

Z. Hoseini

School of Geology, College of Science, University of Tehran.

e-mail: zainab.hosseini@ut.ac.ir

M. Mozafari*

Assistant Professor, School of Geology, College of Science, University of Tehran.

e-mail: mmozafari@ut.ac.ir

E. Fijani

Assistant Professor, School of Geology, College of Science, University of Tehran.

e-mail: Efijani@ut.ac.ir

Impact of Land Use Changes and Expanding of Irrigation on Drying up of the Bakhtegan and Tashk Lakes

The Bakhtegan and Tashk lakes (SW Iran) have been rapidly drying up during since 2007. In the absence of sufficient data, impacts of changes in land use on drying up of the lakes remain as yet undetermined. At this study, an attempt has been made to determine the effect of land use changes on shrinking of the lakes. The changes in the area of Bakhtegan and Tashk lakes together with the area of irrigated lands during the last three decades were determined by remote sensing analysis. By beginning of 1987 until 2007, the area of irrigated lands was increased from 1253.01 to 2506.11 km² at all plains in the basin. Since 2007, two different behaviors have been detected in the area of irrigated lands at the upstream and downstream sectors of the basin. At downstream, all plains have experienced a significant reduction in the area of agricultural lands, but a considerable extension was detected in the upstream plains, where the lands were mainly cultivated with rice. Results show that the Bakhtegan and Tashk lakes had completely dried up as a result of the combined effects of meteorological drought and irrigation development (particularly at the upstream part of the basin).

Keywords: Bakhtegan and Tashk lakes, Drought, Irrigated lands, Remote Sensing, NDWI and NDVI Indexes.

* Corresponding author

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