INFLUENCE OF GLACIAL RUNOFF ON BASELINE METAL ACCUMULATION IN THE ANTARCTIC LIMPET NACELLA CONCINNA FROM KING GEORGE ISLAND
KOPRI, Incheon, South Korea
iahn@kopri.re.kr

Spatial variation of baseline metal concentrations was investigated for the Antarctic limpet Nacella concinna collected from a bay on King George Island with reference to glacial runoff. In seawater, concentrations of suspended particulate matter (SPM), Al and Fe were notably elevated at the sites near the sources of glacial runoff, and sharply decreased with increasing distance from the melt-water sources, indicating massive input of lithogenic particles into the bay along with the melt water. Cu, Mn, Pb and Zn also showed similar distributional patterns, demonstrating that these metals were associated with the lithogenic particles. As in the seawater, concentrations of Cu, Mn, Fe and Pb in the limpet tissue showed a strong tendency to increase towards the sources of glacial discharge with highly elevated values at the sites near the sources. Thus, we have found a wide range of spatial variation of the baseline concentrations in limpet tissue which closely reflects concentration variation in ambient sea water influenced by varying degrees of ice-melt water input. Glacial-melt water runoff would be subject to change in amount and composition temporally as well as spatially, causing some fluctuations in natural background levels of elements of lithogenic sources in the surrounding seawater and subsequently in the tissue of biomonitor organisms, which should be taken into consideration in conducting future monitoring.