

# Danielle Magann Grant

BSc (Honours), MSc, PhD (2023)

[daniellemagann.com](http://daniellemagann.com)

[danielle.m.grant@hotmail.com](mailto:danielle.m.grant@hotmail.com)



PhD researcher in molecular ecology and oceanography focused on cutting-edge environmental DNA techniques for polar ecosystems to understand past and present biodiversity response to climate change. My extensive technical and molecular laboratory knowledge and research experience would make me a valuable addition to your group.

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## Relevant Skills:

### *Technical:*

- data collection/ quality assessment/ archiving
- scientific instrumentation installation & maintenance
- Coding with command-line, R, python
- Software experience with genomics and remote sensing softwares
- SOP development for fieldwork, wet-lab, and bioinformatic workflows
- ocean observations & remote sensing
- environmental genomics
- sediment coring/sampling
- microscopy

### *Laboratory:*

- Various PCR and sequencing methods: end-point, qPCR, ddPCR, sanger-sequencing, MiSeq, NovaSeq, fragment analysis
- Animal care/ handling for scientific work
- DNA extraction with kits and lab-designed methods: cell cultures, tissues, sediment, water/ ice
- Primary and secondary cell culture

### *Professional:*

- scientific communication through oral presentations both academic & ted-x style
- written communication in peer-reviewed articles, reports, and popular science content
- visual storytelling through data visualisation
- teamwork & collaboration
- lab & fieldwork logistics
- dedication to positive work environments
- organisation while under pressure

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## Education

2023 PhD in Marine Ecology and Paleoceanography, University of Bergen, Norway

2018 MSc in Veterinary Medicine, University of Calgary, Canada

2016 HBSc in Biological Sciences, University of Calgary, Canada & Lund University, Sweden

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## Research & Technician Experience

2019 – 2023 PhD Candidate in Molecular Ecology and Ancient DNA Laboratory

NORCE Climate and Environment, Norwegian National Research Centre.

- Key contributor to the development of the NORCE Ancient DNA Lab working protocols and designed/ carried out data collection of hundreds of samples resulting in millions of sequencing data points. (Lab Fire Safety Training/ Marine Field work)
- Methods in statistics, big-data handling, and machine learning algorithms.



## Research & Technician Experience

2019 Microscopy Technician

Microscopy & Imaging Facility, University of Calgary, Canada

- Technical and research support for 3D super-resolution microscope Zeiss Elyra.

2018 - 2019 Research Associate (Czub Virology Lab)

Comparative Biology & Experimental Medicine, University of Calgary

- Lab maintenance with responsibility for chemicals/ equipment, fire safety training, and scientific exploration through study design, teaching, data collection and analysis.

2016 – 2018 MSc Researcher

Diagnostic Services, Faculty of Veterinary Medicine, University of Calgary

- Designed and carried out genomic studies, cell-culture, animal tissue handling, dissections, and stereomicroscopy in a safe and disciplined workflow.
- Thesis: [DNA Methylation Landscape of the Fibrinogen Gene Cluster in the Equine Embryo](#)

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## Expedition Experience

2023 One Ocean Expedition

Advanced Ocean Synergy training course with the ESA and Nansen Remote Sensing Centre.

- FerryBox, CTD, plankton nets, echosounder, eDNA, micro-plastics, and research methods for ships of opportunity. Interdisciplinary teamwork and communication.

Arctic expeditions onboard R/V Kronprins Håkon during winter and summer. Field scientist responsible for sediment core logging and sampling for eDNA/ biogeochemistry/ palynology.

- 2021 AGENSI KH21-234: [Arctic Paleooceanography](#) (Svalbard & Yermak Plateau)
- 2020 CAGE 20-8 Expedition: [Natural gas seepage and past sea ice variability on the NE Greenland margin](#)
- 2019 CAGE 19-3 Expedition: [Calypso giant piston coring in the Atlantic-Arctic gateway – Investigation of continental margin development and effect of tectonic stress on methane release.](#)

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## Communication & Coordination

Science communication through published articles, popular science writing, podcasts, and Association of Polar Early Career Scientists (APECS) Norway social media coordination.

