ANNUAL MEETING - JUNE 1973

Length-weight relationship of the
ommastrephid squid Illex illecebrosus (LeSueur)

by

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Introduction

Papers on the general biology of Illex illecebrosus by Squires (1957) and Mercer (1965) include length-whole weight plots and the latter also gives a length-mantle weight plot; neither supplies equations for the fitted lines. Regressions fitted below span a wider length range and are based on larger samples than those fitted heretofore.

Materials and Methods

Dorsal mantle lengths were measured to the nearest centimetre and weights recorded to the nearest 0.1 gram. Mantle weights include fins and gladius. Most specimens were examined fresh from the commercial catch in Conception Bay, Newfoundland; the remainder (small specimens) were from research catches on the Grand Bank and St. Pierre Bank and were examined subsequent to freezing.

The length-weight curves were calculated from the relationship $W = cL^b$ where W = weight, L = length and c and b are constants which were derived from the least squares regression of the logarithmic transformation $Y = a + bx$ where $Y = \log_{10}W$, $a = \log_{10}C$ and $x = \log_{10}L$. Numbers of specimens on which the analysis was based are indicated in Table 1.

Results

Equations of the length-weight curves (Fig. 1) indicate greater weight at length for males at lengths exceeding 19 centimetres for both round weight and mantle weight. Inequality of slopes between curves for length-round weight and length-mantle weight indicate that a single conversion factor cannot be applied over the entire length range considered. Conversion factors were calculated by simple division of calculated round and mantle weights obtained by substitution in the regressions. For conversion of round to mantle weights the factors vary from .60 to .46 for males and .55 to .48 for females, the factors decreasing over the range considered.

References

Mercer, M. C. 1965. Contribution to the biology of the short-finned squid, Illex illecebrosus illecebrosus (LeSueur) in the Newfoundland area. Fish. Res. Bd. Canada. Manuscr. Rept. Ser. (Biol.) 834: 36 p.

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Squires, H. J. 1957. Squid, Illex illecebrosus (LeSueur) in the Newfoundland fishing area. J. Fish. Res. Bd. Canada 14: 693-728.

Table 1. Numbers of Illex illecebrosus specimens used in computing the length-weight curves.

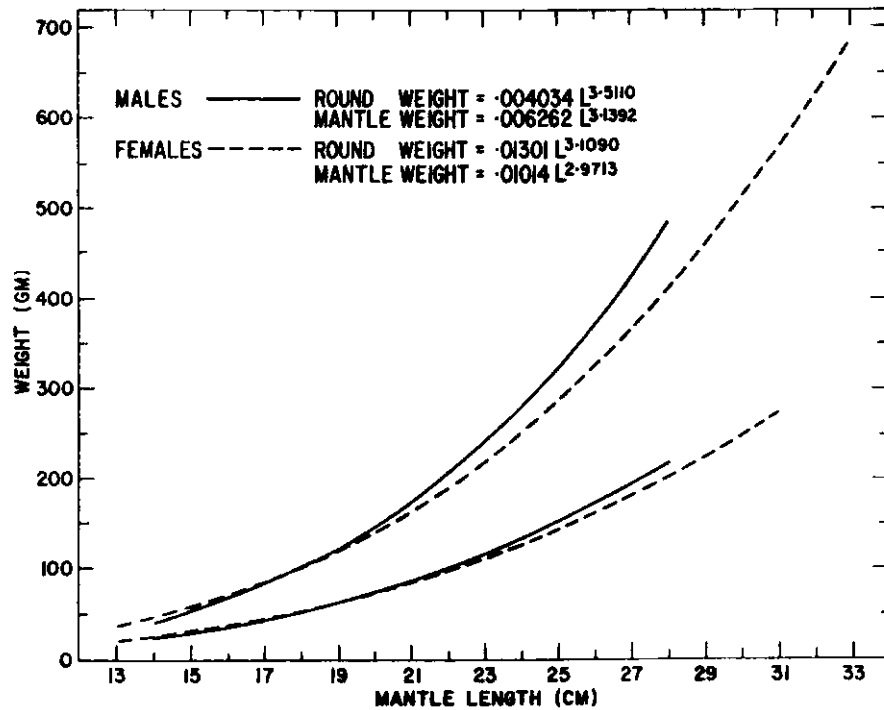| Length (cm)	Mantle weight		Round weight	
	Male	Female	Male	Female
13		1		1
14	4	3	4	3
15	17	13	17	13
16	19	14	19	14
17	17	20	20	20
18	42	37	48	41
19	58	41	81	57
20	70	68	124	99
21	109	78	153	107
22	130	99	189	123
23	137	82	197	119
24	147	62	190	104
25	124	46	137	90
26	61	54	64	87
27	3	49	3	67
28	1	24	1	36
29		9		14
30		5		7
31		2		2
33				1
Totals	939	707	1247	1005

Fig. 1. Length-weight curves of the squid Illex illecebrosus.

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