The title (العنوان):

Human activity impact on surface water quality in semi-arid regions: a case study of Aïnzeda lake (North-East Algeria)

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Abstract:

Water resources scarcity in Algeria, their fragility and their unequal distribution have resulted in a serious shortage, which, in spite of all the efforts, seems inevitable. This study consists of evaluating the impact of human activity on the water quality of Aïnzeda lake (NE Algeria), a typical case study of the difficulties posed by the problem of surface water quality in semi-arid regions. Principal component analysis (PCA) and the trend method were applied to interpret the physico-chemical data of monthly analyzed samples, over a 25-year period (1988–2012). The trend method results show that most chemical elements have a direct relationship with urbanization and agricultural practices in the area. The change in the watershed climatic conditions (increase of 9% in air temperature, 7% in the lake water temperature, and decrease of 8% in precipitation) is also responsible for the degradation of the water quality. The PCA shows that salinization (51.73%), and anthropogenic and agricultural pollution (13.49%) are the most significant degradation factors. These two approaches have enabled us to prove that aridity and anthropogenic or agricultural activities have a negative impact on the lake's surface water quality.

Key words: Aïnzeda lake, denitrification, eutrophication, pollution, semi-arid region, water resources

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