TOTAL PHOSPHORUS CONTENT OF Neomysis integer
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SYNOPSIS
Measurements of total phosphorus in Neomysis integer, showed an inverse relationship between the total phosphorus content and body weight (wet). Immature forms presented higher content of phosphorus. Some possible implications of these results are discussed.

INTRODUCTION
As pointed out by Barnes and Barnes (1956) determination of total phosphorus content of aquatic animals, is essential for a proper understanding of their nutritional requirements, in relation to the environment. Hildemann (1957) pointed out the importance of phosphorus as an ecological element, and the essential role of phosphorus in the metabolism has long been recognized. The biochemical constituents of Neomysis integer have been studied by Raymond, Austin and Linford (1964, 1966). The present note includes the determination of total phosphorus.

MATERIAL AND METHODS
The mysids were obtained from Plymouth and kept alive in aquaria containing aerated sea water. The animals were divided into mature females, males and immature individuals. They were dried on filter paper to remove excess water and quickly weighed. The animals, were then digested with concentrated sulphuric acid, clarified with hydrogen peroxide, and the total phosphorus, estimated by the colorimetric method of Fiske-Subbarow, Umeki et al. (1959).

RESULTS AND DISCUSSION
The mean values obtained for mature females, was 217 µg, whereas the males had a higher phosphorus value, 443 µg. The immature animals gave an estimate of 396 µg (Table 1).

Fig. 1 — Total phosphorus and body weight (wet) in Neomysis integer.
Table I — Total phosphorus content of Neomysis integer

<table>
<thead>
<tr>
<th></th>
<th>Body weight (mg)</th>
<th>Total phosphorus (μg)</th>
<th>μg of P/mg wet tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td>Female *</td>
<td>25 - 57</td>
<td>45.2</td>
<td>170 - 250</td>
</tr>
<tr>
<td>Male +</td>
<td>8 - 20</td>
<td>11</td>
<td>240 - 675</td>
</tr>
<tr>
<td>Immature stages</td>
<td>2 - 7</td>
<td>4.1</td>
<td>300 - 510</td>
</tr>
</tbody>
</table>

* — Ten determinations
+ — Five determinations

The values obtained in this study, for mature females (0.50% wet weight) and for males (0.40% wet weight) amounts approximately to 2.5% dry weight, (females) and 2% dry weight, (males). These values compare favourably with the 2% dry weight, quoted by Vinogradov (1953, tab. 246, p. 398) for Mysis flexuosa. However, they are lower than those quoted by Barnes and Barnes (1956) for the fresh water Cyclops sp. or Daphnia sp.

In recent years, Johannes (1964a, b) has shown the importance of the smaller crustaceans in the phosphorus turnover, and demonstrated the increase in excretory rate of phosphorus with decrease in body weight in marine planktonic animals. The inverse relationship, between body weight and phosphorus content per unit weight, found, seems to suggest the importance of these smaller animals in the phosphorus cycle.

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REFERENCES


