

Factors Affecting Land Use Change Around the Anzali Wetland and the Challenges Ahead

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Abstract: Changes in land use and destruction of natural covers lead to disturbances in the ecosystem and a decrease in biodiversity. In recent years, climate change, agricultural, industrial, and tourism activities, land use changes around the wetland, and the occurrence of eutrophication phenomena have brought this valuable ecosystem to the brink of destruction. The Anzali wetland complex is located near the city of Bandar Anzali in Guilan province in northern Iran, along the southern coast of the Caspian Sea. The aim of this study is to identify and monitor changes in land use over the past two decades, as well as to determine and analyze the influential factors on land use changes around the Anzali wetland in order to develop management plans to reduce the negative effects of land use changes by providing logical solutions to prevent economic, social, environmental, and livelihood damages in this area. In this study, by preparing a land use map of a 20-year period of the study area and modeling land use and cover changes in the Anzali wetland basin, effective parameters in land use changes were identified, analyzed, and introduced. This study has depicted land use changes from 2000 to 2020. The images are classified into agricultural lands, wetlands, forests, water bodies, residential areas, and barren lands. Landsat images from 2000, 2008, and 2020 were used. The outputs of the processing are LULC images, which show the extent of land use changes based on the information obtained from these images. The results of the spatial image comparison show that in the period of 2000-2020, wetland areas have changed by -29.3%, grasslands by 37.4%, agricultural lands by 15%, residential lands by 183%, forests by 40.1%, water bodies by -28.4%, and barren lands by 15.1%. Finally, the villages around the wetland, which have undergone the most changes, were identified.

Keywords: Land use changes, Spatial images, Anzali wetland, Guilan province.