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UNUSUALLY HEAVY CATCHES OF RIBBON FISH CLOSE TO THE SHORE AT VISAKHAPATNAM*

Very heavy catches of ribbonfish were observed quite close to the shore at Visakhapatnam for a very short duration. Observations were made on this fishery and certain important biological aspects and the results are presented.

Fishery

A shoal of ribbon fish, *Lepturacanthus savala* (Cuvier) made its appearance on 7-4-81 at the harbour entrance channel, lasted through the next two days moving northwards towards Lawson's Bay and disappeared by 10-4-81 (Table 1).

On 8-4-81, one shore-seine landed a record catch of 5 tonnes, at Lawson's Bay. Most of the nets landed exclusively ribbonfish. Some shore-seines which did not land ribbonfish on that day landed small quantities of miscellaneous fish eg., juveniles of *Leiognathus*

sp., *Gazza* sp., *Sillago* sp., *Sardinella gibbosa*, *Stolephorus devisi*, *Rastrelliger kanagurta*, *Sepia* sp., *Loligo* sp., *Selar crumenophthalmus* etc.

The shore-seines operated within 1 km from the shore (Fig. 1) many units performed 3-5 operations. Small trawlers operating 2-4 km from the shore landed *L. savala* together with *Decapterus dayi* and *Psenes indicus*.

By 9-4-81 the intensity of the ribbonfish catch dwindled. Boat-seines did not land ribbonfish at the harbour channel. Shore-seines did not operate due to a local festival. Small trawlers operating 3-5 km off the coast landed 1.5 tonnes of ribbonfish, alongwith *Nemipterus japonicus*, *Decapterus dayi* and *Psenes indicus*. On 10-4-81 ribbonfish were not caught by any of the gears.

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Table 1. Details of fishery of *Lepturacanthus savala*

Date	Area	Gear	No. of units	Effort in man hours	Total estimated catch (tonnes)	Catch of <i>L. savala</i> (tonnes)	% of <i>L. savala</i>
7-4-81	Harbour Entrance Channel	Boat seine	25	375	15.5	15	98
-do-	Pithapuram Beach	Shore seine	5	150	1 (Lesser sardines and misc.)	0	0
-do-	Lawson's Bay	-do-	12	325	2.5 (Lesser sardines and misc.)	0	0
8-4-81	Harbour Entrance Channel	Boat seine	No operations				
-do-	Pithapuram Beach	Shore seine	1	30	40 kg (misc.)	0	0
-do-	Lawson's Bay	-do-	60	1800	91	90	99
-do-	Off shore (2-3 km)	Mechanised trawlers	33	—	3.6	1.3	35
9-4-81	Harbour Entrance Channel	Boat seine	20	300	2	0	
-do-	Pithapuram Beach	Shore seine	No operations				
-do-	Lawson's Bay	-do-	"	"			
-do-	Off shore (4-5 km)	Small trawlers	56	—	11.1	1.9	17



Fig. 1. Shore seines in operation.

Biological observations

The entire catch of ribbonfish was composed of only one species, viz., *Lepturacanthus savala* (Fig. 2). Length measurements of random samples from shore-seine landings of 8-4-81 at Lawson's Bay revealed that the total length ranged from 540 to 750 mm. 67% of the fish ranged from 580-640 mm in total length. The mode was located at 620-629 mm size group. The average weight of the fish was 13.7 g.

Stomach content analysis of the shore-seine sample showed that 18% of the guts were full, 45% were 3/4th full, 23% half full and 14% 1/4th full. Empty guts were not encountered in the fish landed by shore-seine, whereas in the boat-seine samples 50% guts were empty and in trawl samples 90% guts were empty.

The food items in the guts were in fairly fresh condition indicating recent feeding. The major food items were *Stolephorus* sp., *Leiognathus* sp., mullets, *Solenocera* sp., and *Acetes* sp. Partly digested fish remains were present in all the guts examined.

Maturity studies indicated that all the fish examined were in spent condition. The ratio between females and males was 81:19 in shore-seine samples, 75:25 in boat-seine samples and 50:50 in trawler samples.

Routine sampling at Lawson's Bay on 14-4-81 showed large quantities of very young *L. savala* measuring 90-170 mm in total length in the shore-seine landings. This would indicate that *L. savala* spawned very recently in the immediate vicinity of Visakhapatnam.

Remarks

Ribbonfish do not generally come very close to the

shore. As such they are very rarely caught in the shore-seines. They are normally caught in boat-seines operating 3-4 km away from the shore and in trawl nets.

The unusual appearance of ribbonfish so close to the shore ($\frac{1}{4}$ - 1 km from the shore), the spent condition of the gonads, the intensity of feeding and the nature of stomach contents show that the fish have hit the shore in search of food after spawning. The similarity of the stomach contents and the miscellaneous catch of the shore-seine vindicate this view.

The appearance of ribbon fish on 7-4-81 in the boat-seines and again in the shore-seines further north and



Fig. 2. Ribbon fish, *Lepturacanthus savala* (Cuvier).

closer to the shore on 8-4-81 indicate that the shoal moved northwards and entered the shore-seine grounds in search of prey. The drop in the catch on 9-4-81 and the total disappearance of the fish on 10-4-81 show that most of the shoal was fished and the remaining shoal moved away from the shore after 8-4-81.

The sea surface temperature on 7-4-81 was 21°C, the dissolved oxygen 4.2 ml/l and the phosphate concentration 0.175 µg at/l. These observations i.e., the relatively low temperature and oxygen concentration and high phosphate levels indicate possible upwelling, which is normal in March-April along the northern Andhra coast. The appearance of *Psenes indicus* and *Decapterus dayi* which prefer colder waters in the fishery would also indicate upwelling. It is possible that the ribbon fish shoal after spawning hit the shore chasing their food consisting of *Stolephorus* sp., *Leiognathus* sp. etc. which might have been moving closer to the shore to avoid the cold upwelled water.

