	.7	133.0	4.1	1.4	26.9	2.6	1.2
15 115	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	50.2	5.7	2.3	2.0	.0	.0	8.0	3.4	2.9
20 105	3	14.3	2.7	4.1	146.7	2.8	.3	191.6	4.9	.3	22.3	.0	.0	15.7	4.4	1.8	18.6	.5	.7	105.2	1.2	.8	216.1	2.6	.0	14.8	1.9	.0	1.2	.0	.0
20 110	3	2.8	.0	.0	3.7	.5	.0	10.5	.3	.4	5.2	.0	.0	.0	.0	.0	.8	.0	.0	39.7	5.6	.1	147.9	2.3	.6	8.3	5.5	.0	.8	.0	.0
20 115	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	16.8	5.9	.0	4.9	.8	.0	.0	.0	.0
25 105	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	1.7	3.6	.0	.0	.0	.0	.0	.0	.0
25 110	3	1.7	.0	.0	3.3	.0	.0	1.1	.0	.0	1.6	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	5.5	2.2	4.4	18.1	1.2	.0	.0	.0	.0
205 80	3	.0	.0	.0	27.3	.2	.0	276.6	2.1	1.2	68.2	1.3	2.4	2.0	.0	.0	.6	.0	.0	.0	.0	.0	14.6	.1	1.4	26.2	.3	2.7	.0	.0	.0
205 85	3	.0	.0	.0	1.8	.6	.0	.6	.0	.0	15.7	.1	.0	.0	.0	.0	8.2	.5	4.8	.6	.0	.0	.0	.0	.0	2.8	2.1	.7	2.4	.0	.0
205 90	3	.0	.0	.0	47.0	4.2	9.3	72.0	2.5	1.8	161.2	.9	3.7	6.4	9.1	6.7	.0	.0	.0	4.1	6.1	.0	6.3	1.7	.0	5.2	.4	.0	1.7	5.4	.1
210 75	3	.0	.0	.0	.0	.0	.0	1.8	.6	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	258.3	1.0	20.1	388.6	1.4	12.5	2.4	.0	.0
210 80	3	.0	.0	.0	1.5	.0	.0	12.3	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0	9.9	.5	4.4	1.8	1.7	6.7	.0	.0	.0
215 75	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	18.6	.0	14.6	2.4	.0	3.8	2.0	.0	14.0
220 70	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.4	.0	2.1	107.0	.8	7.6	90.4	4.4	11.3
220 75	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	1.2	.0	.0	2.4	.0	.0
220 80	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.3	.0	.0
225 70	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	4.2	28.0	2.8	23.2
225 75	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.3	.0	.0
225 80	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.3	.0	.0
230 75	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0
230 80	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	4	9.2	8.1	10.2	22.7	.7	3.5	78.6	.6	1.9	18.7	.2	4.0	.0	.0	.0	20.1	2.4	10.8	65.7	4.4	10.9	119.4	.4	6.6	3.6	.0	.0	34.8	1.3	4.5
00	80	4	1.0	27.0	.0	23.4	1.5	.9	100.1	2.1	1.0	14.3	.0	.1	1.2	.0	.0	5.8	.0	6.2	18.2	.2	7.2	55.0	1.0	2.7	2.6	.2	.2	38.7	.6	4.9
00	85	4	.0	.0	.0	2.8	.0	.0	6.1	.4	.8	3.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.5	.0	.0
00	90	4	62.5	15.0	1.8	39.6	1.5	1.9	10.5	1.0	.2	20.0	.4	.9	.0	.0	.0	.0	.0	.0	13.3	3.9	4.0	.0	.0	.0	.6	.0	.0	15.3	6.9	.7
05	75	4	1.0	6.0	.0	234.8	5.4	1.5	44.8	.5	.1	115.5	3.4	1.0	27.8	2.4	1.1	11.7	3.2	.9	196.3	7.4	4.5	107.5	3.4	2.8	35.6	4.8	4.4	76.6	3.0	5.7
05	80	4	15.0	.3	6.5	346.0	1.1	.9	130.9	.6	.4	280.0	.8	2.0	23.9	.7	.0	57.5	.7	1.4	119.9	2.3	2.8	56.6	3.8	.1	35.7	4.1	.1	29.9	2.2	.3
05	85	4	18.4	6.3	.8	127.6	.8	.0	74.5	.6	.1	181.8	2.1	1.4	31.7	5.4	1.7	140.9	3.5	1.4	63.7	1.8	1.4	39.8	4.7	.0	19.3	3.1	.9	19.5	4.4	.0
05	90	4	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	1.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	85	4	227.4	2.7	8.5	476.9	1.9	.0	360.0	4.5	.7	583.6	1.7	3.1	245.7	6.4	2.1	210.7	2.2	5.0	374.4	3.2	1.9	22.4	.6	.0	19.4	3.5	.7	25.0	2.3	2.6
10	90	4	91.7	.8	1.4	117.9	1.2	.0	177.2	5.6	.2	85.6	1.0	.2	239.1	7.5	.8	29.8	1.4	.6	300.1	3.9	.9	21.8	1.0	.0	74.4	4.0	.0	6.5	6.0	.5
10	95	4	50.6	4.2	.0	91.2	3.9	.0	386.8	9.6	.3	76.2	3.1	1.0	84.3	7.8	1.2	23.6	1.5	1.5	15.2	1.4	.0	4.4	1.1	.0	15.6	2.2	.0	19.9	6.3	.0
10	100	4	21.9	5.7	.2	20.4	6.2	.1	4.6	.0	.2	3.2	3.9	1.6	.0	.0	.0	41.3	4.2	.3	6.2	2.2	.2	.0	.0	.0	4.6	2.0	.0	1.7	3.5	.0
10	105	4	9.2	14.3	2.0	3.7	.0	.0	3.2	.0	.0	3.0	3.7	.0	2.0	33.0	.0	6.7	3.3	.0	5.4	2.8	.0	2.2	.0	.0	19.4	4.9	.0	32.3	7.7	.0
15	90	4	10.9	.0	.0	12.3	1.2	.0	7.9	.6	.0	18.8	.6	.0	8.8	5.6	.2	15.8	2.2	1.9	9.4	.0	.0	6.9	6.5	.0	9.8	1.6	.0	.0	.0	.0
15	95	4	99.8	3.7	.0	104.3	1.8	.0	117.4	3.9	.6	130.0	3.2	.1	73.3	4.5	.1	85.0	3.3	2.4	93.9	1.7	.0	28.2	3.5	.0	25.8	2.0	.0	41.8	6.1	.0
15	100	4	174.4	2.4	.0	127.9	2.3	.0	46.3	1.5	.1	200.8	6.1	.4	66.2	4.8	.3	412.5	3.8	.9	194.6	2.2	.0	17.0	.5	.0	55.7	1.6	.0	21.9	4.4	.0
15	105	4	126.3	2.2	.0	13.5	.7	.0	12.7	.3	.2	13.9	1.8	1.5	9.0	2.4	.0	309.2	4.7	2.9	134.6	3.9	.0	12.0	1.2	.0	13.8	1.6	.0	6.5	.5	.0
15	110	4	108.2	4.5	.1	104.2	6.4	1.0	207.8	3.3	.9	92.9	2.5	6.5	21.6	10.8	1.9	68.7	.8	7.3	179.4	4.3	1.1	165.7	2.2	.7	166.6	2.1	1.4	23.6	1.5	1.0
15	115	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	39.5	12.2	2.9	1.7	.0	.0	7.0	7.7	3.1
20	105	4	218.5	.7	1.7	40.0	.9	.2	75.6	.7	.9	34.9	.3	.4	30.9	3.6	.0	69.6	.6	1.8	69.8	1.0	.0	50.2	3.9	.0	14.8	.2	.0	6.4	.0	1.1
20	110	4	18.4	.0	.3	1.2	.0	.0	1.2	4.1	7.6	4.4	.0	.0	.6	.0	.0	2.4	.0	.0	6.1	.0	.3	136.9	4.7	2.0	17.8	.3	.0	3.6	.0	1.8
20	115	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	17.9	8.2	.0	9.9	3.6	.0	.0	.0	.0
25	105	4	4.1	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	110	4	17.0	.3	.0	1.6	.0	.0	11.8	.3	.1	2.5	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
25	115	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0
205	80	4	10.0	25.8	.5	9.3	2.8	.0	18.1	1.2	.4	17.5	2.7	8.9	.0	.0	.0	3.6	.0	.0	1.0	.0	.0	398.1	1.1	5.9	23.0	.7	.7	39.9	1.2	5.0
205	85	4	.0	.0	.0	11.8	.5	8.7	5.7	8.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.6	.0	.0
205	90	4	10.9	1.2	22.6	90.7	3.3	4.2	38.4	3.4	3.1	4.1	.0	.0	9.1	18.4	6.5	.0	.0	.0	1.7	3.8	.0	.0	.0	.0	.0	.0	.0	1.8	6.1	.0
210	75	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	8.1	.7	99.4	.3	9.3	432.7	.3	15.3	2.2	.0	.0
210	80	4	.0	.0	.0	.0	.0	.0	4.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	48.3	.1	6.2	98.4	.0	10.5	2.4	.0	.0
215	75	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	5	31.0	3.8	5.7	14.7	1.0	2.3	20.0	1.0	6.1	64.8	.3	4.7	.0	.0	.0	4.8	.6	6.3	145.9	3.0	7.4	86.9	1.4	3.2	97.5	6.9	4.9	19.4	2.2	2.4
00	80	5	7.2	13.5	.0	12.4	1.5	1.5	101.4	1.8	4.8	73.4	1.0	4.7	4.1	.0	4.1	1.0	.0	.0	9.8	1.7	1.3	16.3	.2	.3	13.8	4.0	.5	9.3	.5	11.4
00	85	5	2.3	.0	9.6	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0
00	90	5	121.3	3.6	2.2	38.1	1.7	2.2	12.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.4	3.0	5.6	24.1	3.8	5.0	6.5	4.1	1.1	14.4	8.1	1.1
00	95	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
05	75	5	101.2	8.4	3.1	725.0	5.6	2.1	54.5	3.4	.3	53.9	1.1	2.2	61.8	6.0	4.7	98.8	4.6	5.5	336.2	3.4	4.5	650.8	4.0	1.5	339.8	3.5	6.6	230.5	5.7	7.1
05	80	5	190.1	4.7	.7	213.7	2.1	1.1	64.2	.4	.5	137.3	.9	2.1	50.5	.2	1.6	54.3	1.2	1.1	133.6	2.2	1.7	272.7	3.1	.1	158.2	4.4	.3	105.7	4.5	7.2
05	85	5	95.4	3.0	4.7	48.1	3.4	.1	62.5	1.3	.3	46.9	1.4	.6	34.5	3.5	1.1	43.5	3.1	1.1	31.0	3.4	.2	34.7	3.5	.0	47.0	7.8	.2	6.5	1.4	.2
05	90	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	95	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0
10	85	5	1017.3	2.5	5.0	111.2	.8	.0	418.9	1.9	1.4	464.9	1.3	4.6	387.6	3.3	4.0	360.5	4.3	3.8	111.2	4.9	1.9	33.8	1.7	.0	86.4	10.3	.6	14.7	4.4	2.9
10	90	5	144.2	4.4	.5	147.1	3.4	.0	151.1	.9	.0	202.0	5.7	1.3	120.4	5.3	.6	288.0	6.5	2.5	316.4	6.4	.7	25.4	.8	.0	22.0	1.9	.1	17.4	15.0	.0
10	95	5	11.3	1.6	.0	28.3	2.8	.0	156.3	3.4	.1	73.2	6.1	.7	7.1	.3	.3	9.4	.9	1.1	75.6	6.1	.0	3.2	.0	.0	.0	.0	.0	29.9	7.9	.0
10	100	5	2.6	3.1	.0	5.4	2.4	.0	7.5	1.2	.0	1.0	.0	.0	4.3	3.3	.0	7.4	5.1	3.2	.4	.0	.0	.0	.0	.0	.0	.0	.0	7.3	7.8	.0
10	105	5	5.9	6.3	.5	4.2	.0	.0	3.0	.8	.0	1.0	.7	.0	6.1	6.3	.8	.0	.0	.0	3.0	9.7	.0	2.2	.7	.0	15.4	1.2	.0	1.7	.9	.0
15	90	5	8.7	.9	.0	115.5	7.5	.0	6.7	.0	.0	12.9	4.6	.9	5.4	.0	.0	7.3	1.1	.0	3.5	.4	.0	7.2	.7	.0	1.9	.0	.0	.0	.0	.0
15	95	5	39.5	1.6	.0	97.5	4.0	.0	161.1	1.8	.0	175.7	4.6	.3	25.4	.7	.0	45.6	1.4	1.2	41.7	3.2	.0	18.3	.4	.0	16.0	4.9	.0	68.1	9.5	.0
15	100	5	168.2	3.4	.0	86.0	.8	.0	103.3	.7	.0	86.8	.4	.0	50.5	2.8	.1	149.3	2.7	1.5	148.0	2.8	.0	45.7	1.7	.0	8.4	.5	.0	54.3	3.4	.0
15	105	5	111.6	2.5	.0	110.8	3.2	.0	38.4	2.5	.1	7.9	1.8	.0	16.4	4.4	.6	61.8	2.1	1.0	40.4	2.3	.0	11.3	1.7	.0	4.7	.0	.0	9.7	2.5	.0
15	110	5	99.3	4.5	.2	212.5	1.8	1.5	224.8	3.6	1.2	261.4	2.7	2.1	91.5	6.9	.4	39.5	5.5	2.6	254.6	4.3	1.0	144.5	2.5	1.1	195.2	2.5	.7	37.8	1.7	.7
15	115	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.5	19.1	13.8	35.3	5.5	.4	4.0	3.6	.3	10.9	5.6	3.6
20	105	5	180.3	.3	2.5	168.0	2.6	.7	84.9	2.3	.8	46.0	1.3	.5	34.9	1.5	1.1	150.4	2.9	2.8	92.0	.4	.1	121.1	3.8	.0	9.1	.0	.2	9.5	.6	.0
20	110	5	10.7	2.6	.4	6.7	1.6	.9	103.3	2.1	3.7	43.6	3.3	1.4	8.3	.6	7.9	54.1	.8	5.7	14.6	.1	1.8	303.3	4.1	2.4	11.8	.0	.0	7.1	2.2	.0
20	115	5	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.0	15.5	.0	27.0	3.2	.5	5.0	1.1	.0	1.1	.0	.0
25	105	5	7.2	.7	.2	19.4	3.0	2.0	1.6	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	3.0	.7	.0	1.7	.0	.0	.0	.0	.0	.0	.0	.0
25	110	5	20.2	.2	1.8	18.9	2.7	.6	2.5	.0	.0	.0	.0	.0	1.0	.0	.0	.9	.0	.0	2.8	.0	.0	13.0	1.3	3.8	.0	.0	.0	.6	.0	.0
25	115	5	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0
205	80	5	42.0	16.3	.0	11.5	.2	.0	7.6	3.1	2.8	121.3	3.5	8.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	56.9	.5	3.4	31.0	1.7	5.5	51.0	.8	6.6
205	85	5	.0	.0	.0	6.5	6.6	.9	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.4	.0	1.2	.0	.0	1.0	.0	.0
205	90	5	63.8	2.5	7.4	13.4	6.2	2.6	20.5	2.9	1.2	5.7	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.9	1.6	7.6	1.2	3.3	.0	1.5	.7	.0
210	75	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	31.1	10.5	18.8	11.2	7.5	16.2	129.1	1.1	33.6	9.7	.0	.0
210	80	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.4	.0	.9	8.0	.0	9.8