- AGU 2022 Fall Meeting Outstanding Student Presentation Award
- Podcasts: [Paleo-Oceanography](#), [The Arctic](#), and [Climate Change Discussion](#) – *The (Un)Scientific Method*, [The hunt for ancient DNA under the sea ice](#) – *The Bjerknes Climate Podcast*
- Forsknin.no popular science: Å samle havbunn i et rør, Feltarbeid i Framstredet, Lyden av sjøis – før det er for sent, Polarnattens variasjoner
- Video/photo contributor to the [28th edition of the United Nations Environment Programme's Foresight Brief: The shrinking Arctic Sea Ice](#)

## Publishing Record

Scientific Communication: (full overview at [ORCID 0000-0003-4062-6481](https://orcid.org/0000-0003-4062-6481))

- **Grant D.M.**, et al. (under consideration - invited article) Big changes for small sequences: A sedimentary ancient DNA investigation into marine ecosystem dynamics during the Last Interglacial in the Labrador Sea. *Quaternary Science Reviews*
- **Grant D.M.**, et al. (in preparation) From the Greenland margin to North of Svalbard: surface sediment eDNA from across the Fram Strait reveals distinct communities under different oceanographic regimes
- Steinsland K., **Grant D.M.**, Ninneman U.S., Fahl K., Stein R., and De Schepper S. (2023 - invited article) Sea ice variability in the North Atlantic subpolar gyre throughout the Last Interglacial. *Quaternary Science Reviews* 313. DOI: [10.1016/j.quascirev.2023.108198](https://doi.org/10.1016/j.quascirev.2023.108198).
- Santa M.A., Umhang G., Klein C., **Grant D.M.**, Ruckstuhl K.E., Musiani M., Gilleard J.S., Massolo A. (2023) It's a small world for parasites: evidence supporting the North American invasion of European *Echinococcus multilocularis*. *Proc Biol Sci.* 290(1994):20230128. DOI: [10.1098/rspb.2023.0128](https://doi.org/10.1098/rspb.2023.0128)
- Harðardóttir S., Evans J.R., **Grant D.M.** & Ray J.L. (2022) Getting to the core of sea ice reconstructions: Tracing Arctic sea ice using sedimentary ancient DNA. *Past Global Changes Magazine*,30 (2): 80 – 81. DOI: [10.22498/pages.30.2.80](https://doi.org/10.22498/pages.30.2.80)
- **Grant D.M.**, et al., (2021) The Future of DNA Barcoding: Reflections from Early Career Researchers. *Diversity*, 13(7): 313. DOI: [10.3390/d13070313](https://doi.org/10.3390/d13070313)
- **Grant D.M.**, Macedo A., Toms D. & Klein C. (2020) Fibrinogen in equine pregnancy as a mediator of cell adhesion, an epigenetic and functional investigation. *Biology of Reproduction*, 102(1), 170 – 184. DOI: [biolre/1021170](https://doi.org/biolre/1021170)
- A. Massolo, C. Klein, K. Kowalewska-Grochowska, S. Belga, C. MacDonald, S. Vaughan, S. Girgis, D. Giunchi, S.A. Bramer, S. Maria, **Grant D.M.**, K. Mori, P. Duignan, O. Slater, B. Gottstein, N. Müller, and S. Houston. (2019) European *Echinococcus multilocularis* Identified in Patients in Canada. *New England Journal of Medicine*, 381:384-385. DOI: [10.1056/nejmc1814975](https://doi.org/10.1056/nejmc1814975)
- C. Klein, C. Fischer, G. Wachoski-Dark, **Grant D.M.**, and S. Bramer. (2018). Interferon epsilon is constitutively expressed in equine endometrium and up-regulated during the luteal phase. *Animal Reproduction Science* 195: 38-43. DOI: [10.1016/j.anireprosci.2018.05.003](https://doi.org/10.1016/j.anireprosci.2018.05.003)