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LENGTH-WEIGHT RELATIONSHIP IN THE CUTTLEFISH *SEPIELLA INERMIS* ORBIGNY OF KAKINADA COAST

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ABSTRACT

The length-weight relationship of the cuttlefish *Sepiella inermis* was studied. As there was no difference between males and females a common regression equation was fitted to indicate the relationship. It was observed that the growth in weight in relation to length is allometric in this species.

Sepiella inermis formed 32% of the cuttlefish catch landed by commercial trawlers at Kakinada during 1976-'80. Various aspects of the biology of this species were studied by Unnithan (1982) and Silas *et al.* (1985). Hower, except for the work in the Mandapam area, there is no other published account on the length-weight relationship of this species.

The length (dorsal mantle length) - weight relationship was studied in 44 males of the length range 27 - 62 mm and 42 females measuring 42-85 mm collected during 1980 from the commercial trawl landings at Kakinada Fisheries Harbour. The length was measured to the nearest mm and weight recorded to the nearest 0.5 g.

The length-weight relationship was curvilinear and hence on logarithmic transformation, the length-weight equation was found to be as follows :

Males : Log W = -2.4173 + 2.2808 Log L
Females : Log W = -2.4562 + 2.3016 Log L
where W is the weight and L the length.

Analysis of covariance of the regression leines (Snedecor and Cochran, 1967) showed that both the slopes and the elevations were not significantly different at 5% probability (Table 1). Hence, the data for both the sexes were combined and a single regression equation for the species was calculated as:

$$\text{Log } W = -2.4147 + 2.2787 \text{ Log } L$$

The corresponding equation may be represented as:

$$W = .003849\ L^{2.2787} \quad W = .003849\ L^{2.2787}$$

The correlation coefficient for the regression was found to be 0.9708 which was highly significant (d.f. = 84, r 5% = 0.21 and r 1% = 0.28). The t test was applied to see whether the regression coefficient differed from 3. The value of t was 13.34 and it was found to be significantly different (d.f. = 84, t 1% = 1.99 and t 5% = 2.63) suggesting that the growth in weight in relation to length in *S. inermis* was allometric. In this species, Unnithan (1982) obtained regression coeffi-

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TABLE 1. *Comparison of the regression lines of length-weight relationship of* Sepiella inermis

	d.f. n-1	x^2	xy	Y^2	b	Deviation from regressions d.f.	S.S.	M.S.
Within males	43	0.20175	0.46016	1.14115	2.2808	42	0.091597	0.002181
Within females	41	0.13765	0.31682	0.80661	2.3016	40	0.077406	0.001935
Pooled (within) common	84	0.33940	0.77698	1.94776	2.2893	83	0.169039	0.002037
						1	0.000036	0.000036
Slope Between	1	0.19157	0.43296	0.97851				
Total	85	0.53097	1.20994	2.92627	2.2787	84	0.16914	
Adjusted means						1	0.000101	0.000101

Comparison of slopes : $F = \frac{0.002061}{0.000036} = 57.25$ (d.f. = 82, 1) Not significant

Comparison of elevation : $F = \frac{0.002037}{0.000101} = 20.17$ (d.f. = 83, 1) Not significant

ciet values of 1.9320 in males and 2.3208 in females, and found significant differences in the regression equations between the sexes. It is of interest to note that these values of the regression coefficient are considerably lower than 3, a situation similar to the one noted in the present study (Table 1).

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