Predicting Aqueous Concentrations Resulting from Riverine Spills

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A method of predicting the aqueous concentration resulting from riverine spills is developed. This method differs from conventional spill models in that it predicts the concentrations of the various compounds of the spilled product both in the slick phase and in the aqueous phase. This method of accounting is necessary since the concentration of a compound in the aqueous phase is strongly linked to its concentration in the slick phase. Thus, processes such as dissolution and evaporation have the strongest effect on the aqueous concentrations. Methods of predicting evaporation rates are well studied. Methods of predicting dissolution rates are not. A series of experiments was conducted to show that the dissolution rate coefficient for any compound can be easily predicted from the reaeration rate coefficient for a given river reach.