

## CONTACT

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## EDUCATION

### 2006 – 2011 **PhD in Marine Ecology, University of Faroe Islands**

**Thesis title:** Impact of organic enrichment on the sediment biogeochemistry and overlying water quality in relation to fish farms in Faroese fjords (Funded by the Faroese Research Council, Statoil and Chevron).

**Supervised by:** Dr Eilif Gaard and Dr Ronnie N. Glud

**Synopsis:** The thesis investigated organic enrichment below a fish farm and the impact on the carbon cycle in a Faroese fjord. A mass balance model was generated based on the measured parameters, and the overall impact on the carbon cycle in the fjord was explored.

### 2000 – 2004 **MSC Biology – University of Aarhus**

**Dissertation title:** Microniches in marine sediments: Effect of sedimented aggregates and plant root oxygen leakage.

### 1997 – 2000 **BSC Biology – University of Faroe islands**

## RESEARCH INTERESTS

I have a strong interest in fjord ecology, the interactions between aquaculture and the environment and the transition towards a blue bioeconomy.

My research focus on the carbon and nitrogen cycling in fjords and how the effect of organic load from fish farming can be diminished e.g. by location of fish farms and Integrated Multitrophic aquaculture. My research also focuses on the planktonic stages of sea lice in order to understand and diminish the infection pressure.

## RESEARCH EXPERIENCE

### 2023-present **Researcher at Firum/Fiskaaling**

As a researcher at the department of Ecology, I lead and participate in research projects related to the research described under research Interest. I am also the coordinator and main teacher in the course “Fish farming” in the new Faroese fish farmer technical education.

**2017-2023**

**Head of Department, Department of Ecology, Fiskaaling:**

I oversee the department, supervise and support staff, and work to develop new opportunities for projects and networking. I also lead research projects related to the research described under research Interest.

**2013-2017**

**Researcher at Fiskaaling**

Developed and led several research projects and consultancy assignments regarding enumeration of planktonic sea lice in order to understand their spatial and temporal distribution and the infection pressure. I also lead research and consultancy assignments regarding effects of organic loading on fjord ecology.

**2011-2013**

**Post Doc at Fiskaaling**

The post doc investigated wave and current induced resuspension of sediments impacted by fish farm activity.

**2011-2013**

**Participant in pilot study at Havstovan (Faroe Marine Research Institute)**

The pilot study investigated the benthic pelagic coupling at the inner Faroe shelf. The composition of stable isotopes in mussel and tissue of benthic fauna indicated that there was a tight coupling between the primary production and benthic community.

**2006-2011**

**PhD student at University of the Faroe Islands**

**2005-2006**

**Project manager for environmental investigations in fine Faroese lakes. Havstovan**

**2004 and 2005 Research technician at Havstovan**

## GRANTS AND COLLABORATIONS

### RESEARCH GRANTS:

2022-2026

FjordProcess – Key processes governing pelagic productivity in sub-arctic North Atlantic fjord ecosystems. Coordinator: Havstovan (Faroe Marine Research Institute), Funded by the research programme on marine research in the North Atlantic Ocean

2023 -2025

ADepoPlan-Accessible deposition modelling tools for improved environmental planning. Coordinator Firum. Funded by the Faroese Research council

2023-2024	Increased sustainability in aquaculture with focus on feed and sidestreams. Coordinator Matís, Funded by Nordic Council of Ministers AG-Fisk
2022-2024	LiceDetached – The fate of mobile lice detached in the course of salmon crowding processes. Coordinator. Funded by FHF Fiskeri- og havbruksnæringens forskningsfinansiering.
2022-2023	ASuReMacro - A Sustainable and resilient macroalgal cultivation industry in the Nordic and Arctic region
2019 -2022	AquaVitae. Coordinator Nofima, Funded by Horizon 2020 Blue Growth. www. <a href="https://aquavitaeproject.eu/">https://aquavitaeproject.eu/</a>
2017-2022	Sureaqua. coordinator NORCE. Funded by NordForsk's Nordic Bioeconomy Programme. <a href="http://www.sureaqua.no">http://www.sureaqua.no</a>
2021	Nordic Salmon workshop. Coordinator Matís, Funded by Nordic council of Ministers- AG-Fisk.
2020-2021	Development of a Faroese ecological status assessment system for macrofauna. Funded by the Faroese Fish Farmers Association and the Environmental agency
2019-2021	Fluorolice. Coordinator Institute of Marine Research, Funded by Fiskeri- og havbruksnæringens forskningsfinansiering.
2019-2020	Macrofauna- a Faroese Baseline. Funded by the Faroese Research council
2014-2015	Factors Influencing the distribution of planktonic sea lice at fish farm- and regional scale. Funded by the Faroese Research Council
2011-2013	Resuspension of sediments Impacted by fish farm wastes. Post Doc project. Funded by Bakkafrost and the Faroese Research Council.
2006-2011	Impact of organic enrichment on the sediment biogeochemistry and overlying water quality In relation to fish farms In Faroese fjords. Ph.D. study. Funded by Statoil, Chevron and the Faroese Research Council.

