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Note

Unusual landings of the bluntnose lizardfish *Trachinocephalus myops* (Forster, 1801) at Chennai, with a note on some aspects of biology

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Abstract

Unusual landings (3.65 t) of the bluntnose lizardfish *Trachinocephalus myops* (Forster, 1801) was recorded at Chennai Fisheries Harbour in April 2007. This is the first record of *T. myops* in large numbers in the commercial landings at Chennai. Parameters of the length-weight relationship were derived as a = 0.0000076 and b = 3.047. The male-female sex ratio was 1.15: 1. Analysis of gut content showed that 21.2% of fishes had full and gorged stomach. The fish has a preference for fishes, followed by shrimps.

The snakefish or bluntnose lizardfish, *Trachinocephalus myops* (Forster, 1801) belongs to the family Synodontidae of the Order Aulopiformes. It is distributed in the tropical waters of the Atlantic, Pacific and Indian Oceans. *T. myops* is also called painted lizardfish (Cressey, 1986). It does not form a major commercial fishery and is not generally valued as a food fish, except in Southeast Asia. It inhabits muddy bottoms of bays and coastal waters (Fischer and Whitehead, 1974), the sandy bottoms of outer reef slopes up to 200 m and estuaries (Cressey, 1986). *T. myops* buries in the sand with only the eyes exposed.

Appa Rao (1991) reported that *T. myops* formed 5% of the lizardfish landings at Visakhapatnam during April 1986-August 1987 and discussed some aspects of the biology of the species. Although the species is known to occur in the Eastern Indian Ocean (Fischer and Whitehead, 1974), there has not been any report on fishery or biology of this species from any other part of the Indian coast. The lizardfish landings by trawlers nets at Chennai is composed almost entirely of *Saurida undosquamis.* In April 2007, however, the lizardfish catch comprised chiefly of *T. myops*, along with *S. tumbil, S. micropectoralis*, *S. undosquamis* and *Synodus indicus* (personal observation). The present study is related to some aspects of biology of *T. myops.*

Materials and methods

Data on catch, effort and species composition of lizardfishes landed at Chennai Fisheries Harbour were collected during the first fortnight of April 2007. Trawling was closed along the coast from 15th April to 30th May. The species composition of lizardfish in the trawl landings was determined from random samples (n = 200) collected before sorting. The samples of *T. myops* (n = 146) were examined for length distribution, length-weight relationship, maturity stage and gut content. The length-weight relationship was determined separately for the two sexes by linear regression after log transformation and expressed in the exponential form

$$W = a L^b$$

where, W = weight in g and L = total length in mm.

Analysis of covariance was performed to test the equality of the two regression lines. Feeding condition was noted by the degree of fullness of the gut and classified as empty (E), traces (T), quarter-full (Q), half-full (H), three-fourth full (TF), Full (F) and gorged (G). The gut contents were identified and ranked according to the percentage of occurrence of each food item (in terms of number) in the gut (Natarajan and Jhingran, 1961). The

maturity stages were classified based on the appearance of the gonads. Female maturity stages were defined as immature, early maturing, late maturing, mature, spawning and spent; and male maturity stages as immature, maturing and mature.

Results and Discussion

Fishery and species composition: The commercial trawlers based at Chennai operate from Pudupatnam (50 km south off Chennai) to Masulipatnam (350 km north off Chennai) at a distance ranging from 4 to 18 km from the shore. The depth of operation ranges from 10 to 80 m. The mesh size of the cod end of trawlnets usually ranges between 10 and 15 mm. The sea bottom is sandy and clayey. A total of 622 trawl units, expending 10,901 actual fishing hours landed 281 t of fish (including crustaceans and cepahalopods) at Chennai Fisheries Harbour in April 2007. The quantity of lizardfishes was 5 t, forming 1.8% of the total catch. The catch rate of lizardfishes was 0.46 kg per hour. *T. myops* formed 73.0% (3.65 t) of the lizardfish landings, followed by *Synodus indicus* (10.5%), *Saurida tumbil* (10.0%), *S. undosquamis* (5.5%) and *S. micropectoralis* (1.0%).

