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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_∞[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 ϕ = 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.

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