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Regulation of drainage canals on the groundwater level in a typical coastal wetlands

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Summary

Activities related to reclamation alter wetland hydrological regimes and inevitably cause changes to groundwater level, which can result in the ecological degradation of coastal wetlands. Decreasing the groundwater level by the construction of drainage canals is an approach that has been widely used to control levels of root zone soil salinity as well as to protect freshwater wetlands or to expand agricultural land area in coastal wetlands. In this study, we assessed the influences of different drainage canal designs on the groundwater level using the Visual MODFLOW (VMOD) interface. We also provided an optimized drainage canal design suitable for the Yellow River Delta (YRD). Results showed that: (i) the groundwater level decreased in areas close to drainage canals, while only negligible effects were found on the groundwater level in areas with no drainage canals; (ii) the influence of drainage canals on the groundwater level decreased as distance increased; and (iii) a

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