Complex Interfaces Under Change: Sea – River – Groundwater – Lake
Proceedings of HP2/HP3, IAHS-IAPSO-IASPEI Assembly, Gothenburg, Sweden, July 2013 (IAHS Publ. 365, 61-65, 2014).

Assessing the hydrological impacts of agricultural changes upstream of the Tunisian World Heritage sea-connected Ichkeul Lake

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Abstract The impact of changes in agricultural land use and practices as a controlling driver of hydrologic response and as a source of diffuse pollution, are studied in the Joumine River basin, discharging into the Ichkeul Lake, northern Tunisia, a UNESCO World Heritage site since 1979. The lake is characterized by a very specific hydrological functioning based on a seasonal alternation of water levels and salinity through its link to the Mediterranean Sea. Three Landsat images, *in situ* surveys and SWAT modelling were used to simulate and assess streamflows and nitrate loads under retrospective land uses.

Key words land-use change; Joumine basin; SWAT model; nitrates; spatial analysis; remote sensing