



Study on the Wetland and Its Influence on Regional Hydrological Process

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Abstract: Wetland is an important component of the global eco-environment, which plays a significant role in the water cycle, especially in the aspects of runoff regulation and flood control. In this study, the restoration impact of river wetland on hydrological cycle and sea outflow is modeled using the popular hydrologic software, SWAT, and the QingDianWa depression which is located in Tianjin's Jixian territory with a total area of up to 150 square kilometres was simulated. It was the flood storage area for Zhou River and Ju River before 1970s', but with the population growth and economy development in past 30 years it becomes smaller and smaller and have to be protected and restored artificially. The results show that river wetland plays an important role in the runoff regulation: at wetland area of 30km², there is no significant difference in the reduction of annual average flow between river wetland and out-of-bank wetland; at wetland area of 60km², river wetland reduces an average annual flow of 13.26 million m³– more than two times the amount compared with the outside river way wetland. However both kinds of wetland are important in flood control, river flow regulation, groundwater recharge, and flood reclamation. This paper proposed a fairly new approach to study the wetland in local hydrological cycle and help the planning of ecological restoration.