

COMMUNICATION II

Growth Characteristics of Lizard Fish (Fam: Synodontidae) in the South China Sea

ABSTRAK

Kajian tentang ciri-ciri pertumbuhan bagi ikan jenis Synodontidae telah dijalankan di dalam Zon Ekonomi Eksklusif, Laut China Selatan. Untuk spesies *Saurida tumbil*, sebanyak lima kumpulan umur dan untuk spesies *S. undosquamis* sebanyak empat kumpulan umur telah dikenalpasti. Parameter-parameter pertumbuhan mengikut model von Bertalanffy serta panjang min bagi umur untuk kedua-dua spesies tersebut telah dikira.

ABSTRACT

A study of growth characteristics of synodontids of Malaysia was carried out in waters within the Exclusive Economic Zone, South China Sea. Five age groups were identified for *Saurida tumbil* and four for *S. undosquamis*. Growth parameters of the von Bertalanffy equation for the two species are presented.

INTRODUCTION

In order to evaluate the potential of Malaysia's newly acquired Exclusive Economic Zone (EEZ), a trawling survey was conducted on board the research vessel of Kagoshima University, *R. V. Kagoshima Maru*. This paper presents information on two commercially important species of the family Synodontidae, *Saurida tumbil* (Bloch) and *S. undosquamis* (Richardson) gathered during this survey.

Information on the dynamics of these species in the South China Sea is lacking. *S. tumbil* appears to grow faster and to larger sizes in the East China Sea (Shindo, 1972) than those reported from Philippine waters (Tiews *et al.*, 1968; Ingles and Pauly, 1984). The present paper aims at providing growth data of the two species as a guide for their management in Malaysian waters.

METHOD AND MATERIALS

Specimens of *S. tumbil* and *S. undosquamis* were taken from the catch of fourteen, one hour hauls covering an area of 8, 147 sq. km, 90 km to

220 km off the east coast of Peninsular Malaysia. Their standard length measurements were taken to the nearest 0.1 cm on board *R. V. Kagoshima Maru*. Mean length at age was estimated by the use of probability paper (Harding, 1949; Cassie, 1954). The asymptotic size (L_{∞}) and the parameter K of the von Bertalanffy growth equation were determined from the mean length at (relative) age and a Ford-Walford plot (Ford, 1933; Walford, 1946) of the form $L_{t+1} = L_{\infty} (1 - e^{-k}) + e^{-k} L_t$.

Since absolute age data was not available, no attempt was made to estimate t_0 , the third parameter of the von Bertalanffy growth formula.

A length-weight relationship of the form $W = aL^b$ was estimated for each species, using available weight-length pairs.

RESULTS AND DISCUSSION

Figure 1 shows estimates of mean length at age (relative) for the two species using probability paper. Mean lengths were estimated by regression analysis.

