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Shrinkage Factor and Length-Weight Relationship for Capelin in ICNAF Divisions 3LNO

by

A. Mari and I. Ramos
Centro de Investigaciones Pesqueras
Miramar, Habana, Cuba

INTRODUCTION

A research cruise took place from the 3rd of July to the 14th of July, to the Great Bank of Newfoundland, in the R/V Isla de la Juventud. The main goals of the cruise were to assess the capelin abundance and estimate the lenght-weight relationship and the shrinkage factor with the data collected. In the past ten years many papers have been written concerning the abundance, stomach contents, age, etc. Only in one of these papers the shrinkage factor for this species has been calculated, (Winters, 1974), giving two factors: one for fishes frozen when dry and other for fishes frozen with sea water.

MATERIALS AND METHODS

The fishes were measured using the greatest total lenght, from the tipe of the jaw to the tip of the ventral lobe of the caudal fin, extended in a straight line with the body (Templeman, 1948).

In order to calculate the lenght-weight relationship of the species the mean weight of each length class was used together with the total length. In order ot calculate the shrinkage factor for converting thawed length to fresh length, a sample of 283 specimens was taken, which were measured fresh and then frozen after placing them in the order of measurement in the freezing tray. They were thawed 48 hours lates, and measured again by the same person.

The lenght-weight curve was calculated using the relationship
$W = aL^b$ where W = weight in grams

L = lenght in cm

a and b = constants from the least squares regression.

The shrinkage factor was calculated using the same method, using the relationship $Y = mx$, where y is fresh length, x is thawed length and m is the shrinkage factor.

F 2

RESULTS

The equation of the regression curve is shown in Fig. 1. It must be pointed out that the specimens collected for this calculation don't have the range of lengths that usually appear in the fishery in these months.

The regression line relating fresh lengths to thawed lengths was estimated, finding a shrinkage factor of 1.02 for all the length classes analyzed (Fig. 2). This factor is very similar to the one found by Winters (op. cit.) although this sample is slightly larger than the sample used by the author mentioned above.

REFERENCES

TEMPLEMAN, W. 1948. The life history of the capelin Mallotus villosus (Müller) in Newfoundland waters. Res.Bull. N° 17, Newfoundland Govt. Lab. 151 pp.

WINTERS, G.H. 1974. Back-calculation of the growth of capelin (Mallotus villosus) in the Newfoundland area. ICNAF Res.Doc. 74/7 Serial N° 3150.
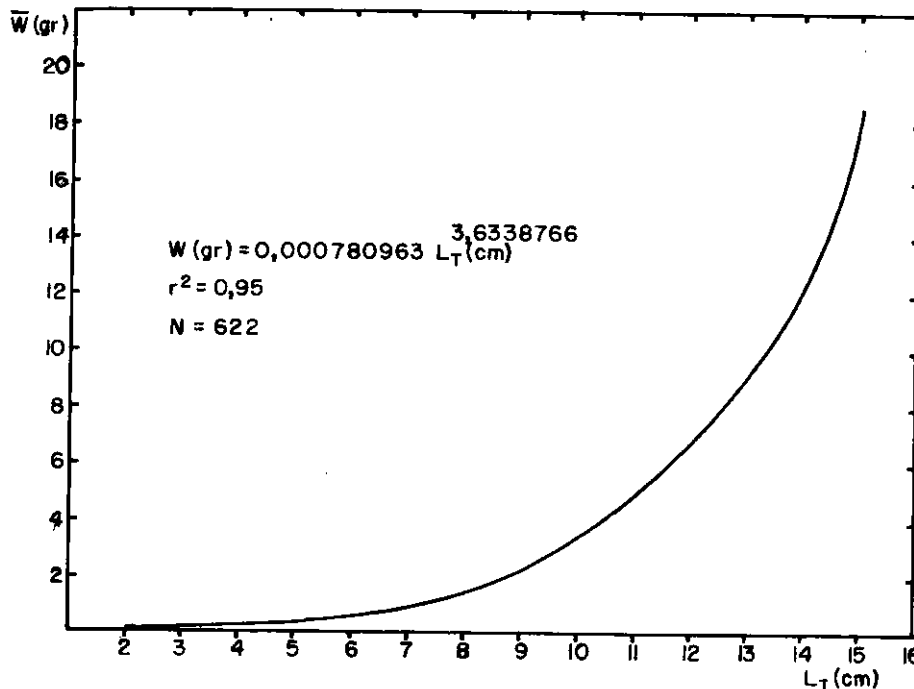
$$W(gr) = 0{,}000780963 \; L_T(cm)^{3{,}6338766}$$

