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## SEASONAL LANDINGS OF OIL SARDINE *SARDINELLA LONGICEPS* AT RAMESWARAM, PAMBAN AND MANDAPAM AREAS \*

Unusual and unprecedented landings of oil sardine, *Sardinella longiceps* were noticed at Rameswaram and Pamban during January and February 1992. The resource was exploited by the pair trawlers and fish trawlers. The fishing operations started by 13th January. Initially 30-40 pairs were in operation per day. But once the fishermen found out that there was good demand for the fish and that the merchants and agents were regularly coming with ice and lorries all the way from Kerala for transporting and marketing, the number of pair trawlers increased. Consequently the fish trawling operations of 42-110 units in January got reduced to 25-75 units in February. The estimated catch of oil sardine at Rameswaram for January- February 1992 was 4,561 t. The pair trawlers contributed 4,244 t and fish trawlers 317 t. The C/E varied from 1.5 to 8 t. At Pamban the pair trawling during the period realised 741 t.

It may be stated that the pair trawling on an experimental scale was initiated in this area in 1980-81 under the BOBP to develop the small scale fisheries sector (Gopalakrishna Pillai & Sathiadhas, 1982, *MFIS*, 29). Though, initially the response was poor, later it attracted the interest of the fishermen due to the quality and quantity of the fishes such as lesser sardines, silverbellies, pomfrets, etc. Now every year pair trawlers are operated, the season starting by last week of December and extending upto first week of April.

### Craft and gear

The mechanised units 9.14-9.75 m OAL (45-70 HP diesel engines) conduct the operation. The normal trawling speed while fishing is 2.5 knots. But for fishing oil sardine the speed is kept at 3.5 knots. The design of the twin boat high speed bottom trawl is in the form of a conical bag consisting of a wing of 15.4 m, overhang 3 m, belly 23 m, throat 5 m and cod end 7.5 m with an overall head rope length of 33 m. There are slight variations in the specifications depending on the power of the engines of the boats. The cod end mesh size is 25 mm. The fish trawl has

a wing of 15 m, belly 17 m, throat 3 m and cod end 8 m with an overall rope length of 22 m. The cod end mesh size is 25 - 30 mm. They are operated by single units at a speed of 2.5 - 3.0 knots per hour.

### Area of operation

The area of operation is north and north east off Rameswaram, 15- 20 km from shore. The depth of the fishing ground varies from 12-16 m and the bottom is muddy. They start from shore by 0400 hrs and return by 1130 hrs onwards and continue upto 1900 hrs. One to two hauls are made. The earlier they reach the shore better were their returns, as towards late evening the price goes down.

### Fishery

*Pair trawl - day fishing* : The fishing activity started by 13th January 1992. The catch of oil sardine in the pair trawlers at Rameswaram amounted to 1,635.8 t during January 1992 at a C/E of 2,084 kg and 2,618 t at a C/E of 1,192 kg in February 1992. Last year (1991) the oil sardine catch by pair trawlers during February-March '91 was 469 t at a C/E of 1,130 kg. (Table 1, Figures 1, 2, 3, 4). At Pamban the pair trawling realised 203 t and 538 t during January and February 1992 forming 89.3% and 74.8% respectively. Last year no catch was observed.

*Fish trawl - day fishing* : At Rameswaram 40-110 fish trawlers were in operation daily during January 1992. Their number decreased in February as most of them went for pair trawling. Oil sardine formed 271 t and 45.7 t contributing to 29.6% and 4.1% of the total fish catch of the gear during January and February 1992 respectively (Table 2).

Other fishes occurring in the pair trawlers were lesser sardines, *Dussumteria acuta*, *Tachysurus caelatus*, *Himantura bleekeri*, etc. In the fish trawls silverbellies and lesser sardines dominated. In addition occasional bumper catch of *T. caelatus*, *Alepes kalla* and *H. bleekeri* have been recorded.

