

問題番号[1 5] <海洋生物学>

(解答は英語・日本語のどちらでもよい[ラテン語/英語と指示してある場合以外]。文法の間違いは採点に影響しない)

(1) Choose THREE taxa from (a) to (f) below and describe their morphological/ecological characteristics. Give at least one example of specific organism name (in Latin or English) in your explanation. (10 points each, total 30 points)

- (a) Amphipoda
- (b) Anthozoa
- (c) Asteroidea
- (d) Cephalopoda
- (e) Gastropoda
- (f) Holothuroidea

(2) Answer the following questions. (20 points)

- (a) Bivalves belong to which phylum of animals? Answer in Latin or English. (5 points)
- (b) Briefly explain the differences between seagrasses and seaweeds. (5 points)
- (c) What is “coral bleaching”? Explain briefly how it occurs. (5 points)
- (d) Explain briefly what hydrothermal vents are. (5 points)

(Total 50 points)

問題番号[16] <海洋生物学>

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(1) A set of experiments was conducted to see the effect of different grain sizes of bottom sediment on the growth of individuals of a benthic polychaete species. The experiments involved two grain sizes, fine and coarse, as two treatments to which polychaete individuals were exposed for a fixed period of time t in experimental aquaria. Growth (g) is expressed as $g = (l_t - l_0)/l_0 t$ where l_t and l_0 are size at time t and 0, respectively. Answer the following questions. (40 points)

(a) Polychaetes belong to which phylum of animals?

Answer in Latin or English. (5 points)

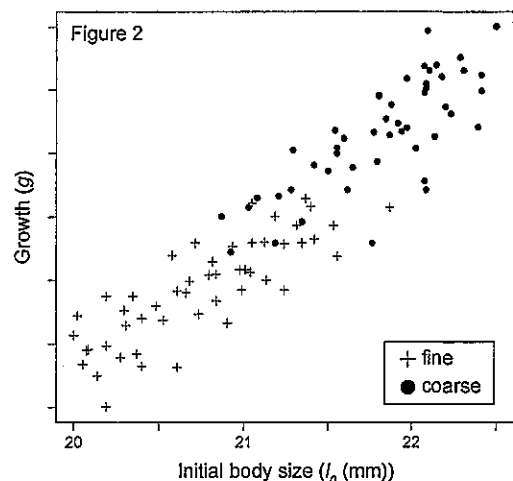
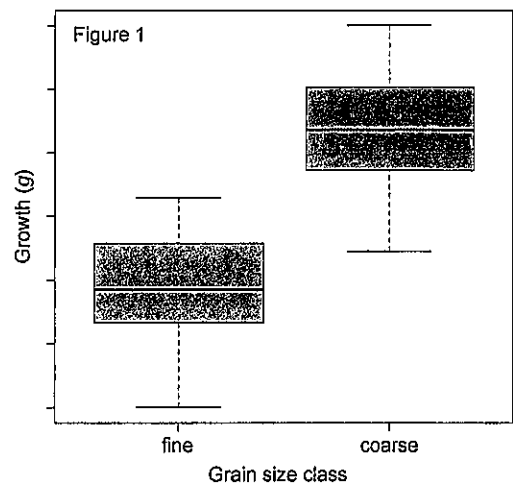
(b) Describe the possible environmental conditions associated with differences in sediment grain size and how they could affect polychaete growth. (10 points)

(c) How can you interpret the result shown in Figure 1.

1. (5 points)

(d) Figure 2 shows the same result as a scatter plot with reference to initial body size (l_0). Please explain whether the presentation of the result as Figure 1 is appropriate or not under the circumstances. (10 points)

(e) Based on the situation as obtained above, suggest how the experiments should be designed if it is to be improved. (10 points)



(2) Describe (a) what plankton is and (b) the reason why plankton can be considered to include nearly all taxa of organisms in marine environments. (5 points each, 10 points)

(Total 50 points)