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	6	29.6	.5	4.3	106.1	2.5	3.2	180.1	3.0	5.1	36.5	.2	2.8	5.2	.0	3.4	19.6	1.7	13.7	106.6	.6	4.9	30.8	.5	.6	.0	.0	.0	12.1	1.2	4.6
00	80	6	19.3	.3	7.0	29.4	1.5	5.4	263.4	1.9	5.3	58.9	4.1	4.0	7.6	4.0	1.4	4.7	.0	7.0	25.3	2.5	6.3	34.4	.6	2.6	.0	.0	.0	7.0	.0	7.1
00	85	6	2.9	.0	13.6	2.3	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	3.5	.1	.0	.0	.0	.0	.0	.0	.0
00	90	6	30.3	2.2	13.1	49.9	1.3	4.2	7.6	.9	16.4	9.3	.1	11.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	45.8	1.9	5.4	.0	.0	.0	.0	.0	.0
05	75	6	74.3	4.7	3.6	446.8	2.9	2.1	44.1	.8	.5	20.5	1.3	1.5	9.2	2.3	1.5	62.7	1.9	5.0	409.6	2.9	2.6	213.2	2.1	.7	12.2	3.0	1.8	31.0	6.4	.6
05	80	6	117.6	3.5	3.3	164.0	1.9	.6	222.5	3.0	3.2	87.5	1.3	3.8	34.1	1.5	3.0	61.1	2.7	5.0	114.6	2.4	2.2	110.4	2.3	.0	14.0	.9	1.4	45.7	4.1	3.6
05	85	6	108.0	9.2	4.0	57.5	2.2	.3	54.3	1.6	2.4	40.1	6.4	.8	41.6	4.5	2.7	107.5	3.9	5.7	22.8	.6	.9	21.7	.5	1.6	27.7	5.2	.7	12.7	3.5	4.7
10	85	6	760.5	.6	.5	168.4	1.3	1.6	73.1	.8	1.7	213.7	.9	8.9	466.1	4.7	3.8	319.7	3.8	3.2	82.0	3.4	2.3	25.6	4.2	.0	53.1	6.5	.9	29.4	6.3	4.6
10	90	6	137.1	3.2	1.1	39.3	.6	.0	63.7	3.0	.0	279.8	4.3	4.7	97.8	4.6	.1	202.7	4.0	2.9	70.3	4.4	.3	20.8	2.8	.0	17.3	4.1	.2	37.4	8.3	.5
10	95	6	5.0	.0	.0	2.6	.0	.0	6.9	.6	.0	10.1	1.3	.1	1.6	.0	.0	3.9	1.3	.0	12.1	7.0	.0	3.4	.4	.0	1.0	.0	.0	10.6	10.0	.0
10	100	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0
10	105	6	6.7	7.2	3.6	.0	.0	.0	3.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	6	3.9	.0	.0	5.8	.3	.0	14.7	2.9	.0	2.6	.8	1.9	5.7	3.2	.0	6.2	.2	1.6	4.5	1.0	.0	4.0	.0	.0	.8	3.8	.0	.0	.0	.0
15	95	6	29.3	.0	.1	70.4	4.0	.0	21.1	.1	.0	22.1	.4	.0	18.2	1.0	.3	30.2	1.8	.5	27.4	1.7	.0	16.7	6.0	.0	4.7	7.8	.0	14.8	6.1	.0
15	100	6	47.8	1.1	.1	42.7	1.8	.0	23.6	.7	.0	18.4	.0	.0	20.4	.8	.5	36.8	1.9	.0	66.7	3.1	.0	26.8	6.3	.2	.8	2.5	.0	11.5	.7	.0
15	105	6	28.4	3.5	.0	18.3	3.1	.0	10.6	5.0	.0	1.0	.0	.0	6.1	1.3	1.7	10.8	5.4	.0	28.0	6.0	.0	3.4	1.2	.0	.0	.0	.0	4.2	3.3	.0
15	110	6	41.6	6.9	.3	94.7	3.8	1.5	272.1	3.8	1.3	88.8	4.3	1.1	60.9	9.9	3.1	147.6	13.8	7.6	177.4	2.3	6.4	87.3	4.4	6.2	27.5	4.9	1.0	16.7	.6	.9
15	115	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.6	9.3	6.7	.0	.0	.0	5.0	3.2	4.2
20	105	6	56.5	.5	.3	81.0	2.0	.4	41.6	.3	.9	20.5	.3	1.8	52.3	9.4	2.3	114.4	6.5	1.9	60.5	2.6	.3	49.6	5.1	.1	19.1	.6	.8	6.4	.6	.0
20	110	6	222.4	1.3	2.9	203.9	2.2	3.6	677.4	2.0	5.6	441.7	2.6	4.7	87.5	1.7	8.0	94.2	.3	2.8	362.5	.7	6.1	429.2	3.3	2.2	18.3	.4	.7	133.8	6.7	4.9
20	115	6	1.7	.0	1.8	1.7	.4	.4	.8	.0	.0	1.6	.0	.0	.0	.0	.0	3.4	1.8	.0	23.1	5.5	.3	3.7	2.4	.0	3.5	.0	.0	.0	.0	.0
25	105	6	3.4	.1	.1	.4	.0	.0	.0	.0	.0	2.2	.3	.0	2.8	.4	.0	1.0	.0	.0	2.7	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	110	6	5.7	.0	.0	14.8	1.6	.1	1.7	.0	.0	4.0	.1	.0	1.9	.3	.0	3.5	.0	.5	11.1	2.7	.0	121.3	2.3	3.1	37.0	1.0	6.6	6.2	.1	.1
25	115	6	1.8	.0	.0	3.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	1.7	.0	.0	3.6	1.1	.0	1.0	.0	.0	2.6	.0	.0
30	115	6	.0	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
205	80	6	1.2	.0	.0	25.8	9.0	.0	210.1	2.4	6.0	267.0	8.1	1.4	3.0	.0	.0	7.1	.0	.6	54.5	.2	10.9	115.4	2.2	5.0	5.8	.3	6.4	45.6	2.6	8.1
205	85	6	.0	.0	.0	7.2	.3	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	.0	.0	.0	.0	.0	.0	.0	.0
205	90	6	31.7	6.1	12.9	30.6	4.6	.2	3.6	.0	.1	.0	.0	.0	1.0	.5	.0	.0	.0	.0	.0	.0	.0	5.6	.0	.0	.0	.0	.0	.0	.0	.0
210	75	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	4.2	34.9	2.0	29.7	227.0	.7	24.2	110.6	6.5	36.0	2.0	.0	.0
210	80	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	1.2	.0	.0	2.2	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	7	46.7	4.3	7.3	57.1	1.0	2.2	159.4	1.7	4.4	59.1	5.5	3.1	2.0	.0	.0	92.6	1.6	6.8	50.1	.4	6.3	2.2	1.4	.0	8.3	1.8	8.5	2.4	.0	.8
00	80	7	12.9	3.8	3.5	121.2	1.1	4.4	134.3	1.0	6.8	31.3	.6	2.4	3.0	7.3	.7	34.5	2.0	6.8	57.5	.8	4.6	2.4	.0	.0	4.5	8.0	1.1	7.9	.0	8.4
00	85	7	2.3	2.2	2.2	.6	.0	.0	3.6	.0	.6	.6	.0	.0	.5	20.0	.0	.6	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
00	90	7	52.2	4.2	10.3	46.2	1.9	2.3	32.6	1.5	9.0	23.6	.6	5.3	4.5	1.3	5.8	23.4	1.2	20.1	11.2	2.6	5.4	4.0	.0	7.5	.0	.0	.0	.5	.0	.0
05	75	7	12.5	1.6	.4	138.2	2.4	.8	44.8	.9	2.4	21.4	1.4	1.8	42.4	1.8	9.8	32.3	.3	2.9	29.2	.6	.2	1.2	.0	.0	10.7	1.7	1.5	5.8	.9	.3
05	80	7	16.5	2.7	.1	178.2	1.7	1.6	160.0	1.3	3.7	183.0	3.9	3.3	46.5	1.4	1.1	100.5	1.7	2.7	98.0	1.8	2.6	6.6	2.8	.0	12.1	7.6	1.3	23.5	4.7	.3
05	85	7	186.1	10.7	.2	39.9	1.8	.0	23.6	2.0	1.0	156.5	6.3	2.8	47.0	4.7	2.2	120.3	3.0	3.7	20.5	3.9	.3	3.4	1.3	1.8	2.9	6.9	.0	9.7	2.1	.8
10	85	7	336.6	7.5	.6	101.2	1.1	1.4	58.7	2.9	1.6	139.9	3.4	3.6	525.8	2.2	4.0	66.2	2.1	4.2	81.6	4.8	1.4	4.8	.5	.0	.4	2.5	.0	87.5	6.2	4.9
10	90	7	356.5	3.8	2.9	19.3	.0	.0	21.1	3.5	.5	61.0	1.6	4.6	57.2	1.4	2.6	6.1	.5	.5	22.6	1.5	.0	7.8	.4	.0	.0	.0	.0	25.7	4.6	.4
10	95	7	6.1	1.6	.5	.9	.2	.0	.0	.0	.0	.5	.0	.0	3.1	.6	1.0	2.2	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	3.3	.0
10	100	7	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	7	2.5	.0	.3	3.4	.0	.0	3.8	.0	.0	.0	.0	.0	1.0	1.0	.0	3.4	.3	5.9	8.7	1.7	.0	1.8	.0	.0	.0	.0	.0	1.2	.0	.0
15	95	7	16.0	.4	.2	90.2	6.4	.0	11.8	.1	.0	7.9	1.4	.1	11.2	1.1	.0	10.6	6.6	.0	22.9	2.9	.0	3.6	.0	.0	.0	.0	.0	3.6	2.5	.0
15	100	7	18.9	.3	.1	19.0	.1	.0	4.8	.1	.0	4.3	.5	.0	21.0	1.4	.0	10.6	1.0	.0	26.0	1.5	.0	11.2	5.4	.0	.0	.0	.0	3.6	1.1	.0
15	105	7	6.5	7.1	.0	15.1	2.9	.1	.0	.0	.0	1.5	.7	.0	1.0	9.0	.0	2.0	3.0	.0	28.2	3.1	.2	1.6	3.8	.0	.0	.0	.0	.0	.0	.0
15	110	7	16.4	5.2	.1	24.1	2.1	2.8	41.2	7.3	2.5	41.0	3.3	4.2	65.6	8.9	4.9	268.8	7.4	6.6	60.3	5.4	2.8	45.9	3.3	3.6	.0	.0	.0	2.4	.0	5.8
15	115	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.0	7.3	1.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	105	7	20.8	1.0	.5	16.5	1.6	.8	2.2	5.5	.0	6.2	1.7	.2	47.4	7.5	.5	20.0	4.3	1.7	59.4	3.1	.0	63.9	3.6	.0	.0	.0	.0	2.4	.0	.0
20	110	7	344.3	2.4	3.8	476.7	4.3	2.0	995.6	1.0	4.1	425.0	3.5	3.3	241.3	5.1	1.8	326.6	1.1	6.3	438.6	1.4	3.7	242.8	4.9	1.8	.0	.0	.0	164.3	2.8	7.4
20	115	7	26.6	2.2	1.4	46.5	5.6	1.7	39.5	2.6	1.2	26.0	5.8	.0	18.3	8.9	.0	33.1	4.3	1.6	19.7	1.3	.0	21.2	1.7	.3	1.0	.0	.0	3.3	3.3	.5
25	105	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	4.4	.0	.0	.0	.0	.0	.0	.0	4.3	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	110	7	46.4	.2	6.3	186.4	2.5	2.1	124.7	.6	2.1	414.2	.8	4.0	22.1	2.2	.3	25.7	.0	.7	233.7	2.0	3.5	563.7	1.0	4.7	35.3	3.5	9.8	54.2	3.1	5.0
25	115	7	12.7	.0	.9	15.2	.0	.0	5.1	.0	.0	13.4	2.5	2.0	20.4	.0	.0	19.0	.0	.0	58.7	.0	6.4	58.3	.1	3.3	48.1	.0	8.7	62.2	.8	1.7
25	120	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	115	7	2.9	.0	.0	3.8	.0	.0	.0	.0	.0	.0	.0	.0	2.2	.0	.0	2.9	.0	.0	4.7	.0	.0	1.4	.0	.0	.0	.0	.0	4.4	.0	.0
30	120	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.8	.0	.0	2.8	.0	.0	2.4	.0	.0
205	80	7	131.3	24.1	.9	454.5	7.9	2.8	97.9	.4	4.8	177.7	5.2	7.0	.0	.0	.0	31.4	6.1	3.3	130.5	2.4	7.3	18.0	1.9	2.4	67.6	7.8	7.3	67.3	4.4	2.5
205	85	7	.0	.0	.0	2.4	.0	.0	1.2	10.8	.0	2.8	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	90	7	45.3	5.6	12.7	21.8	.6	.5	7.6	2.1	2.1	16.2	12.6	.2	7.0	14.0	.0	.6	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0	.0
210	75	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.8	.0	.3	89.3	1.2	11.4	286.1	2.5	7.2	2.7	.0	.0	2.3	.0	.0
210	80	7	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	9.5	.0	.0	11.1	.0	1.9	2.8	.0	.0	.0	.0	.0	.0	.0	.0
215	75	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	1.7	.0	3.6	.0	.0	.0	.0	.0	.0	.0	.0
220	70	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.8	.0	.0	.0	.0	.0	.0	.0	.0
220	75	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	8	8.0	1.9	.0	39.5	1.9	.5	10.7	3.3	.2	43.6	1.1	5.8	14.5	.3	3.7	13.7	1.1	1.3	48.6	.3	3.4	.0	.0	.0	2.0	.0	.0	13.9	9.6	.0
00	80	8	11.8	.7	.4	51.3	1.1	1.1	21.1	.2	1.5	20.9	.7	1.9	8.7	1.1	1.0	18.6	4.0	.4	42.3	.3	1.9	3.2	.0	.6	2.9	10.2	.3	8.6	4.7	.7
00	85	8	.0	.0	.0	.0	.0	.0	10.8	.5	1.1	13.6	.0	14.8	2.2	.0	1.4	3.0	.3	1.7	24.1	1.6	15.0	1.2	10.8	1.7	.6	3.3	.0	.5	.0	.0
00	90	8	23.5	4.8	8.0	13.7	3.9	6.1	73.4	.5	7.2	10.3	.1	2.7	31.5	2.9	4.5	60.5	1.2	8.3	52.8	6.9	4.8	7.0	1.1	.1	21.7	13.9	2.3	23.4	10.7	3.8
05	75	8	2.4	.0	.0	60.9	3.4	.5	5.8	1.7	1.0	16.6	2.9	3.9	40.2	1.1	3.5	12.9	.5	1.6	20.9	.6	.2	.0	.0	.0	8.8	6.1	1.1	22.8	3.9	.9
