Eco-Environmental Impact Assessment of Pre-Leisure Beach Nourishment on the Benthic Invertebrate Community at Anping Coast

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Abstract

In recent years,due to global warning and the rising sea levels,beach nourishment and groin building have been increasingly to protect coastal land from shoreline erosion.these actions may degrade beach habitats and reduce biomass and invertebrate density at sites where they were employed.Weconducted an eco-environmental evaluation at the Anping artificial beach-nourishment project area.At this site,sand piles within asemi-enclosed spur groin have been enforced by use of eco-engineering coucepts since 2003.Four sampling sites were monitored during the study period from July 2002 to September 2008.The environmental impact assessment and biological investigations that we conducted are presented here.The results from this study indicate that both biotie(number of speciesmnumber of individual organisms,and Shannon-Wiener diversity)and abiotic parameters(suspended solids,biological oxygen demand,chemical oxygen demand,dissolved inorganic nitrogen,dissolved inorganic phosphorus,total phosphorus,total organic carbon,median dianmeter,water content)whowed significant differences before and after beach engineering construction Biological conditions became worse in the beginning stages of the engineering but improved improved after the restoration work completion.This study reveal that the composition of benthic invertebrates changed over the study period,and two groups of organisms,bivalbia and Gastropoda,seemed to be particularly suitable to this habitat after the semi-enclosed artificial structures completion.

Keyword：beach nourishment;benthic invertebrate;eco-engineering;ecological restoration;spur groin