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Note

Length-weight relationship and relative condition of *Scarus ghobban* Forsskal, 1775 from Palk Bay

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ABSTRACT

Scarus ghobban collected from the Palk Bay, south-east coast of india was subjected to studies on length-weight relationship as well as condition factor. The length-weight relationship was found to be $W= 0.022473519\ L^{2.9040}$, indicating isometric growth of the fish. The relative condition factor (K_n) ranged between 0.8 and 1.5 with a mean value of 1.0.

Keywords: Length-weight relationship, Palk Bay, Relative condition, *Scarus ghobban*

The yellowscale parrotfish, *Scarus ghobban* belonging to the family Scaridae, is an attractive coloured fish, found in groups in lagoons and creeks as well as on coral reefs. Being a grazer on shallow benthic algae, the fish exhibits striking sexual dichromatism. It also exhibits distinctive distinguishing characters in both initial as well as in terminal phases. Because of its colour, it is an attractive species in the marine ornamental fish trade. *S. ghobban* enjoys a wide distribution and has been recorded from the Red Sea, the Gulf south to Natal on the East African coast eastward to the West Indian Ocean island groups, the coasts of India and Sri Lanka, the Eastern Indian Ocean and the western and eastern tropical Pacific. It is caught mainly with traps, nets and other kinds of artisanal gears (Fischer and Bianchi, 1984) and finds a good live fish market in Hong Kong fetching a very good price (Christine Lee and Yvonne sadovp, 1998).

Realising the importance of this resource, Prabhu (1954) made a detailed study, including the length-weight relationship of *S. ghobban*, based on the specimens collected from the Gulf of Mannar. Letourneur *et al*. (1998) analysed the length-weight relationship of this species, while studying fish from coral reefs and lagoons of New Caledonia. Murty (2002) described the length-weight relationship of this species, while studying the marine ornamental fish resources of Lakshadweep. However, there is no such information available so far on *S. ghobban* collected from Palk Bay. Hence, the present investigation aims to elucidate length-weight relationship and relative condition factor of *S. ghobban* Forsskal, 1775, in order to acquire knowledge about the biology and fishery, as there is a growing demand for this species in the marine ornamental fish trade in India. *S. ghobban* weighing more than 500 g is being exported from this area.

The material for the present study was collected from the perch traps deployed in the Palk Bay off Olaikuda during April-November 2006, when the sea was calm. Total length in mm was measured from the tip of snout to tip of caudal lobe and the weight recorded in grams. A total of 126 fishes in the length range between 140 and 458 mm were measured and weighed in fresh condition. The length-weight relationship was calculated by least square method using the equation, Log W= log a+ b log L, where, W = weight in g, L = total length in mm and 'a' and 'b' are constants. The relative condition or Ponderel index was estimated by using the equation $K_n = W/w$, where W= observed weight and w = mean weight of each size group calculated from the length-weight relationship.

The study indicated that the specimens examined belonged to the length range of 140-458 mm. In an earlier study, Prabhu (1954) recorded a length range of 90-227 mm for this species collected from the Gulf of Mannar. Lal Mohan (1985) observed a length range of 113-223 mm for *S. gobban* collected from both the Gulf of Mannar and Palk Bay. Hence, it is worthwhile to note that the maximum length of *S. ghobban* collected from Palk Bay increased considerably over the years, from 223 mm in 1985 to 458 mm during the present investigation. This difference in size may be due to the change in fishing ground to deeper waters by employing motorized fishing crafts. In another study, Murty (2002) observed a length range of 102-275 mm for *S. ghobban* collected from Lakshadweep lagoons.

The length-weight relationship of *S. ghobban* was found to be $W=0.022473519\ L^{2.9040}$ and r^2 obtained was 0.987656 during the present investigation. The length-weight relationship (Fig. 1) followed the cubic law, which describes the isometric growth of the fish in the Palk Bay.

Earlier, Prabhu (1954) observed a length-weight relationship of $W = 0.02256\ L^{2.8935}$ for *S. ghobban* collected from the Gulf of Mannar. This relationship is in close correlation with that of the present study. Thus, it indicates that the length-weight relationship of *S. ghobban* collected from both Palk Bay and Gulf of Mannar are almost the same. This may be due to the fact that fishing is practised from coral reef areas in both the Gulf of Mannar and Palk Bay.

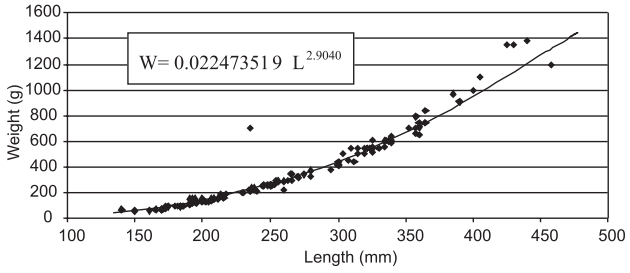

Fig. 1. Length-weight relationship of *Scarus ghobban* collected from palk Bay

The relative condition factor and its relationship with the number of fishes examined having different lengths are depicted in Fig. 2.

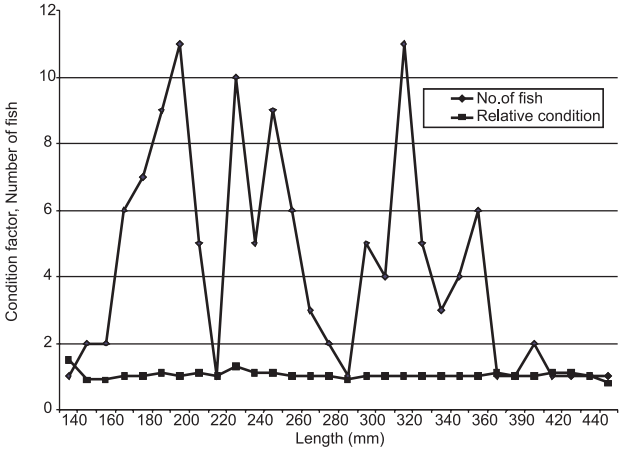

Fig. 2. Relative condition factor and number of fishes at different lengths

The relative condition factor (K_n) obtained for *S. ghobban* ranged between 0.8 and 1.5 with mean value of 1.0. The relative condition of *S. ghobban* does not indicate a regular changing pattern over various length ranges, eventhough a minimum of 0.8 was observed at 458 mm length and a maximum of 1.5 at 140 mm length. So, further detailed and longterm investigation in this direction is required to arrive at reliable conclusions.

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