



# Does climate change affect mercury inflow to periglacial regions? (King George Island, Antarctica)

Aleksandra Cichecka<sup>1</sup>, Dominika Saniewska<sup>1</sup>, Michał Saniewski<sup>2</sup>

<sup>1</sup>University of Gdańsk, Institute of Oceanography, Department of Marine Chemistry and Environmental Protection, Poland

<sup>2</sup>Institute of Meteorology and Water Management - National Research Institute, Gdynia, Poland



aleksandracichecka99@gmail.com



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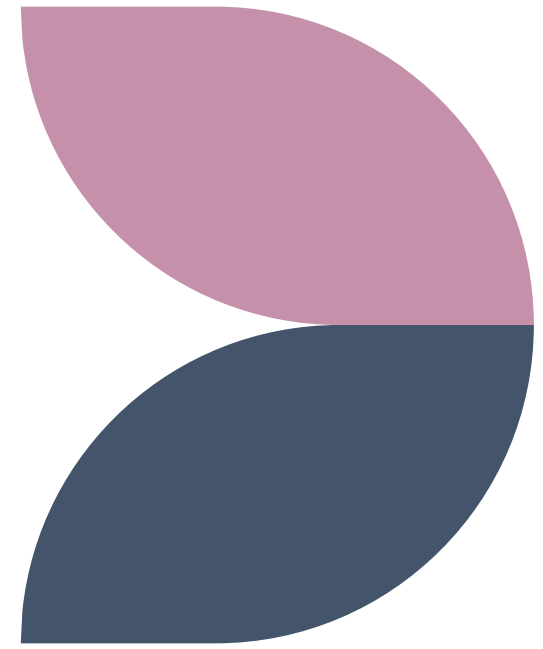


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This study has been performed within the framework of a National Science Center projects No. 2019/33/B/ST10/00290 and No. 2017/27/N/ST10/02230.

# Introduction



# Why Antarctica?

- **Fragile environment** - the highest temperature rise in the southern hemisphere in the last few decades (+3 °C)
- Presence of factors that enable the initiation of **rock erosion** and **soil formation processes**
- Long **distance** from **anthropogenic mercury sources**



# Why Antarctica

- **Fragile environment** - the highest temperature rise in the southern hemisphere in the last few decades (+3 °C)
- Presence of factors that enable the initiation of **rock erosion** and **soil formation** processes
- Long **distance** from **anthropogenic mercury sources**

- To determine the impact of periglacial regions formation on the inflow of Hg to the Antarctic ecosystem.
- To establish the bioavailability of Hg contained in soil in the study area.



