

Ascidian-associated polychaetes: ecological implications of aggregation size and tube-building chaetopterids on assemblage structure in the Southeastern Pacific Ocean

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Abstract

Epifaunal polychaetes inhabit a range of habitat structures built by other organisms, such as ascidians. Here, we examine: i) the polychaete fauna inhabiting aggregations of the ascidian *Pyura chilensis* in central Chile; ii) the relationship between sample volume (aggregation size) and polychaete assemblage variables; and iii) the effect of a tube-building chaetopterid on the polychaete assemblage structure. The chaetopterid tube load on aggregations determines two ascidian morphotypes, those with a high load of chaetopterid tubes (HT morphotype) and those with a low load of chaetopterid tubes (LT morphotype). From a total of 38 aggregations studied, we found 5,524 specimens belonging to 35 species of polychaetes. Three species were the most abundant in the aggregations (*Phyllochaetopterus socialis*, *Nicolea lobulata*, and *Typosyllis magdalena*), reaching 22% of total abundance. The number of species and individuals increased with sample volume, but only the number of species varied between morphotypes. Sample volume and the chaetopterid tubes influenced the polychaete assemblage structure, evidencing differences between morphotypes. We suggest that both sample volume and the habitat structuring capacity of the chaetopterid tubes change the habitat complexity of the ascidian aggregations and, hence, produce differences between morphotypes related to the polychaete assemblage structure.

Keywords

Habitat complexity, Ecosystem engineering, Diversity, Tube-building, Ascidians.