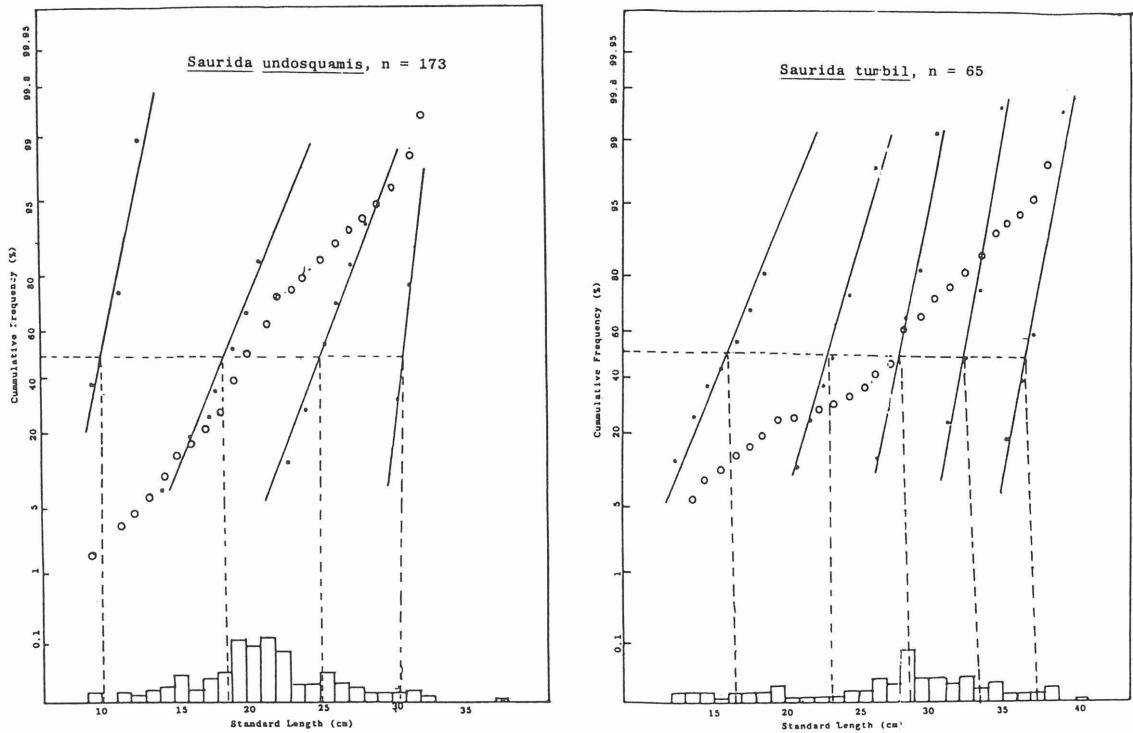


Fig. 1: Estimation of mean length for various size groups in *Saurida undosquamis* and *S. tumbil* using the Cassie (1954) method

TABLE 1
The von Bertalanffy growth constants and mean length at (relative) age

Species	von Bertalanffy constants		Mean length at relative age				
	K	L	I	II	III	IV	V
<i>Saurida tumbil</i> ¹	0.197	55.06 cm	16.50 cm	23.75 cm	28.86 cm	33.29 cm	37.69 cm
<i>S. undosquamis</i> ¹	0.252	49.25 cm	10.13 cm	18.87 cm	25.61 cm	30.90 cm	—
<i>S. tumbil</i> ²	1.03	37.50 cm	—	—	—	—	—
<i>S. tumbil</i> ³	0.70	41.00 cm	—	—	—	—	—
<i>S. tumbil</i> ⁴	—	60.0 cm	—	29.0 cm	38.0 cm	46.0 cm	—
<i>S. tumbil</i> ⁵	—	—	8 – 16 cm	16 – 24 cm	—	32 cm	—
<i>S. undosquamis</i> ³	0.80	30.5 cm	—	—	—	—	—

¹present study

²Manila Bay (Ingles and Pauly, 1984)

³Visayan Sea (Ingles and Pauly, 1984)

⁴East China Sea (Shindo, 1972)

⁵Manila Bay (Tiews *et al.*, 1968)

Five size groups presumed to represent year classes were identified in *S. tumbil* while four size groups were identified in *S. undosquamis*.

Growth parameters of the von Bertalanffy model and the mean length at age for the two species are presented in Table 1. The growth equations and length-weight relationships for the two species are as follows:

Saurida tumbil

$$L_t = 55.06 [1 - e^{-0.195(t-t_0)}]$$

$$W_t = 0.01486 L_t^{2.9421}$$

Saurida undosquamis

$$L_t = 49.25 [1 - e^{-0.252(t-t_0)}]$$

$$W_t = 0.005387 L_t^{3.2421}$$

The asymptotic length for both species was found to be higher than those reported from Manila Bay and Visayan Sea, Philippines (Ingles and Pauly, 1984) but are in agreement with those observed by Shindo (1972).

The growth constant, K for *S. tumbil* and *S. undosquamis* of 1.03 and 0.80 respectively found by Ingles and Pauly (1984) was larger than the K-value estimated in the present study.

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