AMUNDSEN SCIENCE

Press Release
FOR IMMEDIATE RELEASE
Detailed fact sheet annexed

A research consortium has carried out multiple scientific operations at the 82nd parallel, in the Nares Strait.

Nares Strait, Arctic, September 21, 2023 – Aboard the unique Canadian research icebreaker CCGS *Amundsen*, a consortium of 14 academic and governmental institutions in Canada, Denmark and Norway carried out scientific operations at latitude 82°09.32'N as part of the third Leg of the annual expedition. As of September 14, 2023, these operations have resulted in the collection of a unique set of samples and data at the most northerly location ever sampled by the CCGS *Amundsen* since its inauguration in 2003.

Nares Strait, a marine passage located between Ellesmere Island (Nunavut, Canada) and Greenland, plays an important role in the regional climate system and Arctic biological productivity. During winter, the consolidated ice in the narrow sectors of the strait acts as a temporary barrier for multi-year ice drifting from the Arctic Ocean, thereby contributing to holding the Arctic's oldest and thickest sea ice in the Lincoln Sea, a region that has been very sparsely studied in the Arctic Ocean. In a warming climate, this area is expected to be where multi-year sea ice persist the longest. It is thus considered the last refuge for sea ice-dependent ecosystems and the region has received interim protection in Canada, through the creation of the Tuvaijuittuq Marine Protected Area. However, due to their geographical location and harsh sea-ice conditions, the Nares Strait and the Lincoln Sea are difficult to access, and only rare scientific initiatives have attempted to study their marine ecosystems.

The team of 37 scientists on board, in collaboration with the crew of the CCGS *Amundsen*, deployed eleven oceanographic moorings and sampled 23 stations from Jones Sound, south of Ellesmere Island, to the entrance to the Lincoln Sea. Water masses, nutrients, sediments, phytoplankton, zooplankton and fish were sampled in straits, sounds and fjords, including the first characterization of Archer Fjord, one of the northernmost Ellesmere Island's fjords, also identified as an ecologically significant area within Tuvaijuittuq. Optical measurements have been regularly carried out to validate satellite observations, and glaciologists have deployed beacons on glaciers and icebergs to better understand how ice dynamics impact regional marine ecosystems. The *Amundsen* also mapped the seabed in several previously unmapped areas of this remote region of the Canadian High Arctic.

"The research collaboration hosted on the CCGS *Amundsen* benefits all Canadians. The scientific research is vital to better understand the unique Arctic ecosystems, like those found in the Tuvaijuittuq Marine

Protected Area. This area represents a significant contribution to Canada's ongoing commitment to protecting marine and coastal areas, as we work towards conserving 25 per cent of our marine ecosystem by 2025, and 30 per cent by 2030. Congratulations to the team for their great accomplishments during the expedition and I wish them every success in the future."

- The Honourable Diane Lebouthillier, Minister of Fisheries, Oceans and the Canadian Coast Guard

All these operations have been planned by a team of multidisciplinary scientists from, among others, the REFUGE-ARCTIC program in Takuvik laboratoratory from University Laval, programs from New-Brunswick University and Memorial University of Newfoundland and Labrador, Sentinel North, ArcticNet and the Department of Fisheries and Oceans Canada, and managed by Amundsen Science. They will provide comprehensive new baseline information in regions of Tuvaijiuttuq and the Lincoln Sea not frequently explored before due to persistent ice cover, as well as downstream ecosystems. This information will make it possible to study key processes linked to past, present and future climate-induced changes in the region.

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About Amundsen Science

Amundsen Science is the organization responsible for the management of the scientific mandate of the research icebreaker CCGS *Amundsen*. Mobilized for science in 2002 thanks to major grants from the Canada Foundation for Innovation and other partners, the *Amundsen* has been pivotal in revitalizing Canada's research effort in the study of the changing Arctic Ocean. Every year, the research icebreaker accommodates hundreds of researchers, experts, and students participating in innovative and multidisciplinary programs addressing some of the most pressing challenges of our time.

Hosted at Université Laval, Amundsen Science manages the vessel's pool of scientific equipment, coordinates the deployment of the icebreaker for science, and provides logistical, financial and technical support to user programs.

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