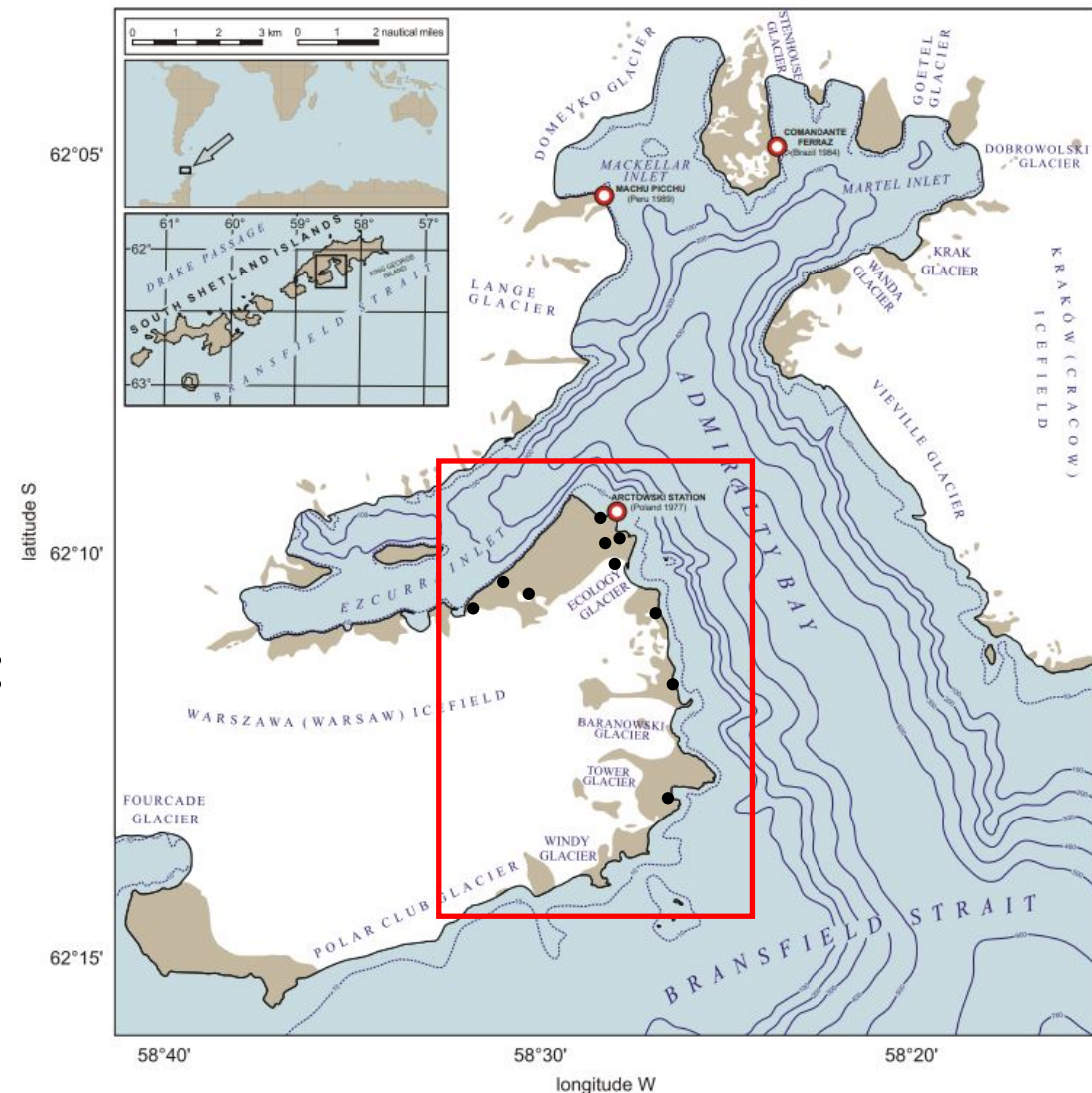


# Research area

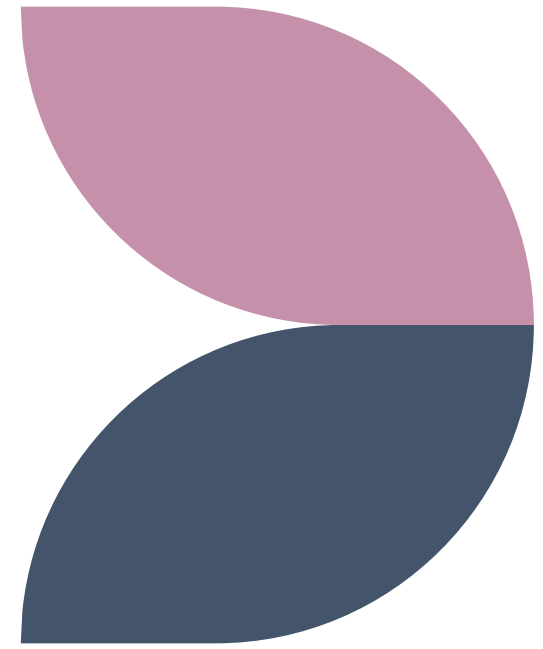
- Sampling area: King George Island
- Sampling date: 12.2018 – 01.2019