05	80	8	54.2	3.5	.7	59.2	2.7	.2	96.7	1.2	4.1	164.7	2.4	2.5	111.0	2.2	1.4	85.2	2.2	3.3	159.5	1.6	3.1	2.0	2.5	.0	24.4	4.6	5.3	31.6	2.2	.2
05	85	8	90.4	4.3	.3	15.0	2.9	.0	57.3	5.6	1.3	82.8	2.5	2.6	140.2	2.2	1.8	75.3	1.8	2.9	44.6	1.6	1.0	5.8	2.4	.0	17.7	6.7	2.6	24.8	2.6	4.2
05	105	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
10	85	8	173.0	3.6	.1	39.0	.2	.6	72.6	4.4	3.8	383.6	.8	5.7	205.8	2.1	4.4	90.9	.7	6.0	70.7	4.6	1.6	6.0	.2	.0	3.0	2.7	.0	47.2	2.4	4.3
10	90	8	142.1	5.7	.5	16.5	.4	1.4	20.2	.6	.2	99.8	2.5	3.6	10.9	.3	1.5	19.2	3.4	3.6	12.8	.0	.4	4.0	.0	.0	.0	.0	.0	21.4	4.7	1.4
10	95	8	4.6	.0	.0	2.5	.7	.0	1.8	.0	.0	1.0	.2	.0	3.0	.8	.0	.0	.0	.0	1.7	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
10	105	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.4	9.3	.0	.0	.0	.0	.0	.0	.0
10	110	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	8	2.3	.0	.0	3.0	.7	.0	3.3	.3	.0	7.4	1.4	4.5	4.0	.9	.3	5.7	2.3	13.3	2.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	8	7.0	.0	.0	18.1	2.0	.0	14.3	.0	.0	11.3	4.2	2.8	3.6	.6	1.0	9.3	.0	.0	14.9	.2	.0	3.0	.3	.0	.0	.0	.0	4.2	5.0	.0
15	100	8	13.2	1.6	.2	12.3	2.1	.0	12.4	.0	.0	4.2	.0	.0	14.8	4.3	.0	24.5	3.8	.1	18.9	.3	.0	5.0	1.2	.0	.0	.0	.0	6.5	16.9	.0
15	105	8	5.2	3.2	.1	1.3	.0	.0	1.9	.0	.0	.0	.0	.0	14.2	10.1	.0	15.9	4.6	.6	4.0	2.9	.0	3.5	.3	.0	.0	.0	.0	1.2	4.6	.0
15	110	8	5.0	10.0	1.6	21.0	2.5	2.9	75.1	4.2	.7	2.8	.2	2.0	41.5	7.9	1.8	241.8	3.6	8.8	55.7	6.2	.1	30.1	2.3	2.0	.0	.0	.0	.0	.0	.0
15	115	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.2	.0	.0	13.9	16.5	.2	.0	.0	.0	.0	.0	.0
20	105	8	1.7	.0	.0	11.7	1.3	.0	5.2	.2	.0	1.0	.0	.0	4.6	1.2	.0	79.7	4.2	3.3	62.2	2.1	.0	38.0	3.1	.0	1.0	7.0	.0	3.0	.5	.0
20	110	8	95.0	8.1	1.9	288.0	1.4	5.0	598.0	1.6	1.0	116.5	1.3	5.2	261.4	4.8	5.6	241.5	1.2	4.9	207.7	2.3	3.4	111.8	4.2	.0	7.1	1.1	9.5	8.1	10.3	6.2
20	115	8	32.5	.3	9.2	101.5	2.8	2.1	29.0	.7	1.3	16.9	3.2	.4	21.4	4.5	.0	64.5	7.5	.6	25.2	2.6	.0	18.3	2.6	.2	4.4	3.3	.0	.8	.0	.0
25	105	8	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	110	8	119.4	.6	4.6	516.5	1.5	3.6	289.1	.6	1.4	449.4	.9	3.6	177.5	4.5	3.4	282.9	1.5	4.7	359.2	1.5	3.0	293.6	1.6	2.0	82.2	2.8	8.4	34.5	1.6	9.5
25	115	8	81.1	.0	6.9	48.9	.1	2.0	22.2	.1	.4	305.0	2.6	2.1	7.1	.0	.0	41.3	.4	.6	70.2	1.6	.7	342.1	.5	6.3	326.7	1.5	8.6	50.0	2.3	2.6
25	120	8	.0	.0	.0	.0	.0	.0	6.7	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
30	115	8	4.3	.0	.0	6.4	.0	.0	1.2	.0	.0	.0	.0	.0	1.2	.0	.0	18.2	.0	.0	12.2	.0	1.7	75.2	.0	6.9	34.0	.0	2.4	4.9	.0	.0
30	120	8	.0	.0	.0	.0	.0	.0	4.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.9	.0	.0	.0	.0	.0	8.4	.0	.0
35	120	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.0	.0	.0	.0	.0	.0	.0	.0
205	80	8	536.2	20.9	.0	664.2	6.1	1.0	72.6	.8	8.4	208.2	4.0	7.8	130.1	5.8	2.3	18.1	4.8	1.4	109.3	2.6	1.8	176.9	9.2	6.5	242.7	4.4	13.6	65.4	1.3	6.6
205	85	8	.0	.0	.0	1.8	.0	.0	11.1	2.9	6.7	.0	.0	.0	1.0	.0	.0	1.2	.0	.0	.6	.0	.0	3.6	.0	.0	3.7	15.1	.0	2.2	.0	.0
205	90	8	24.1	10.9	2.0	1.1	.0	.0	46.6	4.0	2.3	11.5	5.1	.2	5.5	.4	.0	1.8	.0	.0	6.5	10.2	.0	2.4	.0	.0	1.5	.7	.0	.0	.0	.0
210	75	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	48.7	3.3	4.9	237.6	2.0	13.3	.0	.0	.0	.0	.0	.0
210	80	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.9	3.2	1.9	.0	.0	.0	.0	.0	.0	1.2	.0	.0	1.0	.0	.0	.0	.0	.0
215	75	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.8	.4	5.7	.0	.0	.0	.0	.0	.0
220	70	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	9	17.7	9.7	.6	36.3	.8	.2	39.1	1.3	5.4	15.6	1.0	1.5	2.4	.0	.1	4.7	9.4	.0	3.6	.0	.0	.0	.0	.0	6.9	.7	4.6	.0	.0	.0
00	80	9	7.1	3.2	1.1	37.8	1.0	.5	18.3	.0	2.1	6.6	.1	2.7	5.4	1.1	.0	6.4	5.5	.3	7.4	.1	2.0	.5	7.0	.0	2.6	.0	.0	.9	.6	.0
00	85	9	.0	.0	.0	16.4	.4	12.9	35.5	.2	5.5	1.2	.0	.0	.6	.0	.0	6.3	4.4	.5	22.7	.7	2.2	.0	.0	.0	.6	.0	.0	2.0	14.5	.0
00	90	9	4.0	2.5	3.4	39.1	3.1	4.9	48.0	1.2	1.3	64.7	3.0	3.3	12.0	5.4	.1	72.2	2.4	2.6	90.6	2.0	.7	.0	.0	.0	40.0	5.0	7.9	26.4	6.1	1.2
05	75	9	2.4	.0	.0	61.4	2.6	.3	4.1	.7	.1	30.3	1.8	3.8	6.5	1.3	.3	13.3	1.8	.3	27.8	3.1	.3	.0	.0	.0	4.8	2.3	.5	2.4	.1	.0
05	80	9	27.8	3.6	.4	174.5	3.4	.6	88.4	1.5	2.1	97.0	1.7	2.1	11.4	.3	.0	17.0	1.9	1.9	198.9	1.8	2.3	4.6	1.4	.0	34.9	1.0	3.7	5.9	.0	.0
05	85	9	8.5	6.5	.7	14.8	4.0	.0	83.6	2.7	1.1	95.4	2.0	4.6	9.7	1.3	3.5	42.7	3.0	1.3	68.7	3.6	.3	3.4	.4	.1	37.0	5.2	3.0	25.3	4.1	3.7
05	90	9	1.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	85	9	14.5	7.4	4.2	27.9	1.0	.4	92.2	.4	4.3	281.1	.5	5.9	78.6	.3	12.4	79.1	.8	4.2	88.8	3.8	1.5	3.4	.1	.0	7.2	3.8	.0	33.2	8.3	2.8
10	90	9	2.0	.0	.0	25.6	2.0	4.0	6.0	.9	.9	37.5	2.9	.3	3.0	.3	.0	60.1	3.1	6.0	10.6	.0	.0	5.2	.7	.0	2.0	4.7	.0	10.0	13.3	.2
10	95	9	1.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	1.8	.0	.0	.0	.0	1.2	1.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	100	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	105	9	.0	.0	.0	.0	.0	.0	12.4	7.7	.0	.0	.0	.0	.0	.0	.0	1.2	10.0	.0	9.4	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	110	9	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	9	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	9.5	2.3	.2	.0	.0	.0	7.3	5.7	7.5	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	9	1.0	.0	.0	15.1	1.1	.0	3.8	.0	.0	6.5	6.0	4.2	2.0	.0	.0	8.9	1.3	1.0	3.6	2.5	.0	1.8	1.1	.0	2.0	.0	.0	2.4	.8	.0
15	100	9	2.5	.0	.0	12.7	2.1	.0	5.3	.0	.0	.0	.0	.0	4.2	2.5	.7	11.3	2.2	5.2	7.0	4.0	.3	.0	.0	.0	1.5	.4	.0	3.6	.0	.0
15	105	9	1.5	.0	.0	1.2	.8	.0	2.4	.6	.0	.0	.0	.0	1.2	2.5	.0	14.0	3.6	.0	2.0	.3	.0	.0	.0	.0	1.5	8.1	.0	.0	.0	.0
15	110	9	.0	.0	.0	.0	.0	.0	45.3	2.5	.9	8.7	2.5	1.1	7.0	16.3	.1	80.1	1.4	8.0	44.4	3.6	.6	5.7	4.4	.0	.0	.0	.0	3.6	2.2	7.5
15	115	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.5	16.6	.6	3.5	2.3	2.3	.0	.0	.0	.0	.0	.0
20	105	9	1.0	.0	.0	10.3	1.1	.0	7.4	.0	.0	.0	.0	.0	2.4	.8	.0	92.6	3.3	1.0	18.1	1.9	.0	.0	.0	.0	.0	.0	.0	2.4	1.3	.0
20	110	9	1.1	.0	.0	124.4	3.1	2.9	61.2	2.0	1.9	133.5	2.3	4.2	204.2	4.8	8.2	97.8	.2	6.0	80.8	2.6	3.8	2.7	.0	3.0	.8	.0	8.8	5.7	.0	.5
20	115	9	29.7	.4	8.7	30.3	1.9	3.2	51.3	1.2	3.1	46.5	4.1	2.7	1.3	.0	.0	11.2	1.0	.1	2.0	12.0	.0	10.4	1.0	.0	4.3	.0	.0	2.5	1.4	.0
25	110	9	201.0	2.0	9.7	381.5	1.9	3.9	556.3	.4	2.5	323.3	1.1	3.0	247.2	10.8	3.3	412.9	2.0	3.7	263.1	1.5	6.9	27.8	2.0	1.6	232.0	1.4	6.4	125.9	3.4	6.1
25	115	9	35.9	.1	7.5	135.6	.2	4.9	64.7	.2	1.4	5.0	1.6	1.0	4.2	.0	.0	77.8	2.3	3.0	7.6	1.1	5.8	131.3	.4	3.5	167.6	.1	7.9	16.9	.3	4.6
25	120	9	.0	.0	.0	.0	.0	.0	6.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	115	9	.0	.0	.0	3.0	.0	.5	2.0	.0	.0	.4	.0	.0	1.8	.0	.0	2.8	.0	.0	.0	.0	.0	338.2	.2	5.6	9.3	.0	1.7	2.0	.0	.0
30	120	9	.0	.0	.0	.0	.0	.0	10.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	17.9	.0	.0	.0	.0	.0	.0	.0	.0
35	120	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.2	.0	.0	.0	.0	.0	.0	.0	.0
205	80	9	145.8	11.0	.0	393.2	2.6	.4	350.6	3.4	4.9	25.7	3.7	2.4	340.0	5.7	11.7	34.6	5.7	.3	71.2	6.1	1.5	314.6	3.1	4.1	399.0	2.0	6.2	34.3	6.8	5.3
205	85	9	.0	.0	.0	3.5	30.6	.1	19.0	.1	3.1	.0	.0	.0	.0	.0	.0	6.9	10.1	.0	15.9	6.5	.0	.0	.0	.0	2.2	.7	.0	1.5	.0	.0
205	90	9	24.1	11.0	2.0	30.7	4.0	7.0	56.3	1.1	2.0	9.3	2.2	2.7	1.5	.0	.0	17.1	4.7	.0	8.2	1.4	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
210	75	9	.0	.0	.0	.0	.0	.0	10.0	.5	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	41.5	7.1	2.9	335.2	.3	6.4	2.8	.0	.0	.0	.0	.0
210	80	9	.0	.0	.0	.0	.0	.0	18.6	.6	2.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0	.0	4.5	.0	.0	.0	.0	.0	.0
215	75	9	.0	.0	.0	.0	.0	.0	11.6	5.7	5.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.1	.0	1.7	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	10	7.2	.6	.0	22.9	.2	.6	16.9	1.1	.5	15.3	.0	3.1	2.2	3.0	1.8	16.5	4.0	1.4	4.2	.0	.0	1.2	3.3	.0	7.4	2.0	1.6	3.0	2.8	16.7
00	80	10	7.7	8.6	.0	24.2	.7	.0	16.4	1.5	.7	5.1	.0	.4	1.0	3.0	.0	7.8	.8	.1	16.8	.2	5.3	1.0	.2	.0	4.1	.7	.7	1.5	2.5	2.7
00	85	10	.5	.0	.0	68.3	.4	3.4	21.9	1.3	3.9	20.6	.0	6.0	.0	.0	.0	5.2	.6	5.4	1.2	.8	5.8	4.6	12.2	.0	1.2	.0	4.2	1.5	9.3	.0
00	90	10	41.0	3.4	9.6	138.3	1.1	4.0	108.7	1.5	2.5	102.6	3.5	2.7	9.5	3.4	.8	43.7	1.7	.9	23.4	3.8	.8	27.1	4.9	1.5	55.4	6.6	5.2	5.5	4.0	.4
