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Zn and Cu increases at the Belgian continental shelf: linked to antifouling?

The Belgian Continental Shelf contains 5 dredged spoil disposal sites which are monitored 2 times a year. Results on chemical analyses data from 2005 to 2014 were evaluated, applying a linear mixed-effect model in R. Within the model, the effect of time, season and sludge disposal site, relative to associated reference sites, is studied. PCB concentrations are not decreasing whereas Hg concentrations are increasing at dredged spoil disposal site S2. An increase of Zn concentrations was noticed at dredged spoil disposal sites Oostende and Nieuwpoort, whereas Cu concentrations increased at disposal site Nieuwpoort. Remarkably, these are the least intensively used disposal sites and the dredged spoil at these sites originates from the least industrialised areas. Results suggest that Cu and Zn concentration increase may be related to the use of Cu- and Zn based antifouling agents, which use increased after the TBT-ban. Source investigation revealed different Cu and Zn point sources at harbour Oostende. At Nieuwpoort harbour, no point sources were identified, probably related to adequate measures at boat- and shipyards during blasting or painting of boat hulls.

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