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Short Communication

Some aspects of biology of threadfin bream *Nemipterus delagoae* from Tuticorin waters

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Abstract

Length - weight relationship, food and fecundity of the threadfin bream, *Nemipterus delagoae* collected from Tuticorin waters were studied. The length - weight relationship of *N. delagoae* was estimated as Log W = -1.2418 + 2.4894 Log L (r = 0.9668). The major food items were crustaceans and fishes. The fecundity increased with increase in length and weight of the fish (745 to 5392).

Keywords: *Nemipterus delagoae*, length frequency, gut content, fecundity

Introduction

Threadfin breams are commercially important fishery resource and constitute more than 50% of the total perch landings in India (Kasim *et al.,* 1989). Considerable research work on taxonomy, biology and population dynamics of *Nemipterus* spp. has been carried out by Vivekanandan and James (1986), Mohan and Velayuthan (1988), Raje (2002), Zacharia and Nataraja (2003), Manoj Kumar (2004) and Joshi (2005).

The fishery of threadfin breams in Tuticorin is sustained mostly by *N. delagoae* and the occurrence of other species was very much limited. The predominant occurrence, commercial and economic importance of the species prompted to conduct a study on the length - weight relationship, food and fecundity of *N. delagoae* at Tuticorin.

Material and Methods

Samples of *N. delagoae* were collected every week (n = 100) from commercial landings at Tuticorin Fishing Harbor during October 2007 to January 2008. Length - weight relationship of 1700 specimens of length range 11.9 to 28.9 cm (TL) and weight range 20 to 168 g was calculated following LeCren (1951) $W = aL^b$.

Each week 25 *N. delagoae* were examined to study the gut contents. The number of individuals of each type of food in each stomach was counted and summed up to arrive at the total of each type of food items present. The percentage of each food item was recorded.

For fecundity studies, fully mature females were selected. Five fishes in each month were collected and preserved in 5% formaldehyde. The total number of eggs was estimated from the known weight of the samples and of the full ovary by following the formula:

$$\text{Fecundity} = \frac{\text{No. of eggs in the samples}}{\text{Total weight of the samples}} \times \text{total weight of the ovary}$$

Results and Discussion

Length – weight relationship: The length – weight relationship of *Nemipterus delagoae* was estimated as Log W = -1.2418 + 2.4894 Log L (r = 0.9668). Hamsa *et al*. (1994) reported the relationship for the same species as Log W = -5.0547 + 3.0508 Log L; and Joshi (2005) reported for *N. mesoprion* Log W = -4.7007 + 2.9268 Log L.

Length composition and mean size: The length range of *N. delagoae* from Tuticorin waters was 11.9 to 28.8 cm (Table 1). The mean length ranged

Table 1. Length range and mean length of *N. delagoae* from Tuticorin waters (October 2007-January 2008)

Month	No. of Fish examined	Length range (cm) Minimum (cm)	Maximum (cm)	Mean length (cm)	Mean Deviation	Standard Deviation
October 07	400	11.9	28.8	17.01	2.21	1.05
November 07	400	11.9	24.7	16.78	2.34	0.45
December 07	500	11.9	26.1	16.94	2.86	0.56
January 08	400	11.9	26.3	17.09	3.06	0.68

from 16.8 to 17.1 cm. Chakraborty *et al*. (2005) reported the length range of *N. mesoprion* and *N. japonicus* as 3.0 to 30.9 cm and 6.0 cm to 32.9 respectively.

Fecundity: The fecundity ranged from 754 eggs to 5392 eggs in fishes of 14 to 26 cm length range and weight 43 to 143 g (Table 2). The fecundity of *N. delagoae* against fish length showed that the number of eggs increased with length and weight of the fish. The results obtained in the present study agree with the results on *N. japonicus* from Visakhapatnam (Dan, 1977).

Table 2. Length, weight, ovary weight and fecundity of *N. delagoae* from Tuticorin waters (n = 5)

Month	Length (cm)	Weight (g)	Weight of gonads (g)	Fecundity
October 2007	14 – 20.4	47 – 118	3.0 – 5.5	2126 – 3952
November 2007	14.1 – 19.1	43 – 103	1.3 – 4.2	754 – 2975
December 2007	17 – 19.2	63 – 97	3.1 – 4.38	2718 – 4799
January 2008	17.4 – 26	74 – 143	3.0 – 4.0	2346 – 5392

Gut content: A total of 425 stomachs of *N. delagoae* were examined to study the gut contents. The monthwise percentage of different food items is shown in Fig. 1. The qualitative analysis of food revealed that *N. delagoae* is a carnivore and feeds on crustaceans and fishes. Similar results were observed in *N. delagoae* (Hamsa *et al*., 1994) and in *N. mesoprion* (Zacharia and Nataraj, 2003; Joshi, 2005).

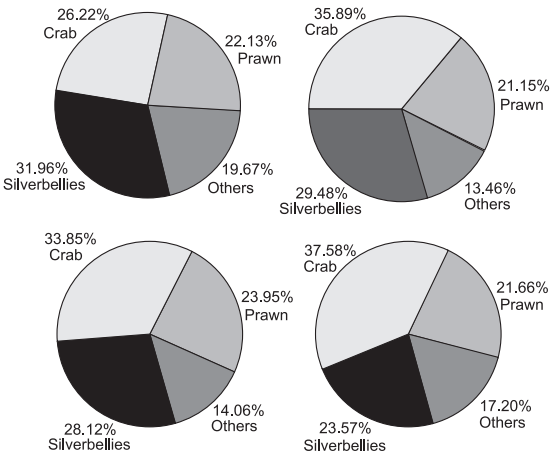

Fig. 1. Percentage of food items in the stomach of *Nemipterus delagoae* from Tuticorin waters

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