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Publication date:
2024

Document Version
Publisher's PDF, also known as Version of record

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Citation (APA):
Rist, S., Rask, S., Ntinou, I. V., Varpe, Ø., Lindegren, M., Ugwu, K., Larsson, M., Sjöberg, V., & Nielsen, T. G. (2024). *Cumulative Impacts of Climate Change and Oil pollution on Arctic Copepods*. Poster session presented at 22. Danske Havforskermøde, Lyngby, Denmark.

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CUMULATIVE IMPACTS OF CLIMATE CHANGE AND OIL POLLUTION ON ARCTIC COPEPODS

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Climate change and pollution are expected to increase in the Arctic in the future. Still, the combined impact on the marine ecosystem is not well understood. In this study, we investigated the cumulative impact of crude oil and two climate change scenarios on the feeding of the copepod species *Calanus glacialis* and *Calanus finmarchicus*. Adult females were exposed to ambient conditions and two scenarios of warming and freshening. All three conditions were tested in the absence and presence of mechanically dispersed oil (1 $\mu\text{L L}^{-1}$). During the 6 days of exposure, incubations were renewed daily and the number of fecal pellets was counted. The fecal pellet volume was measured three times. Warming from 0 to 5°C plus freshening from 33 to 27 psu resulted in a significant increase in feeding for both species. However, when salinity dropped to 20 psu (at 5°C) feeding decreased for *C. glacialis*, while fluctuating for *C. finmarchicus*. For both species, oil had the strongest effect, leading to a 68-83% reduction in feeding, overshadowing any differences between climatic conditions. The results demonstrate the sensitivity of Arctic copepods to all three parameters, with some cumulative effects.