#### **CONSULTANCY ASSIGNMENTS SINCE 2017:**

2020-2021	Distribution of fish farm derived Zink below a fish farm. Assignment for Bakkafrost.
2019-2020	Depth distribution of sea lice in a fjord with salmon farming. Assignment for Hiddenfjord.
2019	Currents and waves in environmental monitoring of fish farming sites. Coordinator Havstovan. Assignment for Environmental Agency.

2019	Distribution of sea lice in a fjord with salmon farming. Assignment for Bakkafrost
2018-2019	Currents, hydrography and oxygen condition in a fjord with salmon farming. Assignment for Bakkafrost.
2017-2019	Factors influencing the sea lice distribution in a fjord with salmon farming. Assignment for Hiddenfjord.

## PUBLICATIONS

### PEER REVIEWED:

**Moriarty et al. (2024)** A gap analysis on modelling of sea lice infection pressure from salmonid farms. I. A structured knowledge review. *Aquaculture Environment Interactions* <https://doi.org/10.3354/aei00469>

**Murphy et al. (2024)** A gap analysis on modelling of sea lice infection pressure from salmonid farms. II. Identifying and ranking knowledge gaps – output of an international workshop. *Aquaculture Environment Interactions* <https://doi.org/10.3354/aei00471>

**á Norði et al. (2023)** Modeling particulate waste assimilation by blue mussels within the spatial constraints of a commercial fish farm: implications for multitrophic aquaculture. *Frontiers in Marine Science* 10 <https://doi.org/10.3389/fmars.2023.1236294>

**ICES (2023)** Workshop on the Faroese Ecoregion Aquaculture Overview (WKFaroesAO). *ICES Scientific Reports* 5:28 <https://doi.org/10.17895/ices.pub.21551541>

**Thompson C R S, Bron J E, Bui S, Dalvin S, Fordyce M J, á Norði G, Skern-Mauritzen R (2021)** A novel method for the rapid enumeration of planktonic salmon lice in a mixed zooplankton assemblage using fluorescence. *Aquaculture Research* doi: 10.1111/are.15750

**Bui S, Dalvin S, Vågseth T, Oppedal F, Fossøy F, Brandsegg H, Jacobsen Á, á Norði G, Fordyce M J, Michelsen H K, Finstad B, Skern-Mauritzen R (2021)** Finding the needle in the haystack: Comparison of methods for salmon louse enumeration in plankton samples. *Aquaculture Research* 52: 3591-3604 doi: 10.1111/are.15202

**Thompson C R S, Bron J E, Bui S, Dalvin S, Fordyce M J, Furmanek T, á Norði G, Skern-Mauritzen R (2021)** Illuminating the planktonic stages of salmon lice: A unique fluorescence signal for rapid identification of a rare copepod in zooplankton assemblages. *Journal of Fish Disease* 44: 863-879 doi: 10.1111/jfd.13345

**á Norði, G., Glud, R. N., Simonsen, K., Gaard, E. (2018)** Deposition and benthic mineralization of organic carbon: a seasonal study from Faroe Islands. *Journal of Marine Systems* 177: 53-61 doi:10.1016/j.jmarsys.2016.09.005

**á Norði, G., Simonsen, K., Patursson, Ø. (2016)** A method of estimating *in situ* salmon louse nauplii production at fish farms. *Aquaculture Environment Interactions* 8:397-405 doi: 10.3354/aei00185

**á Norði, G., Simonsen, K., Danielsen, E., Eliassen, K., Mols-Mortensen A., Christiansen, D. H., Steingrund, P., Galbraiht, M., Patursson, Ø. (2015)**  
Abundance and distribution of planktonic *Lepeophtheirus salmonis* and *Caligus elongatus* in a fish farming region in the Faroe Islands. *Aquacult. Environ. Interact.* 7: 15-27 doi: 10.3354/aei00134