05	75	10	1.3	.0	.0	48.3	1.5	.0	10.2	.2	.0	4.2	.2	.0	.0	.0	.0	11.4	.8	.6	10.4	1.2	.2	.0	.0	.0	12.8	1.7	1.1	1.2	.0	.0
05	80	10	12.3	1.9	.0	217.5	2.5	1.2	142.9	1.0	1.8	73.5	.5	4.4	3.2	.0	7.2	12.7	.3	.2	42.9	1.6	.5	.0	.0	.0	20.0	.9	.5	3.2	.0	.0
05	85	10	13.6	3.7	.0	44.0	1.5	.0	37.9	.4	1.1	36.7	.2	1.2	1.2	.0	.0	20.9	1.2	2.3	31.4	2.3	.1	3.6	1.9	1.4	28.0	1.9	.0	6.2	.0	.5
05	90	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	95	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	105	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0
10	85	10	24.3	12.1	.0	43.2	1.1	.2	73.3	.3	2.4	151.8	2.2	7.4	7.7	1.2	7.5	42.8	4.0	4.1	46.9	4.0	.3	.0	.0	.0	84.3	6.1	2.9	72.0	6.7	8.4
10	90	10	3.2	.3	.9	95.6	1.7	2.6	9.2	.3	.1	9.8	.4	.0	.0	.0	.0	124.3	2.5	6.8	9.2	.1	.0	.0	.0	.0	9.1	4.8	.2	2.4	.8	.0
10	95	10	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.2	2.9	4.3	4.0	1.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	100	10	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	3.3	.0	1.8	3.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	105	10	.0	.0	.0	9.0	20.3	.0	15.7	3.9	.0	19.7	7.8	.0	.0	.0	.0	4.7	8.1	.4	.0	.0	.0	2.3	10.9	.0	.5	6.0	.0	.0	.0	.0
10	110	10	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	10	.0	.0	.0	4.3	1.2	.9	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	8.9	.4	6.8	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	10	.0	.0	.0	21.0	.4	.0	1.6	.0	.0	19.9	5.0	1.3	.0	.0	.0	30.9	1.7	.9	11.7	1.1	.0	.0	.0	.0	2.2	1.4	.0	.0	.0	.0
15	100	10	1.3	.0	.0	14.8	1.2	.0	1.6	.0	.0	12.8	1.6	.1	.0	.0	.0	25.8	1.8	.4	12.0	.8	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0
15	105	10	1.6	.0	.0	2.3	1.7	.0	2.6	.0	1.2	1.6	4.1	.0	.0	.0	.0	5.4	.9	.2	5.1	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	110	10	1.7	9.4	.0	6.5	8.0	3.7	37.9	1.4	.4	14.2	4.2	.7	62.7	8.1	3.8	73.4	3.3	3.6	20.6	1.2	.0	7.7	2.3	.6	16.4	1.2	.6	.8	5.0	5.0
15	115	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.4	8.7	3.9	13.7	8.1	5.0	.0	.0	.0	.0	.0	.0
20	105	10	.0	.0	.0	2.9	.0	.0	5.6	.0	.4	3.2	2.5	.0	1.2	.6	.0	131.8	2.2	4.6	27.0	7.0	.0	3.6	.3	.0	18.4	5.5	.1	7.5	.0	.0
20	110	10	17.2	13.3	2.5	29.6	1.1	2.5	10.2	.3	6.5	40.5	3.6	1.0	73.6	6.3	4.1	193.4	.4	7.1	125.0	3.8	3.7	14.9	4.8	.2	44.1	1.6	.8	33.7	4.9	1.3
20	115	10	5.9	2.7	9.2	27.0	2.6	5.7	43.3	.9	3.5	8.7	2.5	.0	6.0	1.7	.0	28.4	11.1	.1	9.0	1.0	.0	1.7	.3	.0	27.0	5.6	.0	1.7	1.8	.9
25	105	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.8	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0
25	110	10	70.3	9.3	3.5	550.8	3.6	4.6	490.6	1.2	2.7	294.6	2.8	1.4	57.4	5.7	.7	196.2	2.3	3.4	218.3	1.3	6.1	96.1	2.6	2.1	175.9	.5	2.3	132.0	1.9	3.0
25	115	10	.9	.0	4.4	41.6	.7	3.7	8.0	.3	.4	2.5	.0	.0	1.4	.0	.0	1.0	.0	.0	42.6	2.2	7.3	191.4	3.5	4.6	130.6	.5	4.3	4.7	.0	.0
25	120	10	.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	115	10	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	508.3	1.0	4.8	25.8	.0	3.2	.0	.0	.0
30	120	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.9	.0	.0
205	80	10	86.7	16.5	.1	262.5	4.4	2.3	691.9	1.1	5.4	469.4	3.9	7.5	108.6	5.7	7.4	258.9	3.3	3.4	54.1	3.6	4.4	773.0	2.3	5.7	188.8	1.5	1.9	43.0	.9	4.4
205	85	10	.0	.0	.0	21.1	.4	.1	18.7	.4	.5	9.5	3.8	10.6	1.2	.8	.0	8.0	2.3	.0	.0	.0	.0	1.2	2.5	.0	1.2	.0	.0	.0	.0	.0
205	90	10	9.9	7.5	.3	132.4	1.7	3.3	62.6	4.2	.1	18.0	4.9	.5	1.2	.4	.0	20.7	6.0	.0	3.0	1.7	.0	4.3	1.2	.0	.6	.0	.0	.0	.0	.0
210	75	10	.0	.0	.0	.0	.0	.0	2.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	154.3	4.2	13.9	52.9	.0	1.5	1.7	.0	.0	.0	.0	.0
210	80	10	.0	.0	.0	.0	.0	.0	14.2	.1	.6	.5	.0	.0	.0	.0	.0	.0	.0	.0	2.6	.0	.0	14.8	.7	1.8	.0	.0	.0	.0	.0	.0
215	75	10	.0	.0	.0	.0	.0	.0	5.8	.8	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	1.8	.0	.0	.0	.0	.0
220	70	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.2	.0	.0	5.8	.0	.0	2.5	.0	.0
225	70	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0
230	75	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA		MONTH	1951			1952			1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	11	.0	.0	.0	6.4	1.1	3.8	41.9	.8	3.0	1.0	.0	1.0	.0	.0	.0	6.9	4.3	6.0	10.1	3.2	5.4	1.7	.6	2.9	10.0	1.9	2.0	7.2	3.7	6.3
00	80	11	3.3	2.1	.0	16.0	.5	.7	57.7	.2	2.7	2.2	.0	.7	.0	.0	.0	6.4	.0	.0	5.1	.1	.0	5.2	4.3	1.1	6.5	1.4	.0	.8	.6	.6
00	85	11	.0	.0	.0	79.4	.7	4.4	100.6	.9	5.3	7.9	.9	3.5	.0	.0	.0	2.4	.0	.0	6.8	2.7	5.7	2.7	1.5	.0	6.1	6.8	5.4	.0	.0	.0
00	90	11	10.9	1.1	8.2	294.2	.6	5.4	258.1	1.8	2.6	26.4	3.0	4.7	16.2	4.8	3.0	19.4	3.6	2.7	23.6	6.5	1.0	45.9	5.5	1.1	83.4	4.0	2.2	.0	.0	.0
05	75	11	.8	.0	.0	12.9	.5	.0	19.8	1.6	2.2	3.0	2.7	5.7	.0	.0	.0	.0	.0	.0	2.0	.3	.0	.0	.0	.0	8.8	.0	.0	2.4	.8	.0
05	80	11	1.8	.0	.0	104.4	3.1	.9	98.8	2.5	2.2	20.7	.1	4.7	1.8	.0	.0	9.2	.0	.0	7.1	.1	.1	1.2	.0	.0	36.9	1.6	.9	4.4	.0	.0
05	85	11	7.5	3.2	.0	37.4	3.1	.6	109.7	.8	3.3	7.2	6.3	.9	.6	.0	.0	9.9	.5	3.0	11.7	10.7	.0	4.6	3.9	3.7	60.6	4.3	.3	9.5	.2	4.2
05	105	11	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	85	11	19.4	5.5	.2	16.0	.4	.0	23.6	1.1	1.0	62.4	3.3	4.7	18.4	1.4	4.5	6.0	1.2	.1	10.0	2.8	.5	.0	.0	.0	48.7	3.1	.2	35.6	1.2	.9
10	90	11	2.4	.4	.0	16.1	.7	.0	33.6	2.8	.1	6.1	.7	.5	4.2	.4	.1	22.1	1.2	2.6	9.3	.0	.0	5.4	21.0	.0	78.5	5.8	.0	8.2	1.7	.0
10	95	11	2.6	1.6	.0	.0	.0	.0	3.6	7.5	.8	1.4	.1	.0	3.2	.6	.3	2.2	.0	.0	5.0	.8	.2	3.6	1.9	.0	2.4	1.7	.0	2.4	4.6	.0
10	100	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.6	.0	.0	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	105	11	8.2	5.4	.0	37.4	2.3	.0	2.0	.5	.0	4.4	3.8	.0	5.9	13.4	7.1	.0	.0	.0	51.5	10.0	.0	14.7	9.5	.0	11.4	12.4	.0	4.1	24.9	.0
15	90	11	.0	.0	.0	2.1	.0	.0	2.0	.0	.0	.4	1.8	.0	.0	.0	.0	1.2	.0	.0	2.1	.0	.0	.6	.8	.0	4.0	3.8	.0	.0	.0	.0
15	95	11	1.0	.0	.0	12.6	.0	.0	5.1	.2	.0	5.9	.9	.0	3.2	1.6	.0	6.9	.0	.0	15.0	.4	.0	3.6	5.3	.0	33.1	1.7	.0	11.9	4.2	.0
15	100	11	6.2	1.0	.0	22.4	.4	.0	29.2	.5	5.4	15.5	1.6	.0	19.4	3.6	4.5	10.5	.2	.0	97.3	2.9	.2	23.6	8.5	.0	46.3	3.3	.0	19.6	4.0	.0
15	105	11	1.8	1.7	.0	9.3	.0	.0	97.3	.2	5.6	13.4	2.5	.0	12.2	9.5	1.9	6.3	.5	.3	38.1	1.5	.0	2.3	.4	.0	7.0	.5	.0	3.0	.0	.0
15	110	11	15.9	1.7	.0	78.7	2.0	1.2	67.3	2.6	.7	51.5	1.7	.7	97.0	7.4	2.0	102.9	6.0	2.0	195.9	3.5	.4	123.4	4.6	1.5	19.8	2.0	.4	15.4	1.8	1.4
15	115	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	35.4	8.9	.4	14.4	5.3	.5	4.5	6.0	5.0	6.8	1.5	7.4
20	105	11	4.1	.7	.0	12.2	.1	.0	54.1	.1	2.5	39.3	2.7	.0	7.2	2.5	.8	126.9	.7	11.6	273.8	2.3	.0	50.2	5.0	.0	145.3	4.5	.0	2.2	.2	.0
20	110	11	29.1	2.3	.5	200.9	3.1	.3	29.3	.3	.4	14.5	.5	.0	143.7	10.5	1.3	174.0	5.0	1.4	359.3	2.3	1.2	73.7	2.8	.3	71.2	1.5	.2	17.9	.9	.0
20	115	11	7.2	2.5	4.9	17.5	1.8	3.8	11.9	.7	.8	1.7	.0	.0	2.4	1.9	.0	2.0	.0	.0	7.3	3.8	.0	10.2	.1	.0	8.7	.7	.2	1.7	2.4	.0
25	105	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.2	.0	.0	.0	.0	.8	.6	.0	.0	.0	.0
25	110	11	154.4	6.2	.2	422.1	3.2	1.7	441.1	1.2	1.5	58.8	1.5	1.1	3.8	4.2	.8	50.6	4.5	2.4	126.9	2.0	2.5	401.1	3.4	1.1	236.1	2.1	1.9	301.7	3.6	2.2
25	115	11	.2	.0	.0	9.2	.0	.0	3.3	.5	.2	.0	.0	.0	1.2	.0	.0	.8	.0	.0	23.3	.3	1.5	62.4	.6	1.2	14.1	.0	1.8	.8	.0	.0
30	115	11	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.6	.0	.0	1.2	.0	.0	24.7	.0	1.8	1.9	.0	.1	.0	.0	.0
30	120	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
35	120	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	80	11	136.4	9.7	.0	183.6	3.3	5.5	224.2	.4	3.6	564.1	4.2	9.4	70.0	3.5	9.4	493.9	1.7	5.0	378.1	3.2	3.7	353.9	4.8	4.4	301.6	1.9	5.5	3.4	.0	.9
205	85	11	.0	.0	.0	30.8	.4	5.2	41.0	.9	3.1	6.4	.0	11.9	.0	.0	.0	.0	.0	.0	.6	.0	.0	2.2	2.3	.0	29.5	3.7	8.1	.0	.0	.0
205	90	11	3.9	3.1	1.8	94.4	.4	3.6	62.4	1.1	.4	9.7	1.6	.0	.0	.0	.0	2.2	.0	.0	1.8	1.1	.0	3.5	2.0	.0	2.6	3.5	1.9	.0	.0	.0
210	75	11	.0	.0	.0	.0	.0	.0	11.7	2.6	6.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	125.9	1.7	4.9	111.0	1.1	1.6	2.9	.0	.0	.0	.0	.0
210	80	11	.0	.0	.0	.0	.0	.0	34.5	3.7	1.3	1.0	.0	.0	.0	.0	.0	1.2	.0	.0	9.0	.0	.3	5.3	2.7	3.1	.0	.0	.0	.0	.0	.0
215	75	11	.0	.0	.0	.0	.0	.0	7.0	5.0	3.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.0	.0	2.9	.0	.0	1.8	.0	.0	.0	.0	.0
220	70	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	312.9	2.4	3.2	3.5	.0	.0	.0	.0	.0
220	75	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.4	.0	.0	.6	.0	.0	.0	.0	.0
225	70	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0

