NOTES

DETERMINATION OF MEAN LENGTH OF OILSARDINE AT DIFFERENT AGES BASED ON THE ANNUAL SIZE-FREQUENCY DISTRIBUTION

M. H. DHULKHED

Mangalore Research Centre of Central Marine Fisheries Research Institute, Mangalore

ABSTRACT

Studies on the resolutions of size distributions of oil sardine of the Mangalore zone spread during 1960 through 1973 revealed four components (1) 87.9 mm, (2) 124.4 mm, (3) 156.9 mm and (4) 172.7 mm, which appears to be the average length of fish at ages six, twelve, eighteen and twenty-four months, respectively. In most of the years, the first three components supported the fishery.

Studies on the growth rate of the Indian oilsardine, *Sardinella longiceps* Val., have been largely based on the progression of the monthly modal sizes (Nair 1952, Sekharan 1962, Sekharan and Dhulkhed 1963, Bensam 1964, Radhakrishnan 1965, Prabhu 1966, Annigeri 1969 and Antony Raja 1970), assuming that the samples are drawn from the same population. Cassie (1954) suggested the use of probability paper when more than one normal distribution is involved. Investigations on the oilsardine have revealed that various broods enter the fishery (Sekharan and Dhulkhed 1963, Prabhu and Dhulkhed 1970 and Antony Raja 1970) and difficulties are often encountered while tracing their modal values. Here the method of resolution of a distribution (Battacharya 1967) was applied for the data on oilsardine collected over a thirteen-year period and the results are presented.

For purposes of this study, the pooled, estimated numbers of oilsardine of various non-selective gear at Ullal (Sekharan and Dhulkhed 1963) and Baikampady, and other centres (Dhulkhed, MS.) of the Mangalore zone from 1960-61 through 1972-73 have been used. The total number of oilsardine for the various years was calculated as follows:

$\sum_j \sum_k N_{ijk}$ = the total number of oilsardine for all the groups in all the months in ith year,

where N_{ijk} = the total number of oilsardine of the kth group in jth month for the ith year,

and $\sum_j N_{ijk}$ = the total number of soilsardine in he kth group for all the months in ith year.

The differences in the log values of the frequencies at successive 5mm interval ($\sum_{j}^{N}$ ijk) were plotted against the respective mid-points of size groups. By using a tracing paper (Bhattacharya 1967), different components were identified by joining the points to give straight lines where their slopes are negative. The mean values of kth component of jth year was estimated as follows:

$$\hat{\mu}ik = \lambda ik + h/2$$

where λik = the intercept of the kth component with x axis for j^{th} year
and   h   = height of the size group

The values of $\lambda i1$, $\lambda i2$ etc., may be obtained by substracting 2.5mm from the corresponding values of $\hat{\mu}i1$, $\hat{\mu}i2$ etc.

From Fig 1. it is apparent that in most of the seasons, components one, two and three comprised the catches. The fourth component ($\hat{\mu}i4$) in general, was rather feebly represented with diffused frequencies.
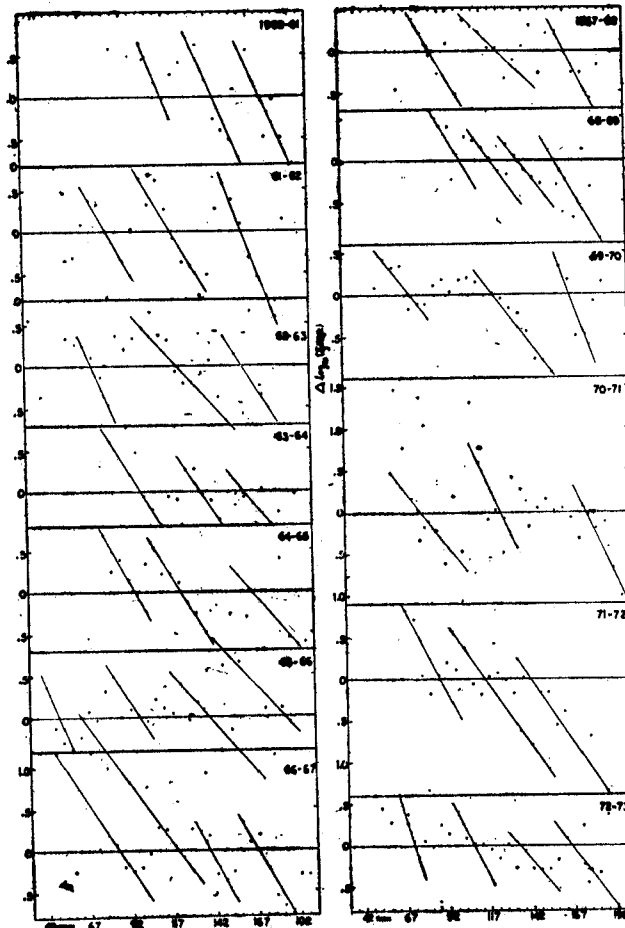

