

Vives i Batlle et al. Calculation of dose per unit concentration values for aquatic biota JRP 24

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A method for calculation of dose per unit concentration values for aquatic biota.
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A dose per unit concentration database has been generated for application to ecosystem assessments within the FASSET framework. Organisms are represented by ellipsoids of appropriate dimensions, and the proportion of radiation absorbed within the organisms is calculated using a numerical method implemented in a series of spreadsheet-based programs. Energy-dependent absorbed fraction functions have been derived for calculating the total dose per unit concentration of radionuclides present in biota or in the media they inhabit. All radionuclides and reference organism dimensions defined within FASSET for marine and freshwater ecosystems are included. The methodology has been validated against more complex dosimetric models and compared with human dosimetry based on ICRP 72. Ecosystem assessments for aquatic biota within the FASSET framework can now be performed simply, once radionuclide concentrations in target organisms are known, either directly or indirectly by deduction from radionuclide concentrations in the surrounding medium.

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