BAITBOATS

FIVE-DEGREE AREA	MONTH	1951 SDF	1951 YF/SDF	1951 SJ/SDF	1952 SDF	1952 YF/SDF	1952 SJ/SDF	1953 SDF	1953 YF/SDF	1953 SJ/SDF	1954 SDF	1954 YF/SDF	1954 SJ/SDF	1955 SDF	1955 YF/SDF	1955 SJ/SDF	1956 SDF	1956 YF/SDF	1956 SJ/SDF	1957 SDF	1957 YF/SDF	1957 SJ/SDF	1958 SDF	1958 YF/SDF	1958 SJ/SDF	1959 SDF	1959 YF/SDF	1959 SJ/SDF	1960 SDF	1960 YF/SDF	1960 SJ/SDF
00 75	12	67.6	6.7	.0	15.3	1.9	2.6	10.0	.4	.6	6.1	.3	.0	8.6	.8	3.4	15.1	2.9	6.1	63.1	3.1	1.9	6.0	2.2	3.7	33.8	.1	4.6	6.0	1.0	.0
00 80	12	37.2	9.9	.0	6.2	.6	.8	14.5	1.8	1.5	2.5	.0	.0	5.9	.5	.0	4.2	.1	.1	40.5	1.4	3.6	5.2	.8	6.5	7.7	.7	.1	1.2	.0	.0
00 85	12	2.3	4.3	.0	17.5	.1	3.1	45.7	.1	2.4	43.4	.4	7.8	3.5	5.4	9.1	4.3	4.2	.5	4.7	.5	1.2	.5	.0	.0	7.9	.3	2.3	1.8	4.4	.0
00 90	12	65.0	6.1	.1	190.4	.4	4.8	194.8	1.4	2.9	45.2	1.9	5.6	12.2	7.6	6.6	12.1	5.7	1.2	71.0	2.1	2.0	18.1	1.7	4.8	62.8	3.0	3.6	14.8	1.2	.4
05 75	12	14.0	.9	.8	21.6	2.6	.0	7.5	.7	1.4	1.0	2.0	.0	1.0	1.0	.0	1.2	.0	.0	35.7	2.5	.0	6.2	4.8	.0	3.2	.0	.0	5.4	2.4	.0
05 80	12	99.1	2.8	.0	92.4	1.3	1.1	54.4	1.5	3.4	5.4	1.8	.2	9.7	1.7	.0	3.6	.0	.0	46.1	1.3	.9	1.2	.0	.0	23.0	.8	.3	9.5	2.9	.0
05 85	12	100.6	3.3	.0	141.7	2.8	.0	23.8	2.8	.0	14.6	4.9	.1	26.2	6.8	1.4	7.6	5.1	.7	58.3	2.8	.7	11.5	.8	5.4	54.1	4.1	2.6	66.2	3.7	3.1
05 90	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10 85	12	31.6	2.3	.0	38.7	1.1	.3	20.1	1.3	.9	93.6	1.4	10.2	70.3	.8	8.0	10.0	2.2	.0	30.6	.4	.4	5.4	1.8	.0	22.5	1.8	.0	32.6	3.2	1.5
10 90	12	12.1	.9	.0	20.8	2.3	.1	28.0	3.8	.2	29.4	7.8	1.3	33.5	2.3	1.6	3.8	.0	.0	12.2	.5	.0	23.0	2.9	.0	19.9	1.4	.0	7.1	1.5	.0
10 95	12	2.8	.0	.0	2.0	.0	3.5	9.1	17.9	5.1	1.6	.0	.0	5.7	2.3	.5	19.2	8.1	14.5	1.2	.0	.0	8.4	4.4	.0	.0	.0	.0	2.5	.1	.0
10 100	12	.0	.0	.0	2.0	.5	.3	.0	.0	.0	.0	.0	.0	2.9	4.7	.0	.0	.0	.0	.0	.0	.0	3.8	2.4	.0	1.4	.5	.0	1.7	2.1	.0
10 105	12	9.7	2.1	.0	8.2	1.3	.2	3.9	1.0	.0	1.7	6.5	.0	4.4	1.4	.0	.0	.0	.0	8.2	4.1	.0	45.8	5.8	.0	18.7	5.8	.0	4.3	6.7	.0
15 90	12	2.1	.2	.0	2.3	.0	.0	5.7	1.9	.0	.0	.0	.0	.0	.0	.0	2.6	.0	.0	1.2	.6	.0	1.2	.0	.0	1.0	.4	.0	.0	.0	.0
15 95	12	7.0	.0	.0	17.6	.0	.0	22.3	.5	.4	4.5	.2	.0	49.7	2.8	1.7	75.0	6.5	6.1	6.7	.2	.0	23.6	1.5	.0	7.0	1.4	.0	10.1	.6	.0
15 100	12	17.5	.6	.0	30.5	.1	.0	68.8	.3	1.3	19.7	2.2	.7	84.4	2.3	3.3	116.3	2.6	2.0	16.4	1.4	.1	87.7	3.4	.0	38.9	3.3	.0	21.1	2.4	.0
15 105	12	16.3	1.6	.0	15.4	.7	.0	69.5	.0	2.1	3.3	.2	.0	39.7	2.1	.1	56.0	3.4	.3	17.2	2.5	.0	18.2	1.4	.0	5.3	.1	.0	.4	.5	.0
15 110	12	9.8	2.4	.0	74.0	1.5	.3	70.3	1.5	.6	23.4	2.0	.5	95.3	6.3	2.9	156.0	4.8	.1	51.2	2.5	.2	80.3	2.4	.5	12.4	.9	1.0	11.7	1.4	.8
15 115	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	76.8	5.8	1.8	48.5	7.3	1.2	9.0	9.9	3.4	.0	.0	.0
20 105	12	56.1	1.5	1.4	41.2	.6	.0	27.3	.1	.4	7.0	.8	.0	104.3	4.4	3.2	217.9	2.3	3.8	32.9	1.3	.0	89.1	2.0	.0	24.7	2.4	.0	15.7	1.8	.0
20 110	12	14.8	.0	.0	131.3	.7	.0	9.0	.0	.0	5.4	1.2	.0	391.2	7.0	.3	85.4	2.5	.3	111.0	2.3	.8	43.8	1.9	.2	21.6	1.9	.0	42.5	1.6	.5
20 115	12	6.1	2.9	.2	.8	.0	.0	3.2	.0	.0	.0	.0	.0	.0	.0	.0	2.8	1.8	.0	5.7	6.0	.5	2.9	.0	.0	10.7	4.8	.0	.0	.0	.0
25 105	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	#.0	.0	.0	.0	.0
25 110	12	75.8	3.0	.1	232.8	2.9	.4	56.1	1.1	.5	11.4	.9	.4	.6	.0	.0	17.9	2.7	.8	332.5	3.4	3.1	217.7	3.3	.4	175.4	1.9	1.4	37.0	3.3	.4
25 115	12	.0	.0	.0	1.8	.0	.0	1.7	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.0	.0	.0	1.7	.0	1.5	.0	.0	.0
205 80	12	227.8	6.3	.1	187.4	.9	7.5	106.9	.2	5.9	384.7	.8	6.7	203.1	.5	16.0	313.4	.5	7.3	83.8	.7	6.0	422.1	2.0	5.7	498.4	.4	5.0	.0	.0	.0
205 85	12	1.0	.0	.0	11.7	.3	1.9	22.5	5.0	1.2	165.3	.4	11.6	1.6	.0	.0	.5	.0	.0	13.5	3.8	1.3	9.3	6.9	.2	6.4	3.4	.6	2.4	3.8	.0
205 90	12	4.3	2.2	.0	13.4	.6	1.5	38.8	2.4	.4	22.3	3.1	4.7	.0	.0	.0	2.1	.0	.0	7.7	.2	.0	1.0	.0	.0	2.9	3.1	.0	.6	.0	.0
210 75	12	.0	.0	.0	.0	.0	.0	160.3	14.9	14.4	2.2	.0	.0	1.2	.0	.0	.0	.0	.0	46.7	2.3	4.1	15.6	.7	.4	10.5	.0	.0	.0	.0	.0
210 80	12	.0	.0	.0	.6	.0	.0	9.4	2.4	.3	8.0	.3	2.4	.0	.0	.0	.0	.0	.0	2.0	.5	1.5	1.0	.0	7.0	3.6	.0	.0	.0	.0	.0
215 75	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.7	.0	.0	.0	.0	.0	7.1	.0	.0	.0	.0	.0
220 70	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	143.6	.0	12.8	25.1	1.8	19.4	10.8	.0	.0	4.0	.0	.0
220 75	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.0	.0	7.9	.0	.0	.0	3.6	.0	.0	.0	.0	.0
220 80	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
225 70	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	96.6	1.0	8.4	.0	.0	.0	2.4	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.7	.9	.0	.0	.0	.0	.0	.0	.0
05	75	1	.0	.0	.0	.0	.0	.0	3.0	.0	.7	.0	.0	.0	.0	.0	.0	1.4	.0	1.4	.0	.0	.0	.0	.0	.0
05	80	1	15.0	1.5	.2	.0	.0	.0	6.0	.0	11.7	.0	.0	.0	1.0	.0	.0	7.6	.8	.0	.0	.0	.0	17.9	8.7	.3
05	85	1	18.0	6.9	.0	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	2.0	4.0	.0	.0	.0	.0	1.2	.0	.0
10	85	1	4.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	2.8	.0	.0	.0	.0	.0	.0	.0	.0
10	90	1	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	1.4	.0	.0	.0	.0	.0	.0	.0	.0
10	95	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	74.4	17.2	.0
15	90	1	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	1	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	13.7	7.0	.0	252.1	13.9	.0
15	100	1	3.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	.0	3.0	.0	.0	19.9	9.3	.0	123.1	12.9	.0
15	105	1	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.3	14.2	.0
15	110	1	3.5	.0	.0	1.0	.0	.0	16.0	2.1	.0	41.9	19.0	.0	84.0	3.2	.0	70.6	4.6	.1	29.7	.7	.0	.0	.0	.0
20	105	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	46.6	7.5	.0	24.7	5.4	.0
25	105	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.0	.0	.0
A25	110	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
B25	110	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.6	.0	.0	.0	.0	.0
25	115	1	.0	.0	.0	55.3	.0	.0	26.0	.0	.0	1.0	.0	.0	3.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0
30	115	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.0	.0	.0
205	80	1	15.0	.9	4.3	73.0	.0	14.7	234.0	.3	5.9	11.0	.7	12.6	16.0	1.0	13.8	70.7	1.1	1.2	.0	.0	.0	10.9	3.6	24.1
210	75	1	.0	.0	.0	29.1	2.9	5.5	2.7	.0	.0	.0	.0	.0	.0	.0	.0	4.1	1.0	2.7	.0	.0	.0	.0	.0	.0
210	80	1	1.4	9.3	.0	25.0	7.9	3.2	4.2	.0	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	2	4.7	.0	.0	.0	.0	.0	7.0	.3	.3	.0	.0	.0	2.0	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0
00	80	2	2.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	2	9.4	.0	.0	7.0	18.6	.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	80	2	28.2	.8	.4	.0	.0	.0	34.5	3.8	1.2	1.0	.0	.0	5.7	.0	.0	.0	.0	.0	.0	.0	.0	11.2	31.7	.0
05	85	2	15.5	.9	.0	.0	.0	.0	38.0	3.2	6.3	.0	.0	.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	6.7	36.4	.0
10	85	2	12.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0
10	90	2	4.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	95	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.3	11.9	.0
15	85	2	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	90	2	3.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	2	9.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.3	7.4	.0	.0	.0	.0	175.7	14.3	.0
15	100	2	6.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	38.7	3.5	.0	11.8	.4	.0	378.3	11.3	.0
15	105	2	2.5	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	1.0	.0	.0	.8	.0	.0	13.2	4.9	.0
15	110	2	21.0	.7	.0	77.0	1.9	.1	49.6	5.8	.0	311.8	9.1	.0	506.6	3.9	.2	210.1	4.2	.7	14.0	3.6	.0	.0	.0	.0
20	105	2	5.0	.0	.0	81.3	.8	.0	3.9	.0	.0	71.2	5.7	.6	12.0	3.8	.0	38.5	3.3	.0	203.5	14.0	.0	74.0	8.9	.0
20	110	2	1.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	3.0	3.0	.0	1.0	.0	.0	.0	.0	.0
25	105	2	.0	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.1	.0	.0	45.5	19.9	.0	.0	.0	.0
A25	110	2	.0	.0	.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
B25	110	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	115	2	.0	.0	.0	17.0	.0	.0	3.0	.0	.0	.0	.0	.0	3.0	.0	.0	61.3	.0	.0	8.2	.0	.0	.0	.0	.0
205	80	2	35.3	2.1	1.9	112.7	.6	18.8	198.6	.3	6.9	54.4	.7	13.4	25.5	.3	.8	42.0	.4	1.3	.0	.0	.0	9.5	6.6	10.1
210	80	2	12.3	2.1	5.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0
220	70	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	13.2	13.1	10.9
225	70	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.4	22.6	.2

