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ONCE MORE ON THE COMPARISON OF GROWTH IN FISH AND INVERTEBRATES[a)]

by

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We suggested in Fishbyte 1(1)(p. 5-6)[b] that the parameter ϕ in the following equation can be used to compare the growth performance of fish and invertebrates (when their growth is of the von Bertalanffy type):

$$\phi = \log_{10} K + 2/3 \log_{10} W_{oo} \quad ...1)$$

where K is a growth constant and W_{oo} is the asymptotic weight and ϕ has a species- specific value. An additional feature which we should also mention, is that equation (1) can also be formulated to accomodate growth in length, when it can be assumed that $W_{oo} = a L_{oo}^3$. thus

$$\phi = \log_{10} K + 2/3 \log_{10} a + 2 \log_{10} L_{oo} \quad ...2)$$

or,

$$\phi' = \log K + 2 \log L_{oo} \quad ...3)$$

in which

$$\phi' = \phi - 2/3 \log a \quad ...4)$$

Thus, ϕ' will have values different from ϕ and is an index for comparing the growth performance of fish in terms of length growth. Table 1 illustrates a case where the use of ϕ' values allowed the identification of a biased growth parameter estimate in the mackerel Rastrelliger brachysoma. It must be realized however, that ϕ' can be used only to compare the growth performance of fish with similar shapes; in this, ϕ' differs from ϕ which, being based on weight, can be used to compare the growth performance of fish of different shapes.

Table 1. Values of ϕ' in Southeast Asian stocks of *Rastrelliger brachysoma*.[a]

Area	L_{oo}^b	K	ϕ'
Inner Gulf of Thailand	20.9	3.38	3.17
Inner Gulf of Thailand	20.9	4.20	3.26
Gulf of Thailand (10°N, 100°E)	20.0	3.53	3.15
Gulf of Thailand (10°N, 100°E)	19.6	4.14	3.20
Indonesia (Tajung Satai)	22.9	2.28	3.08
Burma coast, uncorrected[c]	27.0	0.965	2.84
Burma coast, corrected[d]	27.0	1.60	3.07

[a]From Pauly and Sann Aung (MS) Population Dynamics of Marine Fishes of Burma, 61 p.

[b]All growth parameter estimates based on length-frequency data, with growth curves fitted by eye by various authors, except in the case of data from Burma, which were fitted with the ELEFAN method.

[c]Raw length-frequency data, growth parameter estimated with ELEFAN I.

[d]Length-frequency data corrected for gear selection, then growth parameters estimated with ELEFAN I.

b) **Erratum:**

Note that in this paper, we illustrated the use of ϕ for estimating K with an example that contained a computational error and thus erroneous conclusions. Instead of the sentence which began with "For example, if we assume that the normal range of ϕ for tropical scombrids...", we should have written the following: "For example, applying equation (1) to tropical scombrids, which have an overall ϕ range of 2 to 3, the median value of $\phi = 2.5$ in conjunction with equation (1) will provide a value of K = 1.08 for an asymptotic weight of 5,000 g and of K = 0.233 for an asymptotic weight of 50,000 g."

We thank Network Member J. McManus for pointing out to us the error which we have corrected here.

a) ICLARM Contribution No. 195