



Natural versus anthropogenic imprints on the shallow shelf of the northern Gulf of Aqaba-Eilat, Red Sea

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Coastal zones worldwide have always been the scene of terrestrial transport from land to sea, but facing to growing attention as development and population growth in coastal cities increased in the past decades. Urbanization took over natural runoff pathways, and diverse running (ephemeral) rivers with their sediments are now regulated and can only reach the sea through some limited number of channels. In one coastal hyperarid city, Eilat, determinate flowing water and related sediment transport to the sea are now channelized into one particular canal that therefore increases sediment loads at the outlet and decreases at the environment of the built-in area. The results of the multiproxy analysis of sediment cores, collected shore perpendicular illustrate for the first time, how such these landscape alterations left marks in the sedimentation pattern in the sea and altered the natural geological record on the shallow continental shelf. Microplastics were found in all sediment cores; in addition, microplastics were used as modern tracers to determine the depth of bioturbation in the sediment column. Below the mixing zone, a sharp increase in flood material concurrently occur in long sediment cores, suggesting the presence of a climate shift that resulted increased number of flooding events in the northern hyperarid Gulf of Aqaba circa 500 years ago.