

Modeling Interactions In Major Ion Toxicity To *Ceriodaphnia dubia*

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Various anthropogenic activities can cause exposures of freshwater systems to greatly elevated concentrations of major ions (Na, K, Ca, Mg, Cl, SO₄, HCO₃) with widely-varying compositions. A data set on the acute toxicity of single salts and binary salt mixtures to *Ceriodaphnia dubia* will be presented to identify issues for modeling the toxicity of major ions. Key elements of this include the importance of considering chemical speciation and activity, the existence of both additive and independent toxic interactions between ions, multiple mechanisms of action, and ameliorative effects of some ions on the toxicities of others. Approaches for modeling the toxicity of major ion mixtures will be presented, and evaluated using additional toxicity tests with test waters emulating case studies of elevated ion composition in natural systems. *This abstract does not necessarily reflect USEPA policy.*

Key words: ion toxicity, *Ceriodaphnia*, salt mixtures, modelling

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