

Nickel and vanadium contamination of benthic invertebrates following the “



Levels of nickel and vanadium, trace metals found in high concentration in the oil spilled from the “Erika” tanker off Brittany (France) in December 1999 (41 ± 1 and 87 ± 3 mg kg⁻¹ respectively), have been monitored over a one-year period following this accidental event in several benthic invertebrates. Ni and V in mussels (*Mytilus edulis*) and oysters (*Crassostrea gigas*) soft tissues were analysed twice a month by graphite furnace atomic absorption spectrometry and a scallop (*Pecten maximus*) shell daily growth bands were sampled every three bands by laser ablation and analysed by ICP-MS for these two contaminants. Survey data for mollusc tissues were compared with reference data arising from the national monitoring database. Ni concentrations in dried tissues, comparable with reference data (1.8 ± 0.9 µg g⁻¹ in mussels and 1.2 ± 0.5 µg g⁻¹ in oysters) do not show any additional input during the whole period. Conversely, a sharp increase in vanadium concentrations (up to 4.6 and 3.2 µg g⁻¹ for mussels and oysters respectively) is observed around May 2000, i.e. 5 months after the wreck, compared with the monitoring data (1.4 ± 0.6 µg g⁻¹ in mussels and 1.3 ± 0.6 µg g⁻¹ in oysters). Furthermore, no Ni peak is detectable in the time profiles of scallop shell growth bands where a V peak is observed also in May 2000. This study shows that although a “mussel-watch-type” network, based on the monitoring of vanadium concentration in mollusc tissues, is able to identify contamination due to oil spills, similar information might be obtained a posteriori by analysing daily growth bands of scallop shells.

Auteurs du document : Jean-François Chiffolleau, Laurent Chauvaud, David Amouroux, Aurélie Barats, Aurélie Dufour, Christophe Pécheyran, Nathalie Roux

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