

## **Radionuclide biological half-life values for terrestrial and aquatic wildlife**

**N.A. Beresford<sup>1,2</sup>, K. Beaugelin-Seiller<sup>3</sup>, J. Burgos<sup>4</sup>, M. Cujic<sup>5</sup>, S. Fesenko<sup>6</sup>, A. Kryshev<sup>7</sup>, N. Pachal<sup>8</sup>, A. Real<sup>9</sup>, J. Vives i Batlle<sup>10</sup>, S. Vives-Lynch<sup>11</sup>, C. Wells<sup>1</sup>, M.D. Wood<sup>2</sup>**

**<sup>1</sup>NERC Centre for Ecology & Hydrology, UK; <sup>2</sup>University of Salford, UK; <sup>3</sup>Institut de Radioprotection et de Sûreté Nucléaire (IRSN), France; <sup>4</sup>Iberdrola Ingeniería y Construcción, Spain; <sup>5</sup>University of Belgrade, Serbia; <sup>6</sup>IAEA, Vienna; <sup>7</sup>SPA Typhoon, Russia; <sup>8</sup>McMasters University, Canada; <sup>9</sup>Ciemat, Spain; <sup>10</sup>Belgian Nuclear Research Centre (SCK•CEN), Belgium; <sup>11</sup>Sterrenstraat 15, Belgium**

### *Abstract*

The concentration ratio model is typically used to estimate activity concentrations within wildlife dose assessment tools. Whilst this is assumed to be fit for purpose, there are scenarios such as accidental or irregular pulsed releases from licenced facilities where this may not be the case. In such circumstances, the concentration ratio approach may under- and over-estimate exposure depending upon the time since the release. This demonstrates a need for a dynamic approach to carry out assessments for such situations. The simplest and most practical approach is representing the uptake and turnover processes by first-order kinetics, for which organism- and element-specific biological half-life data are required. In this paper we describe the development of a freely available international database (developed within the IAEA MODARIA programme) of biological half-life values. The database includes 1580 entries for terrestrial, freshwater, riparian and marine organisms that can be used for this purpose. Biological half-life values are reported for 52 elements across a range of wildlife groups (marine=9 groups, freshwater=10, terrestrial=7 and riparian=3). Potential applications and limitations of the database are discussed.

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