



Expedition MSM-139 GreenHAB

Reykjavík – Reykjavík

Weekly report Nr. 3

04 – 10. August 2025

In the third week, on July 28, 2025, at 7 a.m. UTC, we reached our northernmost station at 75° 00.2' N, 58° 43.7' W with the FS Maria S. Merian. During the course of the day, the sun came out, allowing us to see the huge icebergs off the coast and the Greenland ice sheet. We were able to extract sediment cores measuring a good 4 meters in length and hope that analyzing them will provide us with far-reaching insights into the biological and geological past of the region.



Photo: Uwe John, Philippe Schmitt-Kopplin

We worked our way south over three days, taking samples at six stations. As in any field of research, we measured primary production—how fast phytoplankton grows—and nitrogen uptake rates—which nutrients it uses—at different temperatures. Nitrogen is the most important nutrient for phytoplankton and is present in water in various forms. On board, we conduct experiments in which we compare the uptake of nitrogen in the form of nitrate and ammonium. Nitrate enters the sea from deeper water layers or from land, while ammonium is produced by bacteria that break down dead material in the upper water layers. The availability and use of the respective nitrogen source influences species composition, growth rates, and the amount of carbon

exported and stored. By using different higher temperatures, we are trying to understand how primary production and nitrogen uptake may change in the future as seawater warms in the wake of climate change.



Photo: Julia Oelker

On August 9, 2025, we reached our fourth research area, the Uummannaq Fjord System. We took the first samples deep in the fjord, just under 2.5 nautical miles from the edge of the glacier that flows into the sea. The seabed conditions and bathymetry were challenging, and it took us some time to find the right position for sampling among the ice. The wind died down, and we were able to admire the impressive scenery of high mountains, glaciers, and icebergs.

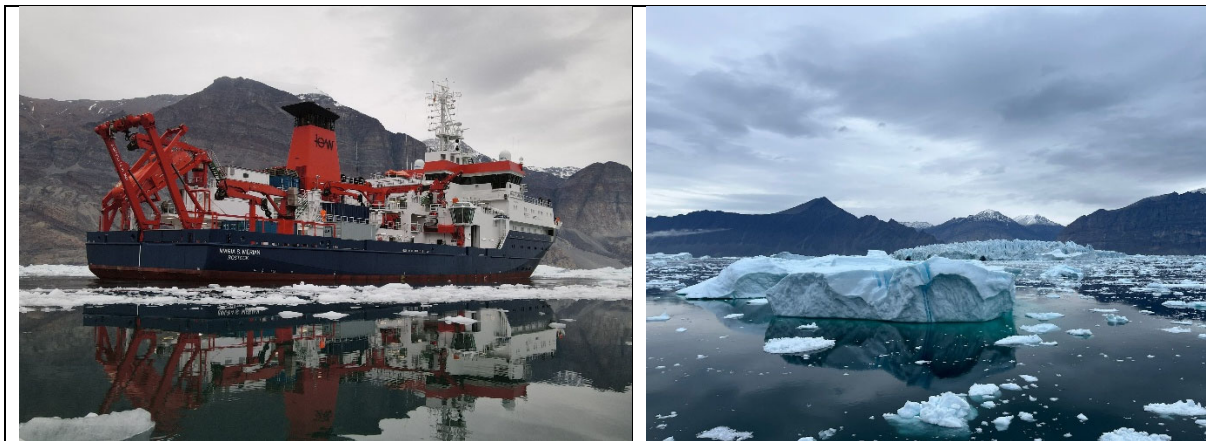


Photo: Tom Ederleh, Leila Kopplin

Best regards on 10 August, at 71° 36,1'N / 52° 14,1'W.

Uwe John

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