

IMPACT ASSESSMENT OF IONISING RADIATION ON WILDLIFE: MEETING THE REQUIREMENTS OF THE EU BIRDS AND HABITAT DIRECTIVES

COPPLESTONE D., WOOD M. D., BIELBY S., JONES S. R., VIVES J., BERESFORD N. A. & ZINGER, I.

School of Biological Sciences, University of Liverpool, Liverpool, Merseyside, L69 3GS, England, mwood@liv.ac.uk

In the UK, research funded by the Environment Agency/English Nature has provided a tool for calculating doses received by biota in coastal, freshwater and terrestrial ecosystems. The approach uses the reference organism concept where the organism of interest (feature organism) is equated to a particular reference organism (based on its physical geometry and ecology). The exposure of the reference organism, and consequently the feature organism, to different radionuclides and dose rates can be assessed using a spreadsheet-based mathematical tool. This assessment tool was developed in 2001 and provided an internationally recognised starting point from which more refined assessment tools could develop. As the need for conducting specific assessments under the UK Habitat Regulations became apparent, it was recognised that some targeted refinement of the assessment tool was required. One of the major problems with the tool related to a lack of species-specific data and a lack of information on certain radionuclides appearing in discharges that may be impacting on sites/species to be protected. A second research and development project was therefore undertaken to reduce the uncertainties associated with the assessment tool by collating additional species-specific data, developing a mathematical system for ensuring that the most appropriate reference organism was selected and extending the range of radionuclides included in the assessment. This specific expansion to the assessment tool was directed towards ensuring that species at Natura 2000 sites (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)) were adequately protected. The species targeted (feature species) for this assessment were species protected under the EC Habitats Directive and those that are characteristic of habitats protected under the Directive. The paper will show how typical dimensions of each feature species are collated and each feature species mathematically aligned with the most appropriate reference organism geometry.