



Carbon sorbents and management of contaminated sediments: there are two sides to every story

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Controlling the bioavailability of chemicals with different type of sorbents in contaminated sediments has been quickly developed to be a considerable choice for remediation. Especially in the case of neutral lipophilic organic chemicals, carbon based materials such as activated carbon has shown to be promising in reducing the exposure of benthic organisms. The efficiency to reduce contaminant bioavailability appears to be chemical congener, sorbent dose and type specific. Sediment characteristics play a role too. In addition to these beneficial effects, there are also secondary implications, which can be manifested in adverse effects in the sediment-dwelling organisms. Similarly with the capacity of sorbent to bind the target contaminants the magnitude of the secondary effects appears to be sediment, organism and sorbent specific. Thus, sorbent properties such as sorption capacity and particle size are important. In addition, less selective sediment feeders are more susceptible to these adverse effects and the effects are stronger in sediments being less suitable as habitat for the organisms. It has to be noted that in sediments that are acutely toxic the amendments can improve well-being of the organisms. The mechanisms of these adverse effects are still partly unclear, but there are indications that reduction of nutrient availability can be one. In addition, other mechanisms can be also discussed. Therefore, the usage of sorbents for remediation purposes requires case specific assessments for to evaluate both positive and negative effects, which is naturally that needs to be done regardless of the remediation method.