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	3	59.6	.7	2.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
00	80	3	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	3	4.4	.0	.0	.0	.0	.0	4.0	5.5	.0	5.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	80	3	22.9	.0	.0	.0	.0	.0	36.4	1.3	.4	2.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	13.1	17.8	.0
05	85	3	27.5	1.6	.0	.0	.0	.0	81.4	1.7	.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	85	3	8.5	.0	.0	.0	.0	.0	9.9	.8	.0	1.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0
10	90	3	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	95	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.8	15.5	.0
15	90	3	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	95	3	4.5	.0	.0	1.0	.0	.0	2.0	.0	.0	.0	.0	.0	2.5	.0	.0	1.0	.0	.0	.0	.0	.0	35.3	9.8	.0
15	100	3	7.0	2.5	2.5	10.0	3.3	.0	3.9	1.3	.0	1.0	.0	.0	17.5	7.7	.0	44.0	9.7	.0	2.6	13.5	.0	203.9	7.7	.0
15	105	3	1.5	.0	.0	3.9	1.5	.0	1.4	.0	.0	8.7	2.5	1.7	.5	.0	.0	.0	.0	.0	.0	.0	.0	5.9	5.6	.0
15	110	3	31.0	5.3	.4	50.3	1.1	.0	154.1	2.8	.6	399.1	8.3	.3	266.6	3.6	1.0	44.6	4.8	.0	2.4	.0	.0	4.9	.0	.0
20	105	3	286.6	5.4	.3	857.1	1.1	.0	232.9	3.2	.1	242.7	6.9	1.6	299.7	6.1	.8	403.4	6.7	.0	462.6	14.7	.1	454.6	9.4	.0
20	110	3	.0	.0	.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.3	.0	.0	1.0	.0	.0	161.6	15.3	.0
20	115	3	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	105	3	2.6	19.2	.0	9.3	3.9	.0	2.9	.0	.0	.0	.0	.0	.0	.0	.0	47.9	6.7	.0	1.0	.0	.0	1.8	.6	.0
A25	110	3	4.0	.0	.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.0	.0	.0	.0	.0	•	•	•	1.7	.0	.0
825	110	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0
25	115	3	1.0	.0	.0	2.0	.0	.0	6.0	.0	.0	.0	.0	.0	1.0	.0	.0	2.4	.0	.0	4.2	.0	.0	2.0	.0	.0
205	80	3	74.9	.3	6.8	43.8	.0	17.6	41.7	2.6	15.5	12.0	.3	1.0	.0	.0	.0	3.0	.0	.0	.0	.0	.0	4.0	.0	30.0
210	75	3	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
210	80	3	.0	.0	.0	2.7	.0	.0	16.8	.0	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
220	70	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.0	43.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	4	5.2	.0	.0	8.3	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
00	80	4	.7	.0	.0	2.8	5.4	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	7.7	4.8	27.0
05	75	4	10.6	.0	.0	31.4	3.4	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	80	4	5.5	.2	.2	39.8	1.1	.3	.0	.0	.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	43.4	18.2	.0
05	85	4	1.0	.0	.0	23.5	.7	1.5	.0	.0	.0	14.2	6.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	19.6	24.7	.0
10	85	4	5.4	6.1	.2	14.5	.0	7.4	8.7	.2	.0	21.6	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	7.0	35.0	1.0
10	90	4	3.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	72.9	23.9	.0
10	95	4	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	7.2	12.2	.0
15	90	4	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.6	.0	.0
15	95	4	1.9	.0	.0	13.8	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	87.8	12.8	.0
15	100	4	3.9	.0	.0	96.1	1.1	.8	.0	.0	.0	1.0	.0	.0	14.0	10.1	.0	.0	.0	.0	90.7	7.7	.0	90.1	9.2	.0
15	105	4	.5	.0	.0	4.0	1.2	1.2	.0	.0	.0	1.0	.0	.0	3.0	.0	.0	.0	.0	.0	7.5	1.2	.0	14.7	11.8	.0
15	110	4	23.5	2.9	1.4	74.4	2.5	.4	119.3	4.4	1.0	209.4	4.5	.0	167.5	5.4	.0	6.0	6.3	.0	1.0	.0	.0	.0	.0	.0
20	105	4	365.6	4.1	.7	417.5	1.3	.0	390.0	6.9	.0	349.1	4.6	1.1	436.7	4.4	.0	313.3	8.3	.0	481.5	6.8	.1	513.9	4.1	.0
20	110	4	1.8	.0	.0	.0	.0	.0	.0	.0	.0	2.5	.0	.0	1.0	.0	.0	2.0	.0	.0	74.7	4.8	.0	91.8	6.3	.0
20	115	4	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	105	4	20.2	5.5	.0	5.5	.0	.0	15.6	2.4	.0	.0	.0	.0	2.0	.0	.0	201.1	10.4	.0	.5	.0	.0	3.2	.0	.0
A25	110	4	150.1	1.6	.0	24.2	.1	.0	6.9	7.2	.0	1.8	.0	.0	7.8	.0	.0	21.5	5.3	.0	2.5	.0	.0	30.2	3.7	.0
B25	110	4	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.9	.0	.0	3.7	.0	.0
25	115	4	1.0	.0	.0	16.9	.0	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	.0	3.7	.0	.0
30	115	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.0	.0	.0	8.5	.0	.0	1.0	.0	.0
205	80	4	30.8	.9	4.8	141.3	4.3	1.6	26.9	.7	8.9	.0	.0	.0	.0	.0	.0	15.1	8.8	27.5	19.5	5.1	19.8	16.5	.0	43.4
210	75	4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	.0	18.1
210	80	4	13.7	4.7	1.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	TF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	5	4.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
00	80	5	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	5	4.8	.0	.0	20.2	3.0	1.4	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	80	5	2.1	.0	.0	2.4	.0	.0	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	20.3	21.7	.0
05	85	5	.0	.0	.0	.0	.0	.0	1.0	.0	.0	26.7	6.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	20.8	.0
05	90	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	58.3	.0
10	85	5	.0	.0	.0	234.3	.1	7.2	2.0	.0	.0	6.9	2.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	19.4	26.9	.0
10	90	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	75.7	26.8	.0
10	95	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0
10	100	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.1	.0	.0
15	95	5	.0	.0	.0	7.8	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	38.5	22.9	.0
15	100	5	.7	.0	.0	9.3	.0	.0	.0	.0	.0	2.0	.0	.0	144.5	7.4	.0	.0	.0	.0	13.2	18.9	.0	325.1	18.0	.0
15	105	5	.7	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	15.3	6.5	.0	.0	.0	.0	3.7	21.6	.0	9.9	6.7	.0
15	110	5	60.8	4.0	.2	85.8	1.3	3.0	48.1	5.4	.4	100.1	4.2	.0	75.2	7.8	.2	.0	.0	.0	.0	.0	.0	1.0	.0	.0
20	105	5	277.4	2.3	.1	359.0	1.8	.2	796.0	4.9	.0	318.3	4.0	.1	343.1	8.9	.0	74.6	4.4	.0	109.6	5.8	.0	262.7	6.7	.0
20	110	5	168.2	3.2	.3	15.8	1.0	.0	.0	.0	.0	31.1	.0	.0	1.0	.0	.0	6.3	.2	.0	130.6	10.7	.0	2.8	1.8	.0
20	115	5	3.0	10.0	1.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	105	5	17.3	1.0	.0	1.5	.0	.0	10.8	4.4	.0	.0	.0	.0	.0	.0	.0	158.4	8.5	.0	.0	.0	.0	.0	.0	.0
A25	110	5	167.2	.6	.0	11.0	.0	.0	3.0	1.7	.0	4.5	.0	.0	6.4	.0	.0	339.2	7.1	.0	.0	.0	.0	.0	.0	.0
B25	110	5	6.0	.0	.0	3.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	2.0	21.5	.0	4.4	.0	.0	4.9	.0	.0
25	115	5	.0	.0	.0	56.9	.0	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
30	115	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.5	.0	.0	4.0	.0	.0
205	80	5	22.0	.0	4.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.0	4.9	.3	6.5	.0	31.5	27.6	1.5	16.3
210	75	5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.6	.0	.0	2.4	.0	8.8
210	80	5	5.5	.0	6.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
05	80	6	2.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	73.0	10.3	.0
05	85	6	4.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	26.7	7.2	.8
10	85	6	10.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	56.9	13.2	.4
10	90	6	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	106.7	10.2	.0
10	95	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.0	8.7	.0
15	90	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.0	.0	.0
15	95	6	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	125.4	14.9	.0
15	100	6	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	156.9	3.0	.0
15	105	6	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	18.0	2.3	.0
15	110	6	22.0	.1	.1	24.9	.3	.5	21.3	1.2	.2	11.7	19.2	.0	3.0	1.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	105	6	277.2	2.4	.1	234.0	3.0	.2	81.4	1.8	.0	215.7	2.8	.0	30.0	2.6	.0	58.9	3.8	.0	.0	.0	.0	145.3	3.8	.0
20	110	6	227.4	7.7	.4	191.4	5.3	1.0	11.3	1.7	2.7	332.1	6.6	.7	38.0	.4	6.6	78.0	6.4	1.7	.0	.0	.0	78.3	4.8	1.6
20	115	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0
25	105	6	.9	.0	.0	.0	.0	.0	94.1	5.1	.0	1.5	.0	.0	1.9	4.2	.0	75.3	9.4	.0	.0	.0	.0	.0	.0	.0
A25	110	6	1.0	.0	.0	.0	.0	.0	137.7	4.6	.0	12.0	.0	.0	.0	.0	.0	59.6	2.5	.0	.0	.0	.0	32.2	7.6	.0
B25	110	6	10.2	.0	.0	9.3	.0	.0	.0	.0	.0	10.2	.0	.0	125.5	.1	.0	131.1	7.8	2.7	.0	.0	.0	120.1	.0	4.9
25	115	6	2.8	.0	.0	.0	.0	.0	.0	.0	.0	9.9	.0	.0	2.9	.0	.0	4.0	.0	.0	.0	.0	.0	49.9	.1	.4
30	115	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	38.2	.0	.0
205	80	6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	13.2	7.6	17.4	33.1	.6	17.1

