QUANTIFICATIONAL RESEARCH ON ECO-ENVIRONMENTAL WATER REQUIREMENT FOR COASTAL WETLAND IN SHANTOU DEMONSTRATION SITE

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Coastal wetland is the ecological sensitive region, and water is the most important factor either in the forming or in the growth of coastal wetland. Therefore, the study on eco-environmental water requirement of coastal wetlands is very important and imperative for wetland restoration. In this paper, the estimate methods and the amount of eco-environmental water requirement are studied in Shantou demonstration site. Based on the assessment indexes of the coastal wetland ecosystem health, the composition and the hierarchical division of eco-environmental water requirement are presented. In Shantou coastal wetland, the composition of eco-environmental water requirement can be divided into seven parts, which are the vegetation water requirement, soil water requirement, habitat water requirement, inland river water requirement, sediment transporting water requirement, salinity balance water requirement and contamination purification water requirement. And each part can be divided into low, medium, fine, excellent, and the optimum hierarchy, corresponding with different condition of coastal wetland ecosystem health. Then the calculative methods of each composition are proposed and different hierarchical water requirements are educed. According to the calculation, in Shantou coastal wetland the total amount of the current eco-environmental water requirement is $61.04\times10^{8}m^{3}$. Furthermore, the yearly variation of water requirement is discussed. Being incorporated with the future planning, the eco-environmental water requirement is forecasted by the year 2010 and 2030. Through the quantificational research of eco-environmental water requirement in Shantou coastal wetland, the state of the ecosystem health can be measured in a quantificational view and it can be used as the references to offer some relevant management control measures.

KEY WORDS: coastal wetland; ecosystem health; eco-environmental water