**Letho, N., Glud, R. N., á Norði, G., Zhang, H., Davison, W. (2014)**  
Anoxic microniches in marine sediments induced by aggregate settlement: biogeochemical dynamics and implications. *Biogeochemistry* 119: 307-327 doi: 10.1007/s10533-014-9967-0

**á Norði, G., Glud, R. N., Gaard, E., Simonsen, K. (2011)**  
Environmental impacts of coastal fish farming: Carbon and nitrogen budgets for trout farming in Kaldbaksfjørður, (Faroe Islands). *Mar. Ecol. Prog. Ser.* 431: 223-241 doi: 10.3354/meps09113

**Gaard, E., á Norði, G., Simonsen, K. (2011)**  
Environmental effects on phytoplankton production in a Northeast Atlantic fjord, Faroe Islands. *J. Plankt. Res.* 33: 947-959 doi: 10.1093/plankt/fbq156

#### **SELECTED REPORTS:**

**Mortensen, H., Carstensen, J., Andreasen, B., Johannesen, T. T., Fjallstein, B.V. T., á Norði, G. (2021)** Benthic macrofauna classification system for Faroese fjords. Fiskaaling rit 2021-10

**Danielsen, E., á Norði, G. (2021)** Blue mussel spat availability and settlement on longlines in a Faroese Fjord. Fiskaaling rit 2021-09

**Mortensen, H., á Norði, G., Andreasen, B., Johannesen, T. T. (2020)** Macrofauna - A Faroese base line. Fiskaaling rit 2020-16 (In Faroese)

**á Norði, G. Danielsen E. (2020)** Depth distribution of planktonic sea lice stages in a Faroese fjord with salmon farming. Fiskaaling rit 2020 - 15 (In Faroese)

**Johannesen, T. T., Andreasen, B., Mortensen, H., á Norði, G. (2019)** Analysis of current measurements in Faroese fjords. Fiskaaling rit 2019 - 22 (In Faroese)

**Olsen, E., á Norði, Johannesen, T. T. (2019)** Oxygen and current settings in a Faroese fjord with fish farming Fiskaaling rit 2019 - 18 (In Faroese)

**á Norði, G., Patursson, Ø. (2017)** Factors influencing the sea lice distribution in a Faroese fjord with fish farming. Fiskaaling-rit 2017-15 (In Faroese)

**á Norði, G. (2016)** Evaluation of the environmental monitoring of fish farming based on 6 farming sites (2005-2015). Fiskaaling rit 2016-06 (In Faroese)

**á Norði, G., Patursson, Ø., Simonsen, K (2013)** The role of sediment resuspension in the natural re-establishment of fish farm affected sediments. Fiskaaling rit 2013-10. (In Faroese)

**á Norði, G., Debes, H., Christensen, J. T. (2013)** Pelagic-benthic coupling on the Faroe shelf: A pilot study. *Havstovan* nr.: 13-05

**Danielsen, E. á Norði, G., Patursson, Ø. Jacobsen, Á (2013)**

Sampling and identification of pelagic sea lice stages. Fiskaaling rit 2013-3 (In Faroese)

**á Norði, G., Patursson, Ø. (2012)**

Influence of waves and current speed on resuspension of fish farm waste: Case study in Funningsfjørður, Faroe Islands. ICES CM 2012/Q:13

**á Norði, G., Simonsen, K., Gaard, E., Glud, R. N. (2010)**

Accumulation and mineralization of fish farming residuals in the benthic footprint area at two different farming locations in a Faroese fjord. ICES CM 2010/J:02

## TEACHING EXPERIENCE

- Co-supervisor for Master Student at Stellenbosch University
- Co-supervisor for PhD student at University of Faro Islands
- Co-supervisor for 4 BS students at University of Faro Islands
- Teaching some hours at University of Faro Islands
- Coordinator and main teacher in the course "Fish farming" in the new Faroese fish farmer technical education

## CURRENT BOARD AND WORKING GROUP MEMBERSHIPS

- Board member of Sjókovin, Ocean cluster.
- Board member of the Faroese Council for Research and Innovation
- Cochair of the ICES Faroes Aquaculture Overview working group (WKFaroesAO)