

Zoning and Releasing of Hydrocarbons (TPHs) And Heavy Metals in Surface Sediments of the Arvand River, Southwest of Iran

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Abstract

To determine the level and concentration zoning of total petroleum hydrocarbons (TPHs) and heavy metals (Pb, Co, V, Ni) in surface sediments of the Arvand River, is the purpose of this study. 10 sampling stations were selected for this purpose, along the river route, and sampling was done in winter of 2017. 90 sediment samples were taken by a Van Veen Grab with a cross section of 0.025 square meters. The amount of heavy metals and the concentration of total hydrocarbons were calculated according to the MOOPAM standard, and using atomic absorption (spectrophotometric) or AAS and a measuring Chromatography machine, and zoning was drawn. Based on the analysis, the highest and the lowest amount of hydrocarbons in station 2 (Dairy Farm pond platform) was 21.96 ± 0.50 mg / L and at station 1 (Nahre Khin) was 91.9 ± 0.19 mg / L. In the case of nickel, lead and vanadium, the highest values at station 9 (Yademane Shohada) were 75.96 ± 0.05 mg / L, at station 6 (Khosrow Abad), 13.07 ± 0.10 mg / L, and at station 7 (The beginning of the menyouhi) was 18.88 ± 0.22 mg / L. According to international standards, the Arvand River banks, in terms of hydrocarbon, were in no-pollution conditions or exposed to little contamination conditions. The amount of cobalt at all stations was less than 0.1%, and in the case of nickel, vanadium and lead, the measured values in the Arvand River sediments were higher than the regional standards of the ROPME Regional Organization (Persian Gulf).

Keywords: Zoning, Petroleum Hydrocarbons (TPHs), Heavy Metals, Sediments, Arvand River.