

Expedition MSM-144 „FjordChange“ Reykjavík – Reykjavík

5th Weekly Report July 13 - 19, 2026



This week, we worked our way through the stations in the Hausgarten and were accompanied by dozens of feeding humpback whales whilst taking samples. We then headed to Kongsfjord to survey the final fjord of our expedition. We spotted beluga whales and minke whales, and polar bears on land. An impressively beautiful fjord. In Ny-Ålesund, we exchanged refrigerated samples and are now on our way to Longyearbyen to drop off our Norwegian colleagues.



Photos: Habian Moye, Julia Oelker. left: Humpback whales feeding in the Fram Strait; right: Kongsfjord, the Pyramids.

We have visited now all four Fjords (van Mijenfjorden, Rijpfjorden, Wijdefjorden and Kongsfjord) and collected phytoplankton with a 20 micron mesh plankton net. Four samples have been collected in each of the fjords. The phytoplankton biomass has been low in all samples, but the diversity has been fairly high. The genera *Alexandrium* and *Dinophysis* that contain toxic species have been encountered in all samples. Heterotrophic dinoflagellates such as *Protoperidinium* have been dominating the samples and diatoms have been scarce. A few small colonies of *Phaeocystis* have been observed sporadically.

We have picked single cells of species of the genera *Alexandrium* and *Dinophysis* under a light microscope, to analyse their DNA and their gene expression. To do this, we use an extremely fine glass pipette that can pick up a single cell, and we rinse it in sterile seawater. We are also picking phytoplankton to grow in the laboratory, as a type of ‘gardening’. For this, we use clean, bacteria-free seawater with added nutrients, and we keep the cells under the light and at a temperature like that of the sea.



Photos: Fabian Moye: Plankton nets; Prof. Wenche Eikrem and Prof. Shauna Murray examining microplankton under a microscope.

Zooplankton constitute an important link between lower and higher trophic levels, particularly in the Arctic, where the food web relies on relatively few key components. At the same time, Atlantification is creating conditions favourable to many boreal Atlantic species, while proving detrimental to Arctic species. By sampling zooplankton across different water masses (Atlantic and Arctic), we can track how these communities are shifting as Atlantic water increasingly intrudes into Svalbard's fjords and adjacent shelves.

To do this, we deploy a WP3 zooplankton net with a 1 mm mesh size, vertically towed from the seafloor to the surface, to sample macrozooplankton communities. We also use a Bongo net with a 180 μm mesh to characterise mesozooplankton (200–20 μm) communities throughout the water column.



Photos Julia Oelker: Deployment of the large zooplankton net and the Bongo net; right: Isadora Jalil preparing the Bongo net.

The organisms we collect are fixed and transported to the lab, where we taxonomically identify them to determine community composition, species length distributions, and biomass. This data will reveal how these communities are responding to climate change. In the Fram Strait (Hausgarten), at greater depths (1000–500 m) than in Svalbard fjords. The deep-sea zooplankton community looks quite different from what we've observed in the fjords: large chaetognaths are common, and the waters are dominated by amphipods rather than copepods.

We received excellent support from the crew of the RV MARIA S. MERIAN, which enabled us to achieve all the expedition's objectives. In addition, we supported the Nansen Environmental and Remote Sensing Center (NERSC) by successfully recovering a HIAOOS ice buoy in the night of Friday the 17th that had gone adrift. The buoy is now safely secured on board and will be transported to Longyearbyen for unloading.

Best regards, 19th July 2026, at 78° 56,8'N; 09°58,2'E

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