Editorial

There are times editors preach and pontificate, and generally have the good time which access to a captive journal and its captive readership can give.

There are also times when editors have to eat humble pie - and this they must do publicly, since their errors are public.

Such time has come: I must apologize to my colleagues F. Djabali, A. Mehailia, M. Koudil and B. Brahmi, for an error in their paper on "Empirical Equations for the Estimation of Natural Mortality in Mediterranean Teleosts", published in the January 1993 issue of Fishbyte-in-Naga.

The story of this error is a bit complicated, but worth unraveling because it illustrates rather well how preconceived notions shape the way one reads a manuscript, and how these notions can amplify the errors they may contain (a theme I already covered, when dealing with another piece of humble pie, see J. Fish Biol. 39: 127-128).

Djabali et al. collected a large set of estimates of L_∞, K, sea surface temperature (T) and natural mortality (M) to establish a regional model for estimation of M from growth parameters and temperature, to replace, at least for the Mediterranean, my empirical model of 1980. This model has the form,

$$\log M = a + b_L \log L_\infty + b_k \log K + b_T \log T \qquad \text{...1)}$$

with the sign of b_L being negative; and b_k and b_T being positive. The positive sign of b_k is important here: it states that M increases as T increases.

The data I used to show this covered a range of nearly 30°C, and the positive sign itself was confirmed by basically all we know about the physiological effect of temperature.

The data assembled by Djabali et al. covered a narrow range of temperatures (6°C, see their Table 1), and as fate would have it, their nonsignificant estimate of b_T had a *negative* sign.

When I edited their paper (actually, I both translated and edited it, it was submitted in French, as was their new paper in this issue) I automatically changed the sign of b_T, from negative to positive, making it compatible with that in my earlier model (and with physiological realities, I hasten to add).

This unconscious "correction", plus the fact that I overlooked erroneous definitions of two terms ("K" and "T" instead of "$\log_{10}$ K" and $\log_{10}$ T" in equation (1) had the effect of making their models totally incompatible with their data - mea culpa.

Their new paper, based on the same data set (Table 1 of their earlier paper) solves the joint problem of the insignificant b_T and of its wrong sign, by omitting temperature from the new equations they present.

I shall return to this problem, probably in the next issue. In the meantime, let us note that a humble pie is not that hard to swallow, and that more of it should be consumed in our and other sciences, and perhaps in the world at large.

D. Pauly

A Reassessment of Equations for Predicting Natural Mortality in Mediterranean Teleosts

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Abstract

This brief article presents new empirical models for prediction of natural mortality (M) from growth parameters (L_∞ and K, or W_∞ and K) in Mediterranean teleosts, based on 56 data sets presented in an earlier paper in the January 1993 issue of *Naga* in which models were presented that included temperature as a predictor variable, although its effect was nonsignificant and its partial slope had the "wrong" sign.

Introduction

In an earlier paper (Djabali et al. 1993), we proposed for the estimation of natural mortality (M) in Mediterranean teleosts, empirical models of the form

$$\log M = a + b_2 \log L_\infty + b_k \log K + b_T \log T \qquad \text{...1)}$$

and

$$\log M = a + b_w \log W_\infty + b_k \log K + b_T \log T \qquad \text{...2)}$$

based on a data set covering 56 "stocks" of teleosts fully documented in Table 1 of that paper.

Besides these models, the analysis of the data in our Table 1 led to simpler models of the form

$$\log M = a + b_L L_\infty + b_k \log K \qquad ...3)$$

and

$$\log M = a + b_w W_\infty + b_k \log K \qquad ...4)$$

which had been quantified and tested, and found to contain terms that were all significantly different from zero.

We ignored these results, and presented instead two models (equations (2) and (3) in Djabali et al. 1993) which had the same terms as the models of Pauly (1980) (i.e., equations (1) and (2)). We overlooked, however, the narrow range of our temperature data (for 13 to 19°C), which prevented the temperature-related terms (b_T) from being significantly different from zero. Moreover, the sign of our b_T estimates was negative.

The manner this was "corrected" further confused things (see D. Pauly's editorial, this issue). The results below document how the matter now stands.

Result and Discussion

Following discussion with Drs. Dino Levi (Instituto de Tecnologia della Pesca e del Pescato, Mazara del Vallo, Sicily, Italy) and D. Pauly, on the narrow range of our temperature estimates, we present here those of our empirical models that do not include a temperature term, and hence correspond to equations (3) and (4).

These models are

$$\log_{10} M = 0.0278 - 0.1172 \log_{10} L_\infty + 0.5092 \log_{10} K \qquad ...5)$$

and

$$\log_{10} M = -0.0656 - 0.0302 \log_{10} W_\infty + 0.5280 \log_{10} K ...6)$$

where M and K are expressed on an annual basis, and L_∞ is total length, in cm.

These multiple regressions have R^2 values of 0.82 and 0.81, respectively, slopes that are all significantly different from zero (F test, $P < 0.01$), and residuals that are normally distributed and independent (Durbin Watson test, $P < 0.01$).

These equations, and the tests that go with them thus confirm that, indeed, models can be derived which, as suggested by Arreguín-Sanchez (1990) allow "regional" estimation of M.

References

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Length-Based Estimates of Vital Statistics in Threadfin Bream (*Nemipterus japonicus*) from Bay of Bengal, Bangladesh

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Abstract

ELEFAN 0, ELEFAN I and ELEFAN II were used to estimate vital statistics of *Nemipterus japonicus* from length-frequency data sampled along the coast of Bangladesh. The parameters L_∞ and K were estimated at 24.5 cm and 0.94·year^{-1}. The values of M and F were found to be 1.81 and 1.58·year^{-1}, respectively. The fish recruit to the fishery during May-June and September-October.

Introduction

Nemipterus japonicus is the most abundant among the few species of threadfin breams available in the deeper water of the Bay of Bengal, Bangladesh (Mustafa et al. 1987). This species lives in schools, generally close to the bottom, and accounts for about 4.4% of the total demersal biomass of which about 0.1% is from 0 to 20 m; 3.3% below 21-50 m; 15.2% below 51-80 m; and 81.4% in 81-100 m depth zones (Lamboeuf 1987). The importance of this species to the offshore fishery of Bangladesh has been stressed by several authors (Chowdhury et al. 1979; Mohiuddin et al. 1980; Saetre 1981; Quddus and Shafi 1983; White 1985; Mustafa et al. 1987; Lamboeuf 1987; Mustafa et al. 1992), although it is generally thrown overboard as trash fish, from offshore shrimp trawlers in Bangladesh.

Materials and Methods

Length-frequency samples used for this study were collected from February 1984 to October 1985 from Bangladesh coast (Fig. 1) during the course of demersal