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Environmental Radiation Measurements of Sea Sponges (*Microciona prolifera* and *Halichondria bowerbanki*) BERTA DARAKCHIEVA, MILOSLAVA EVTIMOVA, CORNELIUS BEAUSANG, SHELLY LESHER, MALCOLM HILL, University of Richmond — The applications of radiometrics in the ecological sciences are numerous and of increasing importance. It is a powerful technique that can be used both for tracing various biological processes and for assessing levels of radioactive pollution in the environment. The aim of this project is to gather information on the levels of radioactivity in the Chesapeake Bay area by evaluating the radiation dose concentrations in sea sponges. Microciona prolifera and Halichondria bowerbanki, which are abundant in the Bay, serve as experimental organisms. A radiometric test is performed with two HPGe detectors located at the University of Richmond to identify any radionuclides present in the sponges. In order to increase the efficiency of the measurements, the collected sponges are frozen and ground in liquid nitrogen, thus forming a sample of condensed biomass which can be close packed around the germanium detector. The analysis includes measurement of the relative intensities of the detected gamma rays and identification of the elements. The spectral data will be used to calculate DCCs (dose conversion coefficients for the species), which will be compared with the values typical for natural radioacitvity and for anthropogenic contamination. This work is partly supported by the U.S. DOE under grant numbers DE-FG52-06NA26206 and DE-FG02-05ER41379 and by the University of Richmond HHMI fellowship.

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