## Hg concentration measurement:

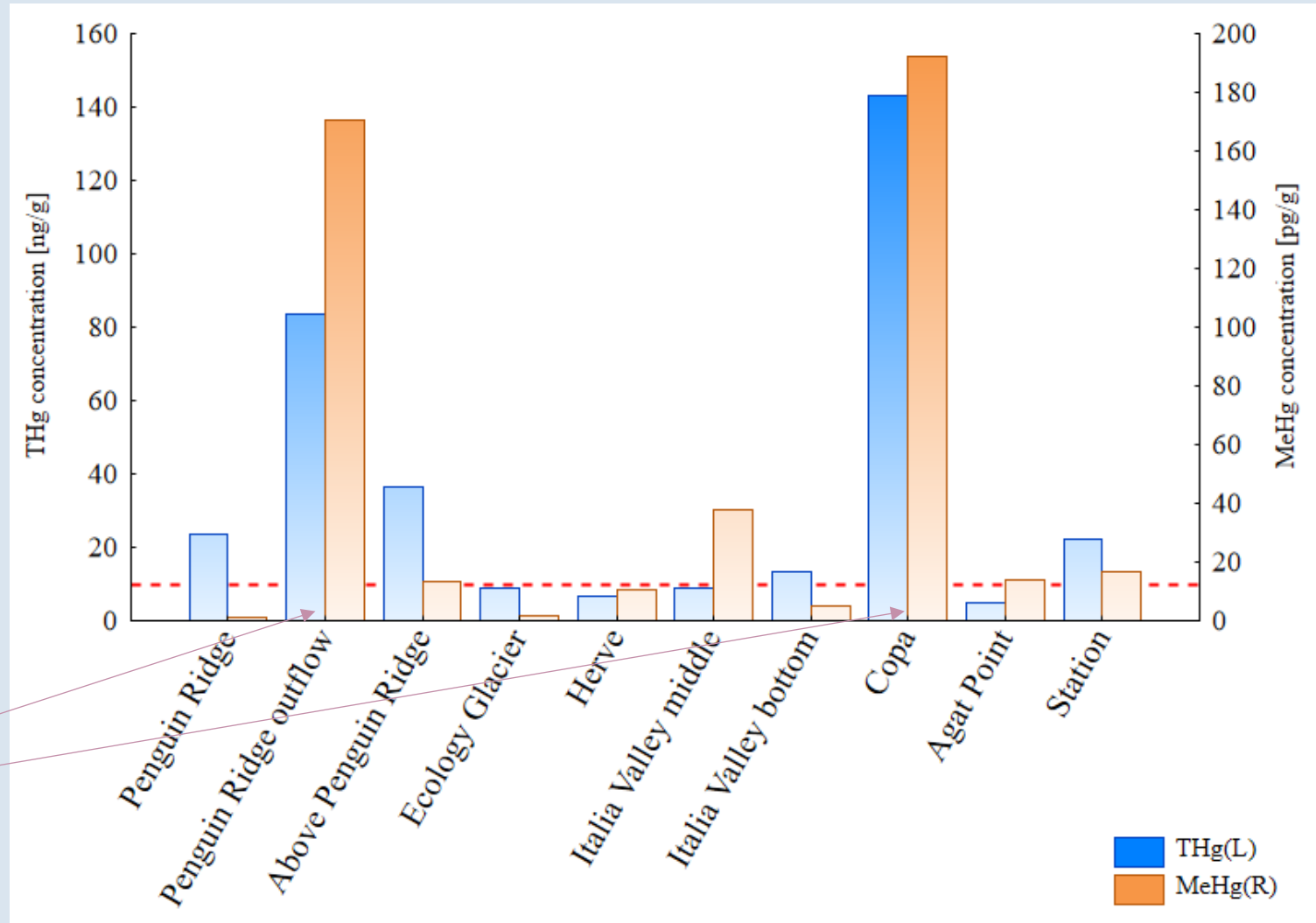
- THg: DMA-80
- MeHg: MERX-M