***Morphological characters*:** *T. myops* has a tubular, elongate body (Fig.1) lacking the rigidity seen in some lizardfish species like *S. tumbil*. The mouth is large and oblique, with a row of sharp needle-like teeth, visible even when the mouth is closed. It has 11–14 dorsal rays; 13–18 anal rays, and 11–13 pectoral fin rays. There are 51–61 lateral line scales and 3.5 scales above the lateral line.

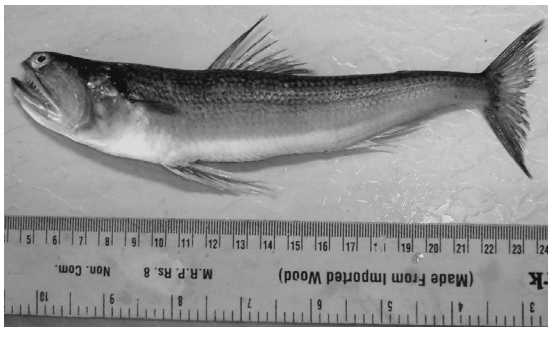

Fig. 1. *Trachinocephalus myops* landed by trawlers at Chennai

Alternating blue and yellow longitudinal stripes are present on the body. A conspicuous oblique dark spot is seen at the upper edge of the opercle.

Size range, sex ratio and maturity stage distribution: The length of the sampled specimens ranged from 89 to 197 mm and weight from 6 to 72 g. The length and weight of males were 108-197 mm and 11-72 g and those of the females were 89-188 mm and 6-70 g. The male-female sex ratio was 1.15: 1. The length distribution is shown in Fig. 2. Of the males, 65.4% were mature while 17.9% and 16.7% were with maturing and immature gonads, respectively. Of the females, 20.0% were immature, 19.7% in early stages of gonadal maturation, 16.2% in advanced stages of maturation, 35.3% mature, 2.9% in spawning stage and 5.9% with spent ovaries.

Length-weight relationship: The length-weight relationships derived for male and female *T. myops* were:

Males : $W = 0.0000131\ L^{2.939}$ ($r = 0.961$)

Females : $W = 0.0000047\ L^{3.141}$ ($r = 0.982$)

Analysis of covariance (Table 1) showed that neither the slopes nor the elevations differed significantly between the sexes ($\alpha' < 0.05$). Hence, a common equation (Fig. 3) was derived as

$W = 0.0000076\ L^{3.047}$ ($r = 0.974$)

Appa Rao (1991) estimated the regression coefficient 'b' to be 2.9583 for males and 3.0633 for females. Since the two values did not show statistically significant difference, he derived a common length-weight equation for males and females, with b = 3.0662. Pauly *et al*. (1998) estimated the 'b' value as 3.00 for *T. myops* (unsexed), from the BRAINS table.

Food and feeding: The guts of 78 males and 68 females were examined for feeding state and food preference. A large number of fishes, 52.7% showed empty guts while 20.5% and 0.7% were with full and gorged guts, respectively (Fig. 4). Males showed better feeding state with only 47.4% empty guts while 58.8% of the females showed empty guts. Table 2 shows the percentage

Table 1. *Comparison of length-weight regression of male and female T.* myops by *Analysis of Covariance*

Parameter	d.f.	b	Deviation from regression		
			d.f.	SS	MS
Males	77	2.9389	76	0.7551	0.0099
Females	67	3.1413	66	0.5811	0.0088
Pooled			142	1.3362	0.0094
Common	144	3.0588	143	1.3621	0.0095
Regression Coefficients			1	0.0259	0.0259
Total	145	3.0471	144	1.3712	0.0095
Adjusted Means			1	0.0092	0.0092

Comparison of slope: 2.751 (F = 3.907; $\alpha = ^{'}$ 0.05, 1,143 d.f.) *NS*
Comparison of elevation: 0.961 (F = 3.907; $\alpha^{'}$ = 0.05, 1,144 d.f.) *NS*

