



University of Zabol
Graduate school
Faculty of Natural Resources
Department of Environmental Science and Engineering

The Thesis Submitted for the Degree of M.Sc

**Effect of the Halilroad river basin's
land use and land cover changes on
Jazmorian wetland's ecological
resources**

Supervisors:

Dr. M. Shahriari

Dr. V. Rahdari

Advisors:

Dr. S. Maleki

By:

A. Salar

May 2023

Abstract

The development of agricultural lands by increasing the use of surface water, runoff and also the creation of water structures upstream of the rivers reduces the available water in wetlands. Jazmurian wetland is located in the southeast of Iran between the provinces of Sistan and Baluchistan and Kerman. The most important source of water supply for this wetland is Halil River, which originates from the heights of Kerman province. With the development of agricultural lands and the creation of water structures on this river, the available water for Jazmurian wetland has decreased. This phenomenon has caused the destruction of natural habitats and the intensification of dust storms. The general purpose of this study is to investigate the effect of land use and land cover changes on the ecological resources of Jazmurian wetland. For this purpose, the time series of Landsat satellite data for the Halil River basin and the Jazmurian lagoon in the years 1374, 1354, 1387 and 1401 have been used. The images were prepared using the combined classification method and using the supervised classification using the maximum likelihood method. They were classified using water and vegetation indices and the land use and coverage map of Halil River and Jazmurian lagoon was prepared. Then, the changes made in the upstream of Jazmurian lagoon on the ecological resources of Jazmurian lagoon were studied. The results showed that the destruction of pastures and vegetation and their conversion to agricultural lands in the study area, as well as urban development and population increase, have a greater impact on the reduction of wetland water than the creation of dams and climatic effects. With urban development and population increase, the need for water resources has increased, and therefore, to meet their needs, lands with pastures and suitable conditions for agriculture were converted into agricultural lands, regardless of the land's ability. Water resources increased from 1354 to 1374 and then decreased from 98.8% in 1374 to 0.05% in 1398. Agricultural land has been on the rise from 1354 to 1387 and has increased from 0.16% in 1354 to 10% in 1387 and due to the reduction of water resources in 1401, the percentage of agricultural land has also decreased to 7.9% has done.

Keywords: Jazmurian lagoon, Halil River basin, combined classification, change analysis