

# Higley et al. A probabilistic approach to obtaining limiting estimates JER 66

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A probabilistic approach to obtaining limiting estimates of radionuclide concentration in biota  
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The US Department of Energy has developed a graded approach for evaluating radiation doses to biota. Limiting concentrations of radionuclides in water, soil, and sediment were derived for twenty-three radionuclides. Four organism types (aquatic animals, riparian animals, terrestrial animals, and terrestrial plants) were selected as the basis for method development. While environmental transfer data needed for deriving biota tissue concentrations are available for aquatic animals and terrestrial plants, less information is available for terrestrial and riparian organisms. Two methods were applied and examined for their ability to provide estimates of organism:soil or organism:water concentration factors in lieu of measured data. The kinetic/allometric approach combined with a parameter uncertainty analysis provides a needed method to estimate concentration factors across multiple species with limited input data.

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