# Results and discussion

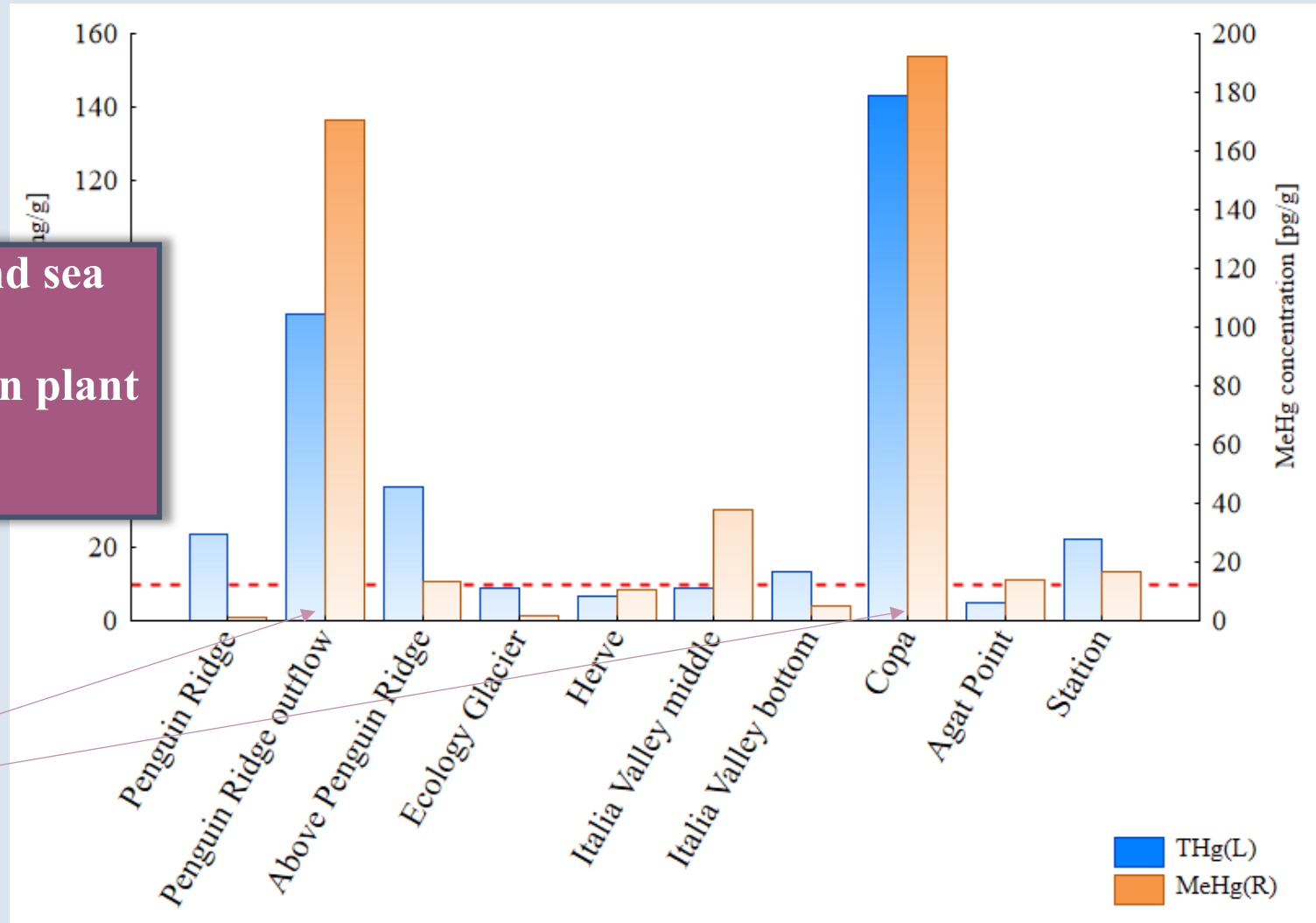


# Soil

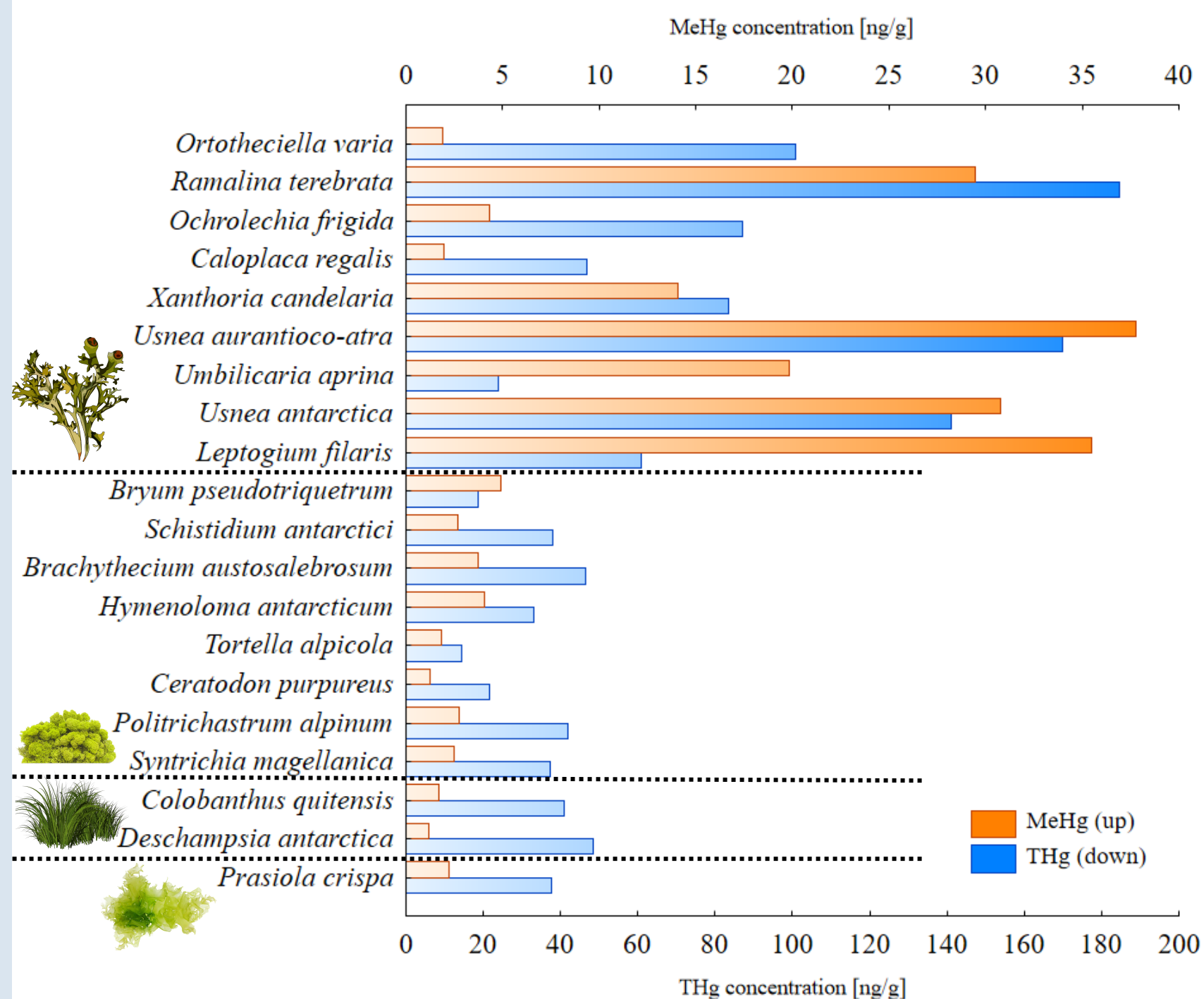