$$r^2 = 0{,}95$$

$$N = 622$$

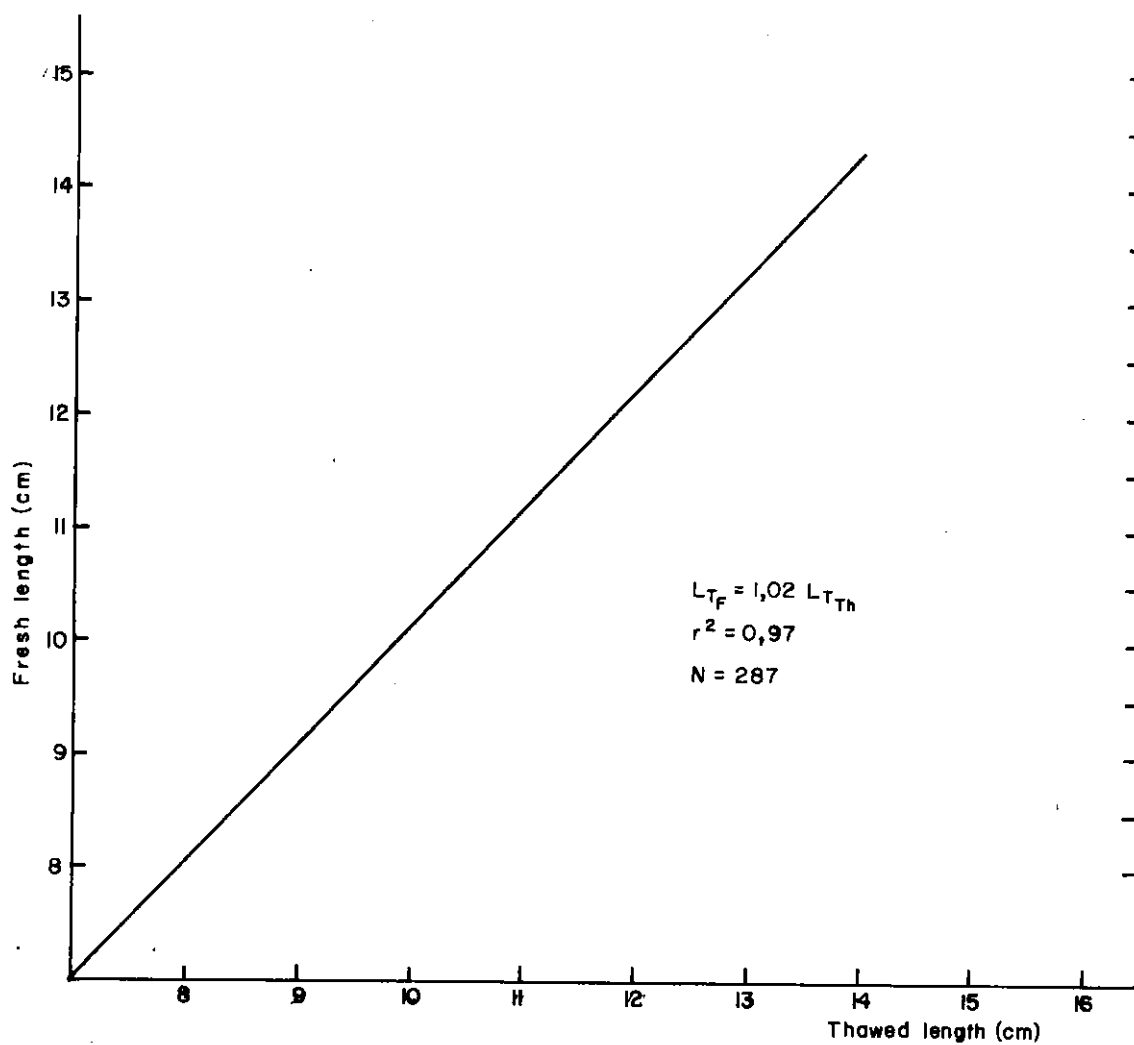Fig. 1_Lenght-weight relationship for capelin from divisions 3LNO

Fig. 2 _Regression line of fresh lengths on thawed lengths.

Within the figure:

$$L_{T_F} = 1,02 \ L_{T_{Th}}$$
$$r^2 = 0,97$$
$$N = 287$$

Axis labels: Fresh length (cm), Thawed length (cm)