A NOTE ON THE LENGTH-WEIGHT RELATIONSHIP OF *NEMIPTERUS RANDALLI* RUSSELL OFF VISAKHAPATNAM COAST*

ABSTRACT

Analysis of covariance conducted to test the difference between the 'b' values of the length-weight relationship of males and females of *Nemipterus randalli*, showed a significant difference between two sexes. A single length-weight relationship is given for both sexes. Relative condition factor for females did not show a clear-cut demarcation for spawning season.

NEMIPTERIDS commonly known as threadfin breams are one of the dominant elements among

TABLE 1. *Comparison of regression lines of length-weight relationship in males and females of N. randalli*

	D.F.	ΣX^2	ΣY^2	ΣXY	Regression coeffecient	Deviation from regression D.F.	S.S.	M.S.S
Within								
Females	321	1.120737	8.048994	2.719670	2.426679	320	1.44922845	
Males	347	0.959431	7.973751	2.5962220	2.706001	346	0.94837652	
						666	2.39760497	0.00360001
Pooled	668	2.080168	16.022745	5.315890	2.555510	667	2.43793507	0.00365508
	Difference between slopes					1	0.04033009	0.04033009
Between	1	0.576964	4.381051	1.589877				
Total	669	2.657132	20.403796	6.905767	2.598955	668	2.45601700	0.00367667
	Between adjusted means					1	0.01808193	0.01808193
Slopes	F= 11.20278183	1,666			D.F.		Significant at 5% level	
Elevations	F = 4.947707359	1,667			D.F.		Significant at 5% level	

the demersal fishery resources of India. These are mainly exploited by small commercial trawlers at depths of 50-100 m all along the Indian coast. Among the 10 species of nemipterids, *N. japonicus* and *N. randalli* dominated the catches at Visakhapatnam coast. *N. randalli* constitute a seasonal fishery occuring from November to July.

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MATERIAL AND METHODS

The present study is based on the length and weight data of 322 females ranging in size from 61 to 180 mm total length and 5 g to 71 g in weight and 384 males ranging in size from 100 mm to 202 mm total length and 14 g to 105 g in weight collected during the period May 1995 to April 1996. Measurements

of total length (nearest 0.5 mm) and weight (nearest 0.25 g) of the fish were taken in fresh condition, after removing the excess of moisture

FIG. 1. *Scatter diagram showing relationship between length and weight in males of* N. randalli.

by blotting paper. The specimens were incised to note the sex. In fish the length—weight relationship can be conveniently expressed as $W = aL^B$ or in the logarithmic form $\log W = \log a + b \log L$ (Le Cren, 1951) where W = weight of the fish in g; L = length of the fish in mm and a, b constants. The relative condition factor $Kn = W/\hat{W}$ was calculated following Le Cren (1951), where W = observed weight; $\hat{W}$ calculated weight according to the regression equation.

RESULTS AND DISCUSSION

Estimation of the constants 'a' and 'b' in the linear form were made using the method of least squares in the logarithmic form.

| Males: | log W = | -4.23023 + 2.706001 log L | (r = 0.94) |
| Females: | log W = | -3.64764 + 2.426679 log L | (r = 0.91) |

For testing the difference between the regression slopes of males and females, analysis
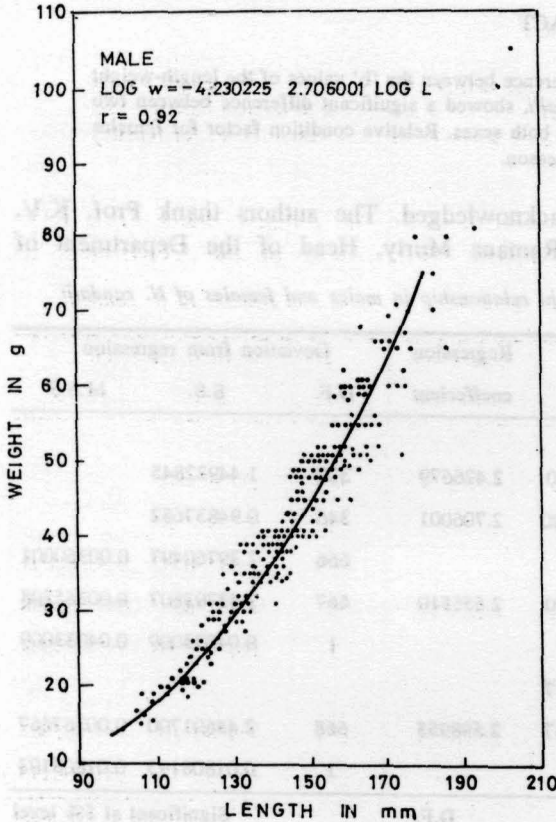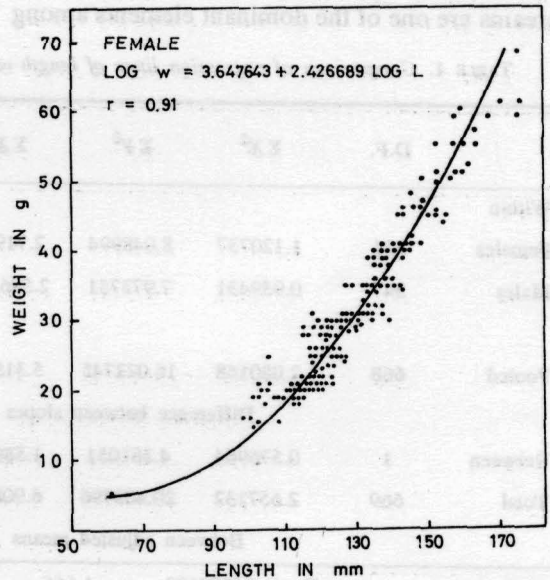

