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Ecologically based sediment quality criteria of the oil content for freshwater ecosystems on example of Kuibishev water reservoir

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Abstract

This article presents the criteria of sediment quality assessment for oil content according the integrated approach which based on chemical, ecological and toxicological data derived from a TRIAD monitoring network. The ecological criteria (the lowest effect level and the severe effect level) were calculated for oil content in sediments of Kuibyshev water reservoir on the base of benthos taxa occurrence. For the toxicological data, the threshold effect level and probable effect level were calculated, based on the results of the toxicological acute pore water and solid phase tests. The sediment quality guideline (49 mg/kg) is as a consensus value of the lowest effect level and threshold effect level. Presented criteria can be used for ecological risk assessment for benthic community in condition of cruel oil contamination.

Keywords

Bioassay, Oil products, Sediment quality criteria