Arctic and Antarctica are widely recognized as an area less affected by human activity. However, as a result of tests of nuclear weapons, discharges from nuclear power plants and nuclear and radiation accidents, polar areas have also been contaminated with anthropogenic radioactive isotopes. Radioactive isotopes, due to different half-life times, may occur in the environment from several days to several thousand years. Two major anthropogenic isotopes influencing the current levels of radioactivity in the environment are ^{90}Sr and ^{137}Cs. These isotopes, due to the long half-life (about 30 years) and the high value of the absorption coefficient, are considered to be one of the most dangerous isotopes of anthropogenic origin. Only a few percent of the total load that was introduced into the environment has been deposited in the Arctic. Nevertheless, preliminary studies carried out in the area of the Svalbard Archipelago have shown that the activities of the discussed isotopes in benthic organisms are relatively high. This may indicate a presence of an additional sources of the discussed isotopes in this region. Therefore, studies are planned to determine the ^{90}Sr and ^{137}Cs activities in various species of zoobenthos organisms from the Arctic and Antarctic regions, as well as in bryophytes, lichens and fungi collected from both the glacier and the hinterland regions. The results will provide detailed information on levels of ^{90}Sr and ^{137}Cs activities in selected organisms. This allow to verify hypothesis whether melting glaciers could act as a derivative source of isotopes found in the waters surrounding the polar regions and if this process may have an impact on further changes of isotopes activities in the polar trophic web. The scientific cooperation with the Institute of Oceanology of the Polish Academy of Sciences will allow to collect the selected benthic organisms from the Svalbard Archipelago (from the stations located near the glacier as well as from areas at a considerable distance from the glacier). Studies will be also extended of lichens, fungi and bryophytes from glacial moraines samples collected by researcher of the Polar Research and Documentation Department of the Jagiellonian University. To compare the activity of ^{90}Sr and ^{137}Cs in organisms from Spitsbergen, with organisms from less polluted areas, collection of echinoderms, lichens, fungi from the Admiralty Bay (Antarctica) is planned. Samples of selected organisms will be collected in cooperation with the Department of Marine Biology from the Scientific University of the South in Peru, the Institute of Oceanology of the Polish Academy of Sciences and the Institute of Oceanography of the University of Gdańsk. Planned research will be the first such comprehensive study on ^{90}Sr and ^{137}Cs in fauna and flora from polar regions. The results of the studies may be the basis for further research related to the distribution of radioactive isotopes in the arctic regions.