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	TF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
05	80	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.9	.0	.0
10	85	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	34.1	3.5	7.8
10	90	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	59.5	5.2	3.7
15	90	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0
15	95	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	14.1	.0	.0
15	100	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	18.2	.8	.0
15	105	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.2	.0	.0
15	110	7	4.3	.0	.0	3.0	2.0	.0	.0	.0	.0	2.0	12.5	.0	2.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	105	7	9.0	5.4	3.4	.0	.0	.0	100.3	6.0	.2	85.8	4.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	22.5	.0	.0
20	110	7	158.4	7.9	1.2	30.8	.5	4.1	37.9	2.2	.1	135.9	4.6	.6	47.4	4.6	1.5	1.0	.0	.0	5.2	21.2	.0	347.9	4.5	1.8
20	115	7	2.0	15.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.0	8.8	.0	.0	.0	.0	.0	.0	.0	5.9	4.2	3.4
A25	110	7	.5	44.0	.0	.0	.0	.0	.0	.0	.0	2.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
825'	110	7	240.2	1.6	.7	123.8	3.8	.5	34.7	.0	.0	56.6	.0	.4	179.3	3.5	2.3	57.5	8.7	.7	340.9	2.6	10.3	211.7	2.7	2.3
25	115	7	8.0	.0	.0	1.0	.0	.0	.0	.0	.0	44.7	.0	.0	38.1	.0	1.2	24.8	.0	.6	65.0	2.7	4.6	183.4	.4	1.1
30	115	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	34.8	.0	.0	2.9	.0	.0	9.2	.0	2.7	70.9	.0	.0
205	80	7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	16.5	.0	30.6	23.0	1.9	38.0	17.6	.0	23.7

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
05	80	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.0	2.7	.0	27.3	13.5	.3
05	85	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.8	6.3	.0	8.1	9.6	.0
10	85	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	142.1	10.0	.5
10	90	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	11.7	4.2	227.3	12.2	.5
15	90	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	.0	.0
15	95	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	19.3	.2	.0
15	100	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	20.9	.1	.0
15	105	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.7	8.1	.0
15	110	8	2.4	.0	.0	.0	.0	.0	.0	.0	.0	11.0	12.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	105	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	7.2	.0	.0	20.8	.0	.0
20	110	8	200.6	5.0	.6	48.5	5.2	.7	.0	.0	.0	48.4	7.4	1.0	1.5	13.3	.0	.0	.0	.0	5.2	.0	.0	67.3	4.5	2.4
20	115	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0
A25	110	8	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
825	110	8	111.8	1.4	.4	131.3	.5	2.3	54.9	5.6	1.8	18.2	.0	.2	4.5	.9	.0	114.9	11.5	.6	213.5	2.1	4.5	157.0	1.9	4.4
25	115	8	2.3	.0	.0	12.4	2.2	.2	.9	.0	.0	44.7	.0	.0	.0	.0	.0	20.2	.7	8.2	111.7	1.9	3.9	53.7	1.5	1.9
30	115	8	.0	.0	.0	35.1	.0	.0	.0	.0	.0	4.4	.0	.0	19.9	.0	1.5	26.7	.0	.0	57.1	.0	.8	233.9	.0	.0
30	120	8	.0	.0	.0	4.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	1.2	.0	.0
205	80	8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	23.3	7.5	14.4	42.0	8.5	15.6	6.8	14.7	22.1

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	9	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.0	.0	.0	.0	.0
05	80	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.0	.0	.0
05	85	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.7	3.7	1.3
10	85	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	192.9	12.1	.8
10	90	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	77.0	11.9	.4
15	90	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0
15	95	9	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	13.5	6.0	.0
15	100	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.4	.0	.0	10.9	2.8	.0
15	105	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.7	.0	.0
15	110	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.0	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	105	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.4	.0	.0	.0	.0	.0	.0	.0	.0	14.0	.0	.0	6.7	.0	.0
20	110	9	8.6	7.6	2.0	4.0	.0	6.3	.0	.0	.0	3.4	.0	.0	.0	.0	.0	.0	.0	.0	3.8	.0	.0	14.6	1.0	.3
20	115	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.3	.0	.0	.0	.0	.0
A25	110	9	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.9	.0	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
B25	110	9	30.2	1.9	1.7	148.3	1.8	2.6	.0	.0	.0	28.4	.3	.5	.0	.0	.0	.0	.0	.0	98.6	3.6	1.7	94.0	4.9	4.0
25	115	9	12.6	.0	.0	10.0	.0	.0	.0	.0	.0	12.0	2.9	.1	.0	.0	.0	.0	.0	.0	12.4	.0	4.3	44.9	2.6	6.1
30	115	9	.0	.0	.0	6.8	.0	.0	.0	.0	.0	6.4	.0	.0	.0	.0	.0	5.4	.0	4.4	1.3	.0	.0	3.0	.0	.0
205	80	9	24.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	20.6	2.3	13.8	57.8	5.5	15.3	.0	.0	.0
210	75	9	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
210	80	9	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	90	10	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.5	16.0	.0
05	80	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.3	12.7	.0	22.6	4.1	.0
05	85	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	59.8	5.4	.7	35.7	5.9	.8
10	85	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	15.8	1.5	.8	227.5	7.7	.2
10	90	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.9	10.4	.0	88.1	4.7	.0
10	95	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.7	.0	.0
15	90	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0
15	95	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.1	.0	.0	45.7	2.0	.0
15	100	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.0	.0	59.1	2.7	.0
15	105	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	7.2	.0	.0
15	110	10	.0	.0	.0	.0	.0	.0	22.0	5.5	.1	127.6	2.4	.0	.0	.0	.0	.0	.0	.0	8.1	.5	.0	1.0	.0	.0
20	105	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.4	.6	.1	.0	.0	.0	.0	.0	.0	8.7	2.4	.0	18.5	.0	.0
20	110	10	.0	.0	.0	.0	.0	.0	6.9	2.2	.1	15.5	.0	.2	.0	.0	.0	.0	.0	.0	91.9	5.4	.0	8.8	.0	.0
20	115	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0
A25	110	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.8	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.0	.0	.0	.0	.0
B25	110	10	.0	.0	.0	7.0	.0	.0	.0	.0	.0	23.3	.0	.1	.0	.0	.0	5.5	.0	.0	131.2	3.6	.6	30.2	2.2	.7
25	115	10	.0	.0	.0	5.0	.0	.0	9.6	.0	.0	8.7	.0	.0	.0	.0	.0	2.7	.0	.0	14.1	.0	.0	.0	.0	.0
30	115	10	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0	.0	.0	.0	80.3	.6	5.5	.0	.0	.0	1.4	.0	.0
205	80	10	38.0	.0	4.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	28.5	6.3	3.2	.0	.0	.0
205	85	10	6.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	90	10	17.1	2.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
210	80	10	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	2.5
05	75	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	15.3	9.3	.2
05	80	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	1.4	.0	.0	.0	.0	.0	15.4	17.7	.0	29.6	4.8	.0
05	85	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	30.8	15.4	.0	39.1	3.1	.1
10	85	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.0	3.3	.0	.0	.0	.0	.0	.0	.0	8.6	3.6	.0	371.6	6.1	1.5
10	90	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	14.7	11.2	.0	395.9	8.0	.7
10	95	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	10.0	.0	21.1	6.9	.0
15	90	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.8	.0	.0
15	95	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	159.5	13.3	.0	330.4	8.0	.0
15	100	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.8	.0	.0	62.3	2.3	.0
15	105	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.0	.0	6.6	.0	.0
15	110	11	.0	.0	.0	.0	.0	.0	24.1	17.4	.4	169.5	3.3	.0	85.3	7.7	.0	43.8	7.9	1.3	.0	.0	.0	.0	.0	.0
20	105	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	13.0	.4	.0	17.0	.0	.0	.0	.0	.0	70.8	2.0	.0	11.6	.0	.0
20	110	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.8	.1	.1	1.0	.0	.0	2.8	.0	.0	112.1	2.7	.0	7.3	.0	.0
20	115	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.4	.0	.0	.0	.0	.0	.0	.0	.0
25	105	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0
A25	110	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.8	.0	.0	.0	.0
B25	110	11	.0	.0	.0	8.0	13.6	1.0	.0	.0	.0	1.0	.0	.0	6.1	1.0	.2	23.3	2.6	.3	62.7	4.2	.0	61.0	6.7	.8
25	115	11	.0	.0	.0	13.0	.0	.0	.0	.0	.0	8.0	.0	.0	5.0	.0	.0	4.8	.0	.0	4.6	.0	1.5	4.0	.0	.0
30	115	11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.0	.0	2.0	.0	.0
205	80	11	20.7	.0	3.3	12.0	.0	9.0	.0	.0	.0	43.0	.0	5.7	18.9	.0	.0	.0	.0	.0	18.2	.0	15.9	.0	.0	.0
210	75	11	14.0	7.0	4.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
210	80	11	18.1	4.3	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

PURSE SEINERS

FIVE-DEGREE		MONTH	1953			1954			1955			1956			1957			1958			1959			1960		
			SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF	SDF	YF/SDF	SJ/SDF
00	75	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.5	.1	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
05	75	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0
05	80	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.4	7.9	.4	16.3	4.8	.0
05	85	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	12.6	11.8	.2	12.1	11.0	.0
10	85	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	16.7	.0	29.6	1.6	.1
10	90	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	47.6	5.4	.0
10	95	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	155.3	12.1	.0
15	90	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.9	2.6	.0
15	95	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	51.4	11.4	.0	462.7	11.5	.0
15	100	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	66.9	8.1	.0	146.7	6.2	.0
15	105	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.9	.0	.0
15	110	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	62.1	4.7	.0	140.1	2.2	.0	33.3	3.6	2.2	1.0	.0	.0	1.0	.0	.0
20	105	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	5.0	.0	.0	.0	.0	.0	13.2	1.4	.0	6.6	.0	.0
20	110	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	1.9	.0	.0	.0	.0	.0
A25	110	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
B25	110	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.0	.2	.0	.0	.0	.0	2.5	10.0	.0	7.8	1.9	.0
25	115	12	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0	.0	.0	.0	.0	2.0	.0	.0	6.5	.0	.0	.0	.0	.0
205	80	12	.0	.0	.0	29.0	.1	12.6	.0	.0	.0	9.0	.0	2.5	43.5	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	85	12	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
205	90	12	.0	.0	.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
210	75	12	10.4	9.8	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

DISTRIBUCION MENSUAL DE LA PESCA POR UNIDAD DE ESFUERZO Y DEL ESFUERZO EN LA PESCA DE ATUN DEL OCEANO PACIFICO ORIENTAL TROPICAL DURANTE EL PERIODO 1951-1960

por

John Wilson Martin[1]

INTRODUCCION

La Comisíon Interamericana del Atún Tropical ha recolectado sistemáticamente, desde 1951, los datos de los cuadernos de bitácora que registran la captura y el esfuerzo de los barcos de carnada y de los barcos rederos dedicados a la pesca de los atunes aleta amarilla *(Neothunnus macropterus)* y barrilete *(Katsuwonus pelamis)* en el Océano Pacífico Oriental Tropical, con el propósito principal de vigilar los cambios en el esfuerzo de pesca, en la abundancia y en el rendimiento de estas especies. Schaefer (1953), Shimada y Schaefer (1956) y Shimada (1958) han descrito detalladamente los métodos de recolección de dichos datos y su tabulación y análisis. Muchos de los datos fundamentales han sido publicados en la serie de *Boletines* de la Comisión por Shimada y Schaefer (1956), Alverson (1959 y 1960), Griffiths (1960), y Calkins (1961).