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TABLE 1. Estimated catch (kg), effort and C/E (kg) of Oil sardine

**Day Fishing**

	Rameswaram - Pair trawling					Pamban - Pair trawling				
	Units	Total fish	Oil sardine			Units	Total fish	Oil sardine		
	E	C (kg)	C (kg)	C/E	%	E	C (kg)	C (kg)	C/E	%
Jan. 1992	780	2,035,790	1,625,855	2084	79.9	98	227,930	203,430	2,075	89.3
Feb. 1992	2,196	3,895,002	2,618,090	1192	67.2	250	718,750	537,500	2,150	74.8
Total	2,976	5,930,792	4,243,945	1426	71.6	348	946,680	740,930	2,129	78.3
Feb.-Mar. 1991	415	727,120	469,050	1130	64.5	285	557,175	-	-	-

TABLE 2. Catch (kg), effort (units) and C/E (kg) of Oil sardine by fish trawlers at Rameswaram

Month	Units	Total fish	Oil sardine		
	E	C (kg)	C (kg)	C/E (kg)	%
Jan. 1992	1045	915,944	271,488	259.7	29.6
Feb. 1992	557	1,107,820	45,655	81.9	4.1
Total	1602	2,023,764	317,143	197.9	15.7

**Shrimp trawl- night fishing :** In the shrimp trawlers at Rameswaram oil sardine formed 147 t at a C/E of 5.8 kg during October to December 1991, contributing to 2.8% of the total fish catch. Last year for the period the catch amounted to 75.3 t at a C/E of 4.9 kg (Table 3). At Pamban the shrimp trawler catch of oil sardine for October-December 1991 was 22 t which was 10 t less compared to previous year.

**Shore seines :** The Shore seines are operated every year in the Gulf of Mannar side

TABLE 3. Estimated catch (kg), effort and C/E (kg) of Oil sardine

**Night fishing**

	Rameswaram - Shrimp trawling					Pamban - Shrimp trawling				
	Units	Total fish	Oil sardine			Units	Total fish	Oil sardine		
	E	C (kg)	C (kg)	C/E (kg)	%	E	C (kg)	C (kg)	C/E (kg)	%
Oct. 1991	8,050	1,600,736	7,418	0.9	0.5	1,176	208,196	2,100	1.8	1.0
Nov. 1991	8,814	1,815,272	39,990	4.5	2.2	1,200	307,520	8,550	7.1	2.8
Dec. 1991	8,615	1,705,629	100,032	11.6	5.9	1,644	383,482	11,375	6.9	3.0
Total	25,479	5,121,637	147,440	5.8	2.8	4,020	899,198	22,025	5.5	2.4
Oct-Dec. 1990	15,179	3,255,192	75,276	4.9	2.3	3,915	-	32,349	8.3	-

TABLE 4. Size composition of Oil sardine

Rameswaram - Pair trawlers -		Day fishing
Month	Size group (mm)	Dominant modes (mm)
Jan. 1992	120 - 190	130, 145, 170,
Feb. 1992	130 - 185	145, 170
Pamban - Pair trawling		
Jan. 1992	120 - 189	170
Feb. 1992	120 - 193	130, 175
Rameswaram - Shrimp trawlers - Night fishing		
Oct. 1991	165 - 190	175
Nov. 1991	105 - 190	120, 170, 180
Dec. 1991	125 - 185	135, 175

at Mandapam during October-November to March-April. 668 t of oil sardine was landed at a C/E of 3,358 kg for the period December 1990 to April 1991.

**Size composition**

In the pair trawlers the size ranged from 123-194 mm with modes at 130, 145 and 170 mm, whereas in the shrimp trawlers the size ranged from 105 to 191 mm with modes at 120, 135 and 175 mm. The fishery in general was supported by 165-175 mm size groups.

**Sex ratio and maturity**

The oil sardines landed by the shrimp trawlers (night fishing) was almost in a spoiled



Fig. 1. A pair trawl unit with deckful of oil sardine.



Fig. 2. Transportation of the catch in cycle cart to the packing site.

condition. Examination showed that they were in spent condition during October to December. Females dominated. Females dominated during January and males during February. All specimens were in the resting stage.

#### **Food and feeding**

Studies during January and February revealed that the stomachs of all the specimens



Fig. 3. Catch before packing with ice.

were empty. Most of them were lean with the head remaining more prominent than the body showing a starved appearance.

#### **Catch disposal**

In the early afternoon the catch in general fetches good price ranging from Rs. 8,000 to Rs. 6,000 per t. By late evening the price goes down to Rs. 3,000 to Rs. 2,000 per t. The catch is auctioned. They are accurately weighed in large baskets of 50-60 kg and transported by cycle cart to the nearby packing site. Daily 30-40 lorries and vans come from Kerala. They bring ice also with them as there may sometimes be shortage of ice. The catch is taken to markets in Kerala such as Quilon, Kottayam, Mavelikkara, Punaloor, Thevally, etc.

A detailed report on the monthly catch, seasonal pattern and biological characteristics covering all the gears in operation in this area and the migratory pattern correlating with the environment is under preparation.