# Soil

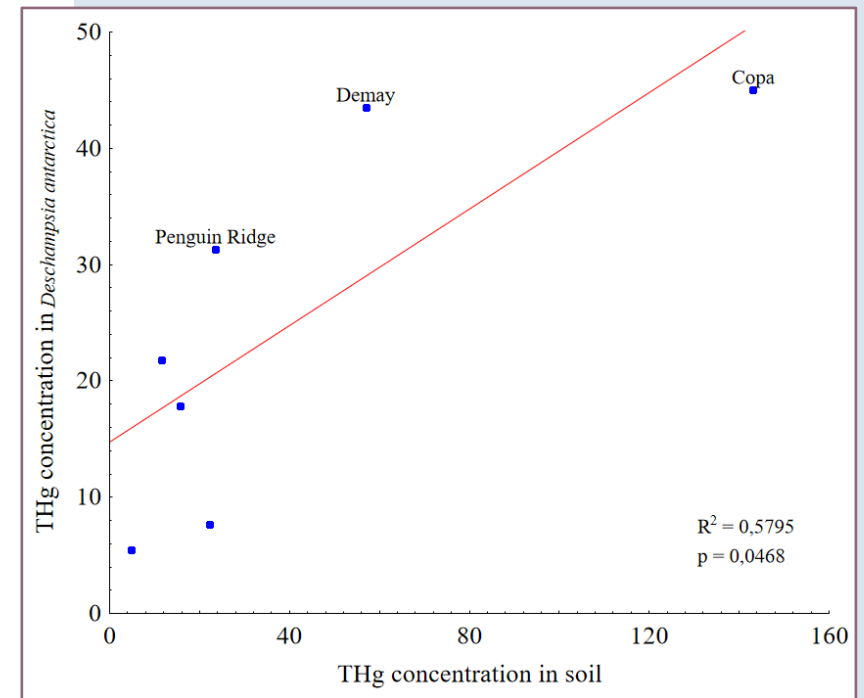
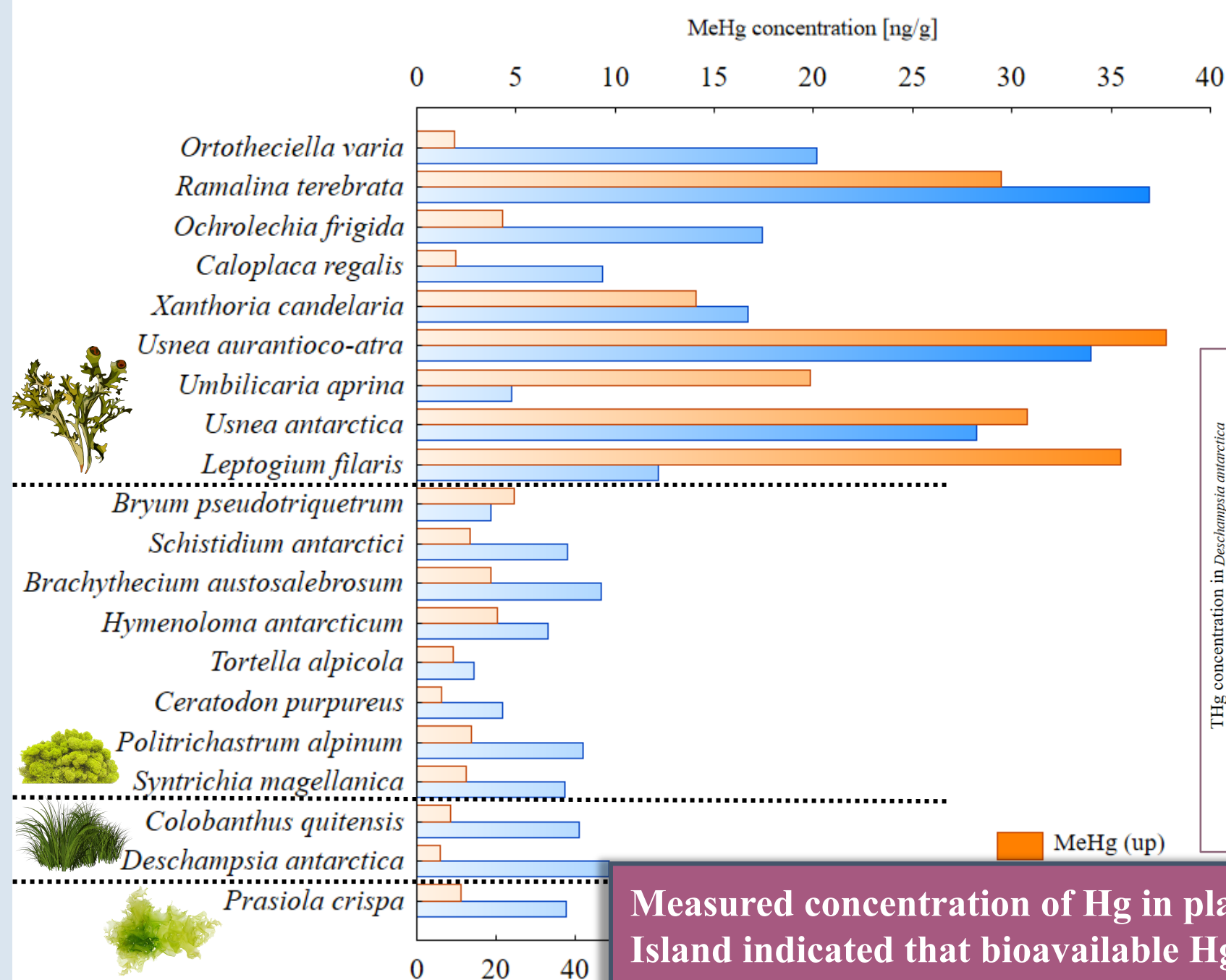
The presence of animals - penguins and sea elephants impacted the increased concentration of Hg both in soil, and in plant and lichen samples.



