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研究论文

泉州湾大型底栖生物群落生态

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摘要 泉州湾大型底栖生物有256种，其中多毛类66种，软体动物74种，甲壳动物77种，棘皮动物12种和其他动物27种。多毛类、软体动物和甲壳动物占总种数的84.76%，三者构成大型底栖生物的主要类群。春季、夏季、秋季和冬季4个季节平均生物量为23.13g/m^2，平均栖息密度为144个/m^2。数量组成,生物量以软体动物居首位10.28g/m^2，棘皮动物居第二位5.44g/m^2；栖息密度以软体动物占第一位78个/m2，多毛类占第二位37个/m^2。泉州湾大型底栖生物主要有2个群落：群落Ⅰ,丝鳃稚齿虫-光滑河篮蛤-纹尾长眼虾群落；群落Ⅱ，中蚓虫-光滑河篮蛤-模糊新短眼蟹群落。泉州湾大型底栖生物群落出现一定扰动,主要在于群落的季节演替。

关键词 泉州湾；大型底栖生物；群落；生态

分类号 Q178

The ecology of macrobenthos community in Quanzhou Bay, Fujian Province

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Abstract Nine stations were established to investigate the macrobenthos in Quanzhou bay in May, August, November of 2001 and February of 2002. Samples were collected by a grab with an area of 0.05 m2,five times in each station. Samples were washed with a 〈WSB〉 model macrobenthos whirler and isolated by using a sieve set of 1mm and 0.5mm mesh to isolate specimens. Treatment and storage of specimens followed the national standard detailed in the Specification for Oceanographic Survey. Margalef's species richness index (*d*), Shannon-Wiener information index diversity (*H*′), Pielou's evenness index (*J*) and Simpson's dominance index (*D*) of species were calculated respectively; the community was divided according to cluster analysis by Bray-Curtis's similarity coefficient and multidimensional scaling ordination; the community was analyzed by Abundance Biomass Comparison (ABC) method, and data were processed by computers. In Quanzhou bay 256 species were identified in the macrobenthos,among which there were 66 species of Polychaeta, 74 species of Mollusca, 77 species of Crustacea, 12 species of Echinodermata, and 27 other species. Species belonging to Polychaeta, Mollusca and Crustacea account for 84.76% of the total species, thus constituting the main population of macrobenthos. The dominant species includes Prionospio malmgreni, Sthenolepis japonica, Lumbrineris sp., Patamocorbula laevis,and Neoxenophthalmus obscurus. In spring, summer, autumn and winter, the average biomass is 23.13g/m2， and the average inhabiting density is 144 inds./m^2.As to the quantity composition, mollusks have the greatest biomass (10.28g/m^2) followed by echinoderms (5.44g/m2) mollusks also have the greatest the inhabiting density (78 inds./m2) followed by species of Polychaeta (37inds./m2). As to the seasonal change of quantity composition, the biomass in spring (34.22g/m^2)>that in winter (29.96g/m^2)>that in summer (16.14g/m^2)>that in autumn (12.21g/m^2); the inhabiting density in summer (235 inds./m^2)>that in spring (197 inds./m^2)>that in autumn (74 inds./m^2)>that in winter (68 inds./m^2). In respect of the quantity composition, mollusks have the greatest biomass in spring and summer by 18.76g/m^2 and 10.94g/m^2 respectively, whereas the biom

ass of echinoderms is the greatest in autumn and winter by 5.94g/m2 and 15.50g/m2 respectivel y; mollusks have the highest inhabiting density in spring and summer by 126 inds./m2 and 171 ind s./m^2 respectively, whereas species of Polychaeta have the highest inhabiting density in autumn an d winter.
Two communities contribute to Macrobenthos in Quanzhou bay.community Ⅰ: Prionospio malm gren-Patamocorbula laevis-Ogyrides striaticauda and community Ⅱ: Mediomastus californiensis-Patamocorbula laevis-Neoxenophthalmus obscurus. For community Ⅰ, species abundance (*d*= 3.1473) and diversity (*H'*=2.2162) are higher than those for community Ⅱ（*d*=1.6981 and *H'*= 1.1419）, evenness (*J*=0.7637) is higher than that for community Ⅱ（*J*=0.4229）， dominanc e (*D*=0.1476) is higher than that for community Ⅱ（*D*=0.1302）. The accumulative dominanc e of biomass for community Ⅰ and Ⅱ reaches 82% and 65% respectively, and the accumulativ e dominance of abundance for these two communities reaches 60% and 55% respectively. Espec ially, in stations Q1, Q2, and Q3, the combined k-dominance curves for abundance and biomas s of community Ⅰ show intersection and inversion, indicating a poor habitat, low biomass and inh abiting density, and uneven distribution of quantity inside the bay. In station Q2, the accumulativ e dominance of abundance and biomass amounts up to 88% and 94% respectively, which may b e attributable to biomass (140.95g/m2) and inhabiting density (490 inds./m2) of Patamocorbula la evis. To sum up, fluctuation in the communities of macrobenthos in Quanzhou bay is mainly cause d by the seasonal succession.

Key words Quanizhou bay； macrobenthos； community； ecology

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