

Climate changes and their major impacts on environmental conditions of a freshwater Brazilian wetland

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Abstract This study presents an analysis of how climate change scenarios may affect environmental conditions of a Brazilian freshwater coastal wetland (Taim Wetland). Taim Wetland covers approximately 315 km² and has a rich biodiversity. Considering two climate changes emission scenarios and different Atmospheric/Ocean General Circulation Models (AOGCMs), time series of projected temperature and precipitation were estimated by using the delta change approach. These time series were used as input to a pseudo-2D full hydrodynamic cell model, previously calibrated and validated, giving projected water level time series as results. A pattern of increase of water level was observed in both climate change scenarios. The water level time series were also compared to Ideal Water Level requirements established for key local species based on the habitat suitability index (HSI). Through this comparison it was estimated that a great number of key species would be directly affected due to reduction or even elimination of their habitat areas.

Key words climate change; wetland; environmental conservation; habitat suitability index