# Plants and lichens



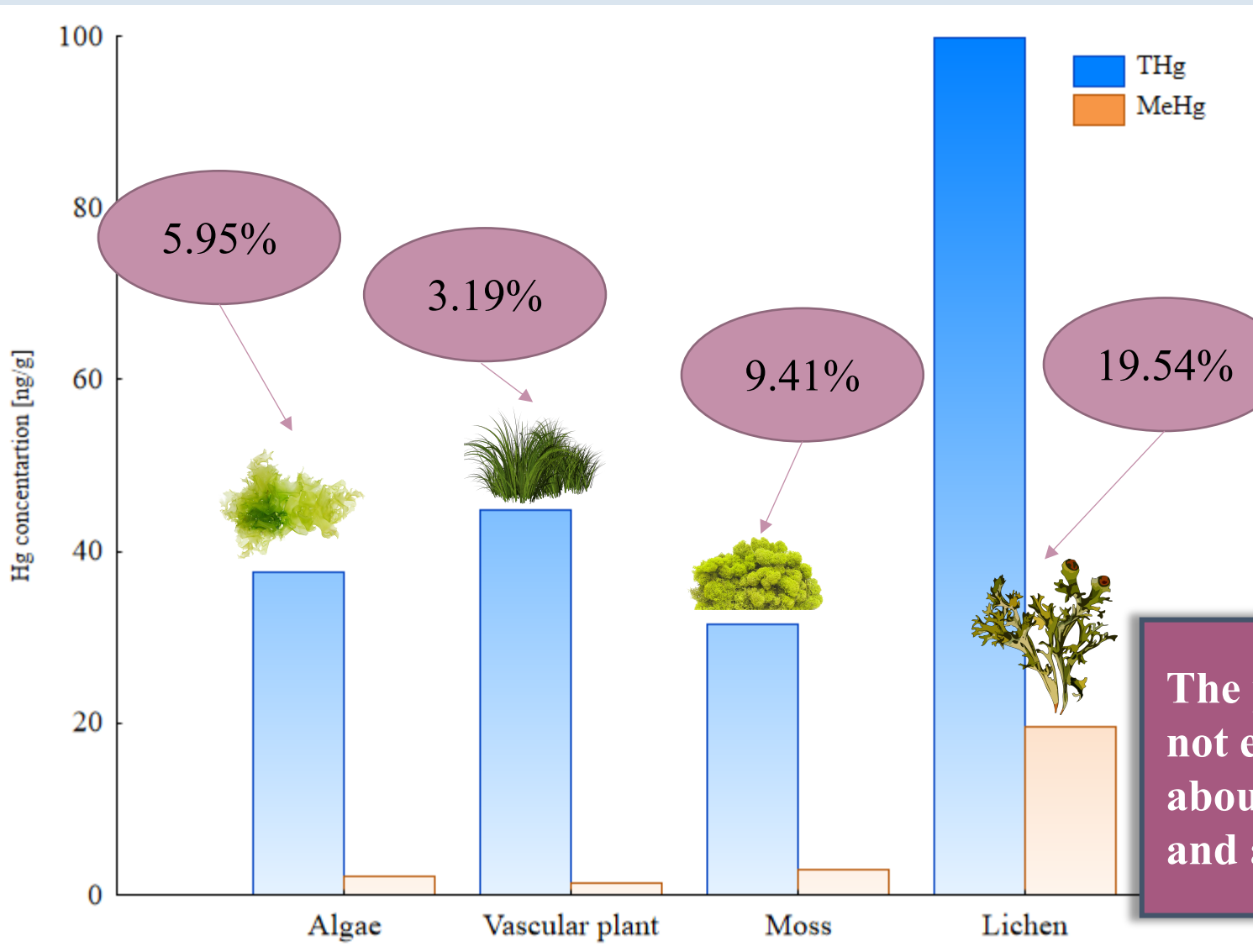
# Plants and lichens



Measured concentration of Hg in plants on King George Island indicated that bioavailable Hg was present in soil.



# Plants and lichens



The percentage of methylmercury in soil did not exceed 0.5%, however, this value reached about 80% in lichens, about 12% in mosses and about 8% in vascular plants.



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## Thank you for attention!



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