

## Analysis of Landscape Degradation in the Hawizeh Wetland by Using Remote Sensing

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### Abstract

Water is the most important factor in maintaining the biodiversity of wetlands. In addition to environmental and natural phenomena droughts, changing weather patterns, rising temperatures and evapotranspiration Iran's water crisis is rooted in excessive growth and unbalanced distribution of population, mismanagement of water resources, inefficient agricultural sector, partial view of managers, unbridled growth of urbanization and lack of proper culture consumption and the real value of water. Wetlands, as important sources of water in dry plateau of Iran have a special place. Hawizeh wetland is not also excluded from the above threats. The aim of this study is to investigate Hawizeh wetland changes during the periods of 1991, 2004, 2013 and 2016. For this purpose, Landsat satellite images TM, ETM and Land sat 8.oli were used. Preprocessing steps were performed on images and classification was done by using neural network (MLP). After classification by using landscape metrics, wetland landscape changes were investigated. The trend Discharge of Rivers entrance to the wetlands in Hamidieh and Höfle hydrometric stations was measured based on nonparametric Mann-Kendall. Investigation of wetlands landscape metric in that 25-year period examined area shown, Number of Patch(NP) metric has Decreasing trend, Patch Density(PN) showed Reduce the fragmentation of the landscape, Large Patch Index(LPI) has Decreasing trend, Landscape shape Index(LSI) Decreasing trend, and contagion(CONTAG) showed Reduce fragmentation and Shannon's diversity index(SHDI) has shown the Increase diversity in the landscape. Investigated the changes in water outflow of Karkheh River based on non-parametric Mann-Kendall test in the Periods of 1950 and 1986 to 2011 and 2012, Showed that the outflow of water to the wetland a significant decrease in total process monitoring. However, in 2016, the amount of vegetation and wetland water increased in comparison to 2013 so that in 2016, the largest area of the wetland is allocated to wetland vegetation, wet lands and water. Results of this study show that parameters such as Agriculture, energy production, hydro politics and geopolitical Turkey, Iraq and Iran For each other have effect on the wetlands landscape. And any decision to determine the effectiveness of wetland management should consider the interests of these countries.

**Keyword:** Hawizeh wetland, Mann-Kendall test, Remote sensing, Artificial Neural Network, Khuzestan.