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Mercury and methylmercury in the benthic organisms of Admiralty Bay (Antarctica).

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There are only few studies on the concentration of mercury in organisms inhabiting the polar regions, in particular those living in Antarctica. Therefore, it is difficult to accurately illustrate the toxic effects of mercury on the local fauna. The aim of this study was to recognize the concentration of total mercury and methylmercury in organisms inhabiting the Antarctic coastal zone and compare these results with organisms from the Arctic. An attempt was made to determine the potential for mercury and methylmercury to accumulation and biomagnification in the benthic food web depending on the trophic level and the size of the organism. In addition, the effect of melting glaciers on the concentration of total mercury in marine organisms was investigated. The research was carried out on samples of benthic organisms collected directly by divers from the Admiralty Bay during austral summer 2018/2019. The concentration of total mercury and methylmercury was analyzed in 3 representatives of Antarctic benthos - gastropod *Nacella concinna*, sea urchin *Sterechinus neumayeri* and starfish *Odontaster validus* using the method of atomic absorption spectrometry. The obtained results confirmed the existence of processes such as accumulation and biomagnification of mercury in marine organisms from the Admiralty Bay. However, mercury concentration in Antarctic zoobenthos were lower than those measured in the Arctic, as well as methylmercury concentration. The problem of high mercury and methylmercury concentration in organisms inhabiting the polar regions is particularly important due to the characteristics of the local fauna, which is slow metabolism and longevity. In addition, the endemic nature of the Antarctic fauna and the relatively short trophic chain mean that these animals, and especially the organisms at the top of the food pyramid, may be particularly endangered on many contaminants. Research on benthic organisms can be an important part of polar monitoring, due to their relatively limited movement. This study has been performed within the framework of a National Science Center projects No. 2019/33/B/ST10/00290 and No. 2017/27/N/ST10/02230.