FIG. 1. Differences in the logarithimic values of the frequencies against the mid-points of the size groups of oilsardine.

The first component (λi1) varied from 54.5 to 117 mm and the mean value of $\hat{\mu}$il was 87.9 mm (Table 1). The range of the second component was 48.5 mm (98 to 140.5 mm) and that of the third components was 42 (133.5 to 175.5 mm).

Table: 1. *The mean values of different components.*

	$\hat{\mu}$i1	$\hat{\mu}$i2	$\hat{\mu}$i3	$\hat{\mu}$i4
1960-61	119.5	149.0	178.0	—
1961-62	85.0	123.0	165.0	—
1962-63	75.0	125.5	165.0	—
1963-64	103.0	139.5	164.0	—
1964-65	100.0	126.0	169.0	—
1965-66	57.0	100.5	141.5	187.0
1966-67	86.0	121.0	140.0	168.0
1967-68	90.0	130.0	169.5	—'
1968-69	106.5	124.5	139.5	162.5
1969-70	75.5	124.5	168.5	—
1970-71	80.0	128.0	159.0	178.0
1971-72	91.0	116.5	144.0	—
1972-73	74.0	109.5	136.0	168.0
Average	87.9	124.4	156.9	172.7

Studies on the growth rate of oilsardine by the author (MS) in the Mangalore area have shown that the oilsardine measuring 130-140 and 170-175 mm constitute one-year and two-year-olds respectively. Radhakrishnan (1965) states that the oilsardine grows to a lengh of 90-100 mm during 5-6 months period and the modal size range of one and two-year-olds appear to be 135-145 and 160-165 mm respectively. The estimation of age of oilsardine by Annigeri (1969) is more or less in confirmity with the above observations. It would, therefore, appear that the 87 mm fish (Table 1) is about six months old and attains a length of 125 mm in another six months time. Further, it could be inferred that the oilsardine attains a length of 155 and 175 mm when it is about eighteen and twenty-four months old respectively. However, it has to be mentioned that these values for the various components are only approximate estimates.

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A LARGE-SCALE WASHING-ASHORE OF MARINE FAUNA AT KOVALAM, SOUTHWEST COAST OF INDIA

S. LAZARUS AND P. V. SREENIVASAN
Vizhinjam Research Centre of Central Marine Fisheries Research Institute, Vizhinjam.

ABSTRACT

An incidence of washing ashore of marine fauna comprising the jelly-fish, *Netrostoma coerulescens* Maas, some benthic fishes and crabs at Kovalam on the Southwest Coast of India on 6th Septembebr, 1972 is reported.

An incidence of washing ashore of large numbers of jelly-fish, *Netrostoma coerulescens* Maas (Famil: Cephidae) along with fishes and crabs was observed at Kovalam, southwest coast of India on 6th September 1972. This was found in a wide area, extending from Poonthura in the north to Mulloor in the south, about 19 km in length along the sea shore. Although the jelly-fish, *Netrostoma coerulescens* Maas is known to swarm along this area during October and November (Nair 1951) there is no report on its washing ashore in such a large number, 20 to 30 specimens in a square metre (fig 1), in this area.