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Structure and resilience of the benthic food web across the Canadian Arctic Ocean and the Chukchi sea.

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Abstract :

In recent decades, the Arctic Ocean has undergone unprecedented changes, such as an increase in the surface temperature and a reduction of sea ice cover. These changes may cause variations in the intensity and spatial distribution of primary production and the nature of pelagic-benthic coupling. This could affect the amount and quality of organic matter that settles onto the seafloor, and the benthic communities that feed upon it. The objectives of this study were i) to describe the trophic structure and resilience of regional benthic food webs using stable carbon and nitrogen isotope analyses and ii) to evaluate the significance of ice algae in the diet of benthic communities using the sea ice proxy IP25. The study area extends from the North Water Polynya to the Chukchi Sea across five geographic regions (North Water Polynya, Canadian Archipelago, Amundsen Gulf, Beaufort Sea and Chukchi Sea) based on environmental factors. To reach these objectives, we collected particulate organic matter (POM), sediments and zoobenthic samples from July to October 2014 aboard the *CCGS Amundsen*. Comparison between regions of the stable isotope, IP25 data, trophic structure and resilience will be presented. Potential impacts of climate change and human activities on benthic ecosystems in the Arctic are still difficult to assess because of the lack of baseline data. The baseline data once provided will enable us to make further predictions on how these changes may affect benthic food web structure.

Keyword: Canadian Arctic; Chukchi sea; Benthos; Stable isotopes; Ice Proxy; IP25; Trophic structure; Resilience.

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