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Title:	Response of natural and anthropogenic impacts on aquatic systems: A case study from Garur lake, Central Himalaya
Authors:	C., Al Jasil (/jspui/browse?type=author&value=C.%2C+Al+Jasil)
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Abstract:	Freshwater aquatic systems are subjected to rapid deterioration driven by multiple stressors such as climate change and human induced perturbations. The understanding of the long-term history of eutrophication and land use land cover changes provides an opportunity for developing relevant management options. In order to investigate these anthropogenic effects, a 210 Pb and 137 Cs dated sediment core from Garur lake in the Central Himalaya was examined using a comprehensive approach based on multiple indicators of sedimentary organic matter (SOM). The bulk organic (TOC, TN, $\delta^{13}C$, $\delta^{15}N$), grain-size parameters together with lipid constituents (n-alkanes, mid-chain monomethyl alkanes (MMA), Botryococcenes, steroids and triterpenoids) from the core sediments indicated that the lake had undergone apparent changes in the nutrient sources and the productivity in response to the anthropogenically induced land cover changes in the catchment. Since the 1970 onwards, the precipitation/rainfall in the region showed a decreasing trend, whereas the lake experienced a significant increase in the terrigenous input characterised by n-alkane ratios (TAR, Paq) and D[4,3] values attributed to land-use changes in the catchment, including deforestation and encroachment activities. In addition, the temporal variability of Botryococcenes, MMAs, Hopanes and Sterenes are also assessed to elucidate the eutrophication changes for the past 69yrs (2018-1949). In summary, this study provides an effective and comprehensive method for reconstructing the historical change in SOM subjected to changing landscape in the catchment region. Our environmental diagnosis should help policymakers and environmentalists to develop strategic framework for future environmental changes in an aquatic system subjected to anthropogenic stressors.
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