La comparación de los factores ambientales físicos y biológicos que afectan la agrupación del atún, con el éxito obtenido en la pesca por las flotas comerciales, requiere que los datos sobre la captura y el esfuerzo sean examinados con mayor detalle de lo que han sido presentados en estas publicaciones. En consecuencia, el Laboratorio Biológico del Buró de Pesquerías Comerciales de los Estados Unidos, situado en San Diego, a fin de llenar los requisitos de su programa de investigación sobre las causas de las variaciones en la abundancia del atún, hizo arreglos con la Comisión del Atún para sumarizar esos datos sobre la captura y el esfuerzo por meses, por áreas de un grado, por clases de tamaño de las embarcaciones de pesca durante los años 1951-1960 en lo que concierne a los barcos de carnada y durante el período 1953-1960 en lo que respecta a los barcos rederos. El presente trabajo describe la técnica empleada en la sumarización de dichos datos mediante métodos automáticos de manejo de datos. También se da aquí la información sobre la captura y el esfuerzo por meses, por áreas de cinco grados y ciertas combinaciones de áreas de cinco grados para el uso de los pescadores, del personal de la industria y de las oficinas de investigación. Por falta de espacio y otras razones, las tabulaciones de las áreas de un grado no han sido incluídos en este trabajo, pero están a la disposición de quien tenga interés en los laboratorios de la Comisión del Atún y del Buró.

[1] Del Laboratorio Biológico del Buró de Pesquerías Comerciales de los Estados Unidos, San Diego, California

Un sistema de computación 650 de la "International Business Machines" (IBM) que puso a la disposición del Buró la General Dynamics-Convair, San Diego, ha sido usado para la estandarización del esfuerzo de pesca, para la computación de la abundancia aparente de cada especie por estratos de tiempo y área. El autor preparó instrucciones especiales sobre la computación para el rápido manejo de esos datos básicos.

RECONOCIMIENTO

Los datos fundamentales fueron puestos a disposición del Laboratorio Biológico del Buró de Pesquerías Comerciales de los Estados Unidos en San Diego, por el Dr. M. B. Schaefer, Director de Investigaciones de la Comisión Interamericana del Atún Tropical. Los señores D. L. Greenland y A. B. Chapman, del personal del Buró, ayudaron a reunir los datos para los gráficos y a comprobar la exactitud de los datos presentados. El señor Keith Quigley de la Comisión del Atún, preparó las figuras. El señor G. C. Broadhead, del personal de la Comisión del Atún proveyó la información que facilitó la tabulación de los datos y también revisó el manuscrito con sentido crítico. El autor agradece la cooperación de las personas aquí citadas.

METODOS

Los datos básicos utilizados en este informe son el resultado del sistema de registro en los cuadernos de bitácora establecido por la Comisión del Atún en 1951 para vigilar corrientemente las actividades de las flotas que pescan atún tropical. Los métodos empleados dentro de este sistema han sido detallados por Schaefer (1953) y Shimada (1958), y sólo se discutirán superficialmente. Los datos con respecto al esfuerzo de pesca y a las capturas resultantes de atún aleta amarilla y barrilete se toman de los records de los viajes que contienen los cuadernos de bitácora llevados por los capitanes de los barcos de carnada y rederos que pescan en el Océano Pacífico Oriental Tropical.

Corrientemente, miembros del personal de la Comisión del Atún transcriben, analizan y tabulan estos datos. Para facilitar el manejo de esta gran cantidad de información, los datos tabulados se registran, al final del año, en tarjetas perforadas, con un formato que indica el área en que se ha pescado, por rectángulos de un grado, el mes, la clase de tamaño y tipo del barco, los diás en que se ha pescado, y la captura de atún aleta amarilla y barrilete. Estas tarjetas perforadas fueron prestadas al Buró de Pesquerías Comerciales de los Estados Unidos y proveyeron la información necesaria para preparar este informe.

En la Figura 1 se presentan las áreas estadísticas de la Comisión y los números de código que les han sido asignados. Las divisiones más pequeñas son las áreas de un grado que, combinadas, forman las áreas de cinco grados. Las áreas al norte del ecuador están identificadas en código por siete dígitos. Un prefijo adicional, el dígito "2", se usa para denotar las áreas al sur del ecuador y así aparecen en las tablas.

Las áreas de cinco grados están designadas por la latitud y longitud de su esquina sureste y han sido subdivididas en 25 áreas de un grado, que están enumeradas en serie desde la esquina sureste, como se ve en la Figura 1. El área 25-110 está dividida por la península de Baja California. Las porciones este y oeste de esta área de cinco grados están indicadas por "A" y "B", respectivamente, para los datos de los barcos rederos, ya que éstos pescan en ambas porciones. Tales designaciones no se usan para datos de los barcos de carnada, porque éstos normalmente no pescan mucho en la parte alta del Golfo de California.

Estandarización del esfuerzo de pesca

El éxito de la pesca para la obtención de atún aleta amarilla y barrilete está relacionado con el tamaño de la embarcación. Shimada y Schaefer (1956) describen un método para ajustar el esfuerzo a una clase de tamaño estándar de barco que permita la comparación del éxito en la pesca efectuada por embarcaciones de las diversas categorías de tamaño que operan en todo el Océano Pacífico Oriental Tropical. Ellos establecen seis clases de tamaño de barcos sobre la base de la capacidad para el transporte de pescado, a saber: Clase 1, hasta 50 toneladas; Clase 2, de 51 a 100 toneladas; Clase 3, de 101 a 200 toneladas; Clase 4, de 201 a 300 toneladas; Clase 5, de 301 a 400 toneladas; y Clase 6, de 401 toneladas y más. Las Clases 4 y 3 se establecieron como estándar para los barcos de carnada y barcos rederos, respectivamente, y todo el esfuerzo de pesca se ajusta entonces al equivalente de días de pesca empleados por estas clases de barcos. Los factores anuales de eficiencia correspondientes a los barcos de carnada y a los barcos rederos en los diez años, 1951-1960, están a punto de ser publicado por Broadhead (1962).

Para el propósito de este informe, los factores de eficiencia media obtenidos del período de ocho años, 1951-1958, fueron usados en la estandarización del esfuerzo de pesca de la flota de los barcos de carnada durante los años 1951-1960. Los factores de eficiencia media correspondientes al período 1953-1958 fueron usados para los barcos rederos en el mismo período. Sin embargo, fué necesario un nuevo juego de valores medios para le estandarización de los datos de los barcos rederos, a partir de 1959, a causa del cambio precipitado en la composición y las características de la flota redera. Esto sucedió al operarse en masa la conversión de barcos de carnada en barcos rederos, asunto de que tratan Broadhead y Marshall (1961). Como los datos de los barcos rederos correspondientes al año 1959 se prepararon en los comienzos de 1960, los factores de eficiencia calculados de los datos de 1959 fueron usados para ese año. Los valores promedio obtenidos de los datos de 1959 y 1960, se emplearon para estandarizar el esfuerzo de los barcos rederos en 1960. La siguiente tabla presenta los juegos de los factores de eficiencia empleados para estandarizar el esfuerzo de pesca, correspondientes a los sistemas de captura, de conformidad con las clases de tamaño.

Tipo de barco y período	Clases de tamaño					
	1	2	3	4	5	6
Barcos de carnada 1951-1958	0.40	0.55	0.84	1.00	1.18	1.16
Barcos rederos 1953-1958	—	0.88	1.00	1.37	—	—
Barcos rederos 1959	0.60	0.82	1.00	1.30	1.20	—
Barcos rederos 1959-1960	0.66	0.73	1.00	1.35	1.27	1.01

Especies registradas

Las capturas registradas en los cuadernos de bitácora son tabuladas bajo cuatro categorías: atún aleta amarilla; barrilete; atún aleta amarilla y barrilete mezclados; y atún aleta amarrila o barrilete, no identificados separadamente. El computador fué instruido para prorratear los tonelajes en las dos últimas categorías, a la razón de los tonelajes identificados de atún aleta amarilla y barrilete registrados para cada área de un grado por trimestres del año. Alverson (1960) informa que las dos categorías de atún mezclado o no identificado juntas, contenían, en el período 1951-1958, un 9.7 por ciento del tonelaje registrado por los barcos de carnada y un 6.4 por ciento del tonelaje registrado por los barcos rederos.

Modificaciones en los datos

Algunas errores de perforación de menor importancia fueron encontrados en las tarjetas originales durante el manejo de los datos con el computador de la IBM 650. Estas tarjetas defectuosas, que fueron rechazadas por el computador, se estimó que contenían menos del uno por ciento de los datos, basados en las comparaciones entre los totales trimestrales y anuales de la captura y el esfuerzo compilados por la Comisión y el Buró. El uso de factores de eficiencia media, en vez de los valores anuales, para la estandarización del esfuerzo, también dió como resultado diferencias menores entre los datos presentados en este trabajo y los publicados por Alverson (1960). La comparación de las tabulaciones presentes hechas a máquina referentes a una serie de áreas con las de la Comisión ha indicado que las diferencias son insignificantes, cuando se usan datos para el examen de los cambios en la disponibilidad del atún por estratos de tiempo y de área.

RESULTADOS

Las Tablas 1 y 2 contienen el esfuerzo estandarizado y la correspondiente pesca por día estándar de actividad (SDF) registrados por los barcos de carnada y los barcos rederos para el atún aleta amarilla y barrilete, por área de cinco grados, por mes y por año, y para cada sistema de captura empleado. Como lo hizo notar Griffiths (1960), debe tenerse cuidado al tomar en cuenta los datos que están basados en menos de cinco días de actividad en la pesca, porque los esfuerzos pequeños a menudo generan medidas de la abundancia aparente del atún en las que no puede confiarse.

Para examinar las tendencias estacionales en la abundancia aparente, los datos de las áreas de cinco grados han sido consolidados en diez grandes divisiones geográficas de la pesquería, como puede verse en la Figura 2. Estas regiones corresponden muy de cerca a las usadas por la Comisión del Atún en sus estudios sobre la edad, el crecimiento, desove y la madurez sexual de las especies tropicales, pero no indican necesariamente los límites naturales de las poblaciones.

Las tendencias mensuales en la pesca por cada día estándar pueden apreciarse en las Figuras 3-12, en las que se han utilizado solamente los datos de los barcos de carnada. Los datos correspondientes al atún aleta amarilla se indican por las líneas ininterrumpidas, y las correspondientes al barrilete, por las líneas a guiones. El monto del esfuerzo de pesca usado para calcular la pesca por día estándar de actividad, se expresa con el número adyacente al punto que corresponde a cada mes; los meses en que no hubo esfuerzo se dejó en blanco. El tonelaje registrado en los cuadernos de bitácora, por especies, puede ser estimado al multiplicar el número de días de actividad en la pesca por la captura (en toneladas) por día estandarizado de actividad. El tonelaje registrado en los cuadernos de bitácora es menor que el total de la captura en esa área, porque unos pocos de los grandes barcos de carnada y rederos no llevan registros de bitácora y también diversas pequeñas embarcaciones que pescan los atunes tropicales no mantienen a bordo tales registros. Alverson (1960) anota que la cobertura de los cuadernos de bitácora varía desde el bajo porcentaje de 61.4 en 1951, cuando la Comisión comenzó su sistema de registro de cuadernos de bitácora, hasta la alta cifra del 82.1 por ciento en 1958; en 1959 y en 1960 se logró una cobertura de un 75.6 y de un 80.8 por ciento, respectivamente. El promedio general correspondiente a un período de diez años fué de un 76.6 por ciento. El hecho de que los datos de los cuadernos de bitácora no sean obtenidos sobre el ciento por ciento de las pesca, no afecta significativamente la cifra que corresponde a la captura por día estándar de actividad, ya que el muestreo de los cuadernos de bitácora es suficientemente grande y comprende una buena estratificación en cuanto a tiempo y área.

El examen de las tablas y cartas demuestra que el éxito en la pesca de atún en cualquier área de cinco grados frecuentemente presenta una alta variación de un mes a otro dentro de un mismo año, así como entre años en el mismo mes. Estas variaciones son aún mayores en las áreas de un grado. Los factores que afectan o controlan la disponibilidad de los atunes tropicales son intensamente complejos. Por el momento no se intenta relacionar las variaciones en la tasa de la captura y en la captura global con las condiciones ambientales y biológicas. Sin embargo, estos datos básicos serán útiles a los científicos del Buró de las Pesquerías Comerciales, de la Comisión del Atún, y de la Institución Scripps de Oceanografía en los estudios de esta naturaleza que se encuentran al presente en camino.

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