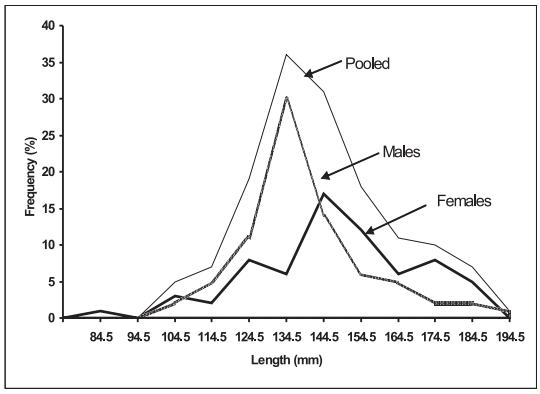

Fig. 2. Length distribution of *T. myops* in trawl landings at Chennai

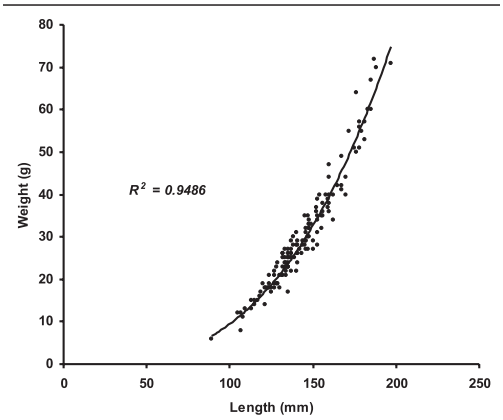

Fig. 3. Length-weight regression of *T. myops* (sexes pooled)

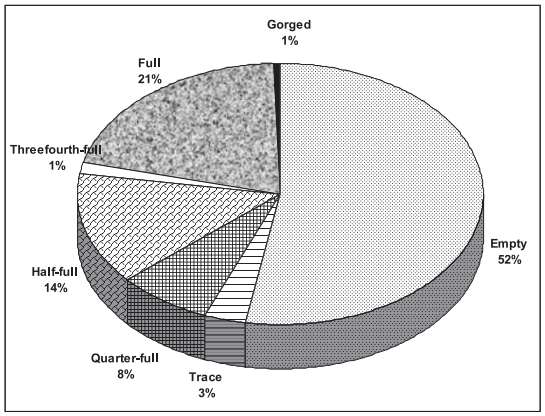

Fig. 4. Percentage distribution of feeding state

distribution of feeding states among males and females.

Gut content analysis revealed that *T. myops* is a carnivore with cannibalism. Fishes constituted 50.0% of the diet, followed by crustaceans (43.6%) and molluscs (6.4%). Among the fishes, dragonets formed 30.8%, followed by flatheads (15.4%), lizardfishes (12.8%), goatfishes (7.7%), silverbellies (5.1%) and *Stolephorus* sp. (2.6%). Unidentifiable fish matter (in a semi-digested state) comprised 25.6%. The shrimp *Metapenaeopsis stridulans* formed 61.8% of the crustacean component, while crab remains constituted around 20.6% and the rest by shrimp remains and appendages. Squid remains, particularly the tentacles, formed 80% of

Table 2. *Percentage distribution of feeding states in* T. myops *(males and females)*

Stomach condition	Males (%)	Females (%)
Empty (E)	47.4	58.8
Traces present (T)	5.1	1.5
Quarter-full (QF)	12.8	1.5
Half-full (HF)	11.5	16.2
Threefourth-full (TF)	1.3	1.5
Full (F)	21.5	19.1
Gorged (G)	0.4	1.4

the molluscan components in the gut contents, and pieces of bivalve and gastropod shells constituted 20%. Appa Rao (1991) reported that the teleosts (particularly, *Leiognathus* sp. and *Stolephorus* sp.) and crustaceans (especially, *Penaeus* sp., *Metapenaeus* sp., *Solenocera* sp. and *Squilla* sp.) formed the main food of *T. myops* along the Visakhapatnam coast.

Earlier records show that the lizardfish fishery off Chennai predominantly consisted of *S. undosquamis*. The landing of *T. myops* along with four other species of lizardfish in April 2007 indicates a possible change in the species composition of the fishery. Continuous monitoring of the trawl landings is necessary to confirm whether a new fishery is emerging along the Chennai coast.

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