FIG. 2. *Scatter diagram showing relationship between length and weight in females of* N. randalli.

of covariance (Snedecor and Cochran, 1967) is employed. Results of covariance are given in Table 1. Since 'F' value is significant at 5% level, it can be suggested that the difference between slopes and elevations of females and males is significant. The length-weight data of females and males can be pooled to obtain a common regression equation for both the sexes

$$\log W = -4.00397 + 2.59896 \log L$$

The scatter diagram of observed weight against length of all the specimens reveals a curvi-linear relation between the two variables. The calculated curves for total length and total

FIG. 3. *a. Relative condition factor in females of N. randalli in different length groups., b. Relative condition factor in females of N. randalli in different months*

weight of males and females are presented in Fig. 1 and 2.

RELATIVE CONDITION FACTOR

Variations in the relative condition factor in the different months and in different size groups were studied for females (fig. 3a, b). Seasonal variation in relative condition factor shows high values in May, June, December and February, and low values in January, March and April. Relative condition factor related to season in *N.randalli* is not expressed clearly because samples were not available throughout the year.

Study of the relative condition factor corresponding to the different size groups in females showed gradual increase in the value from 85 mm and reached a peak at 95 mm and declined thereafter at 115 mm and again reached another peak at 155 mm then declined at 175 mm.

Krishna Moorthy (1972) gave two separate expressions of length-weight relationship for males and females of *N. japonicus* caught off Andhra–Orissa coasts. Comparison of regression line showed significant difference between the slopes of the two sexes. Vinci and Kesavan Nair (1974) studied *N. japonicus* collected from Kerala coast and their samples did not show significant difference between the regression slopes of the two sexes. Murty (1984) made a detailed study of length-weight relationship in *N. japonicus* from Kakinada and he expressed significant difference between regression slopes of immature and mature females and males. Murty (1981) gave two separate expression of length-weight relationship for males and females of *N. mesoprion* from Kakinada, the comparison of regression lines did not show significant difference between the slopes of males and females. Samuel (1990) gave two separate expressions of length-weight relationship for males and females of *N. japonicus* from Kuwait waters, since comparison of regression line showed significant difference at 1% level between the slopes of both the sexes. The comparison of regression in the present investigation showed significant difference between males and females of *N. randalli* from Visakhapatnam coast.
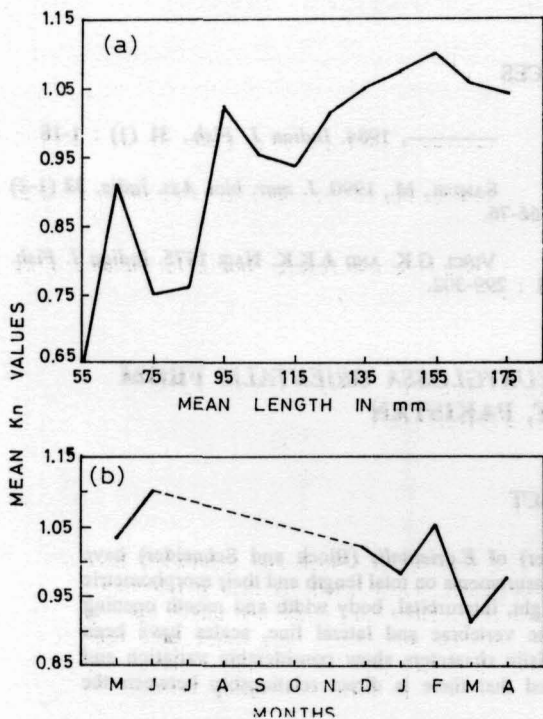
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ON SOME MORPHOMETRICS OF *EURYGLOSSA ORIENTALIS* FROM KARACHI COAST, PAKISTAN

ABSTRACT

The morphometric and meristic count (character) of *E.orientalis* (Bloch and Schneider) have been analysed. Regression equation of different body measurements on total length and their morphometric indices are compared. Differences for total length, weight, interorbital, body width and mouth opening are statistically significant. Rays of unpaired fins, the vertebrae and lateral line, scales have been counted and calculated (coefficient of variation). Meristic characters show considerable variation and statistical interpretation of morphometric data indicated that there is direct relationship between the head length, depth of body and total length.

Euryglossa orientalis (Bloch and Schneider) plays a significant role in fisheries throughout the Indo-Pacific region. It is the most commercially important oriental sole in the coastal waters of Pakistan, constituting a significant portion of the food sources for the rapidly growing population of the country.

Several authors have worked on the biology and taxonomy of *E.orientalis* (Bl. and Schn.). Some of the studies on morphometric in different species are the works of Dwivedi and Meneze (1974), Ezzat (1979), Meneze (1980), Hoda (1979, 1988), Hoda and Qureshi (1995) and Habibur Rehman *et al.* (1997). But

no such work is available from Pakistan on morphometric and meristic studies. The present paper deals with the morphometric character of *E.orientalis* with the aim of confirming the identity of the local population. This work intended to study the possible variations in the morphometric measurements and meristic counts of *E.orientalis* as a result of its adaptation to the environment and aim at clarifying their identity in the local population along the Karachi coast facing northern Arabian Sea.