

Heidi S. Mortensen

CONTACT

 Fiskaaling
Biotechnology
Hoyvíksvegur 51,
FO-100 Tórshavn

 (+298) 774765

 heidi@fiskaaling.fo

EDUCATION

2009 - 2013 **MASTER OF SCIENCE IN BIOLOGY, THE UNIVERSITY OF THE FAROE ISLANDS:**

SPECIALIZED IN STEREOLOGY, NEUROSCIENCE, AND MARINE BIOLOGY.

Thesis title: The cerebral cortex of the long-finned pilot whale (*Globicephala melas*) – An estimation of volume, cell density and total cell number in the entire cortex, and in the auditory and visual cortices

Supervised by: Dr Bente Pakkenberg (Bispebjerg Hospital) and Prof. Svein-Ole Mikalsen (University of the Faroe Islands).

Synopsis: This thesis investigated the neocortex of the long-finned pilot whale (*Globicephala melas*). By using stereological methods, the total number of neurons and glia cells were estimated in the cortex. This study was the first to demonstrate that a dolphin species has more neocortical neurons than any mammal studied to date, including humans.

2004 - 2007 **BACHELOR OF SCIENCE IN BIOLOGY, THE UNIVERSITY OF THE FAROE ISLANDS:**

Dissertation title: A study on the Faroese house mouse: an attempt to clarify whether Faroese mice are *mus musculus musculus* or *mus musculus domesticus*; if the mice are different between the islands and the origin of the mice.

RESEARCH INTERESTS

My research interest is improving the health and wellbeing of farmed fish, especially large post-smolts. I currently focus on the optimization of water quality in recirculating aquaculture systems (RAS) in order to promote fish health and limit negative physiological effects. My interest in the interaction between water quality and health comes from my prior experience in water quality assessment as an environmental supervisor at the Environmental Agency of the Faroes Islands and my stereological and neuroscience background. For future work, I am keen on implementing stereology as a tool to estimate fish health, especially in the gill and other mucosal surfaces that are in contact with the RAS water.

RESEARCH EXPERIENCE

2018 - current RESEARCHER, THE DEPARTEMENT OF BIOTHECNOLOGY, FISKAALING A/S:

At Fiskaaling I develop and implement research projects, coordinate and perform on-land and at-sea sampling, and provide industrial consultation regarding optimization of water quality in RAS to maximize fish growth and welfare.

2010 - 2018 ENVIRONMENTAL SUPERVISOR, THE ENVIRONMENTAL AGENCY OF THE FAROE ISLANDS:

I worked as an environmental supervisor, but I also participating in different environmental research monitoring projects conducted by the Research Department at the Environmental Agency. E.g. I helped with collecting samples used for the Arctic Monitoring Assessment Program (AMAP) programme, as well as participated in the research projects "The effects of Diflubenzuron used for delousing in aquaculture from 2013-2015", and "The effect of chemical delousing used in aquaculture on lobster fishing".

2012 THE RESEARCH LABORATORY FOR STEREOLOGY AND NEUROSCIENCE, BISPEBJERG HOSPITAL, DENMARK:

My masters project was conducted at the Research laboratory for Stereology and Neuroscience under the supervision of Dr. Bente Pakkenberg. During my time at the laboratory I learnt how to do unbiased stereological analysis on brain tissues, which easily can be implemented on other tissue samples, such as fish gills, skin and gut.

2006 - 2007 RESEARCH ASSISTANT, THE FAROESE MUSEUM OF NATURAL HISTORY:

I worked as a student assistant at the Faroese Museum of Natural History. My role was to assist in botanical field work by doing data sampling, taxonomic classification and statistical analysis.

GRANTS AND COLLABORATIONS

FUNDINGS AWARDED:

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| 2018 | Faroese Research Counsel (DKK 505,777).
"Occurrence of Cryptosporidium and Giardia In sheep and cattle in the Faroe Islands - a potential for parasitic contamination of drinking water reservoirs?" |
| 2017 | The Nordic Council of Ministers Grant (DKK 313,500).
"Waste management In Nordic small communities - an optimization". |
| 2012 | Statoil (DKK 20,000). A contribution to my master's thesis |

SUCCESSFUL COLLABORATIONS:

Research and service collaboration with the aquaculture industry is a part of the central mission at Fiskaaling. All of the projects and consulting I have been involved with at Fiskaaling has been in partnership with salmon farmers, particularly with smolt farmers. Through this work, I have built strong working relationships with the key aquaculture companies on the Faroe Islands and strive to support the industry by focusing on projects with actionable research deliverables.

I have also had successful collaborations with scientists and working groups in other Nordic countries. E.g. the project "Waste management In Nordic small communities - an optimization", which was funded by the Nordic Council of Ministers, required a collaborative effort from at least 3 Nordic countries.

The project "Occurrence of Cryptosporidium and Giardia In sheep and cattle In the Faroe Islands - a potential for parasitic contamination of drinking water reservoirs?", is also based on a collaboration between myself, scientists at the Food and Veterinary Authority of the Faroe Islands, and scientists at NMBU in Oslo, Norway.

PUBLICATIONS

Heidi S. Mortensen, Bente Pakkenberg, Maria Dam, Rune Dietz, Christian Sonne, Bjarni Mikkelsen and Nina Eriksen (2014).

Quantitative relationships in delphinid neocortex. In *Frontiers in Neuroanatomy* 8:132.

Eleanor P. Jones, Jens-Kjeld Jensen, Eyðfinn Magnussen, Noomi Gregersen, Heidi Hansen and Jeremy B. Searle (2011).

A molecular characterization of the charismatic Faroe house mouse, 471-482. In *Biological Journal of the Linnean Society*.

Anna Maria Fossá, Erla Olsen, William Simonsen, Magnus Gaard and Heidi Hansen (2010).

Vegetation transition following drainage in a high-latitude hyper-oceanic ecosystem, 249-256. In *applied Vegetation Science* 13:2.

In prep:

Heidi S. Mortensen, Elin Jacobsen, Amanda Vang and Jelena Kolarevic.

Chloride to nitrite-nitrogen ratio of up to 450:1 provided insufficient protection against nitrite uptake and accumulation in large post-smolt Atlantic salmon, commercially reared in fresh water RAS.

NON-PEER REVIEWD PUBLICATIONS

Heidi S. Mortensen and Maria Dam. Diflubenzuron used for delousing in the Faroe Islands in 2013, 2014 and 2015, and its accumulation in the sediment. ISBN:978-99972-50-02-5.

Maria Dam, Heidi S. Mortensen and Gunnvør á Norði. Kanningar tongdar at hummaraveiðu í 2016. Frøði, 2, 2016. ISSN 1395-0045. English title: "The effect of chemical delousing used in aquaculture on lobster fishing".

Heidi S. Mortensen. The cerebral cortex of the long-finned pilot whale (*Globicephala melas*) – An estimation of volume, cell density and total cell number in the entire cortex, and in the auditory and visual cortices. NVDRit 2013:01. ISSN 1601-9741.

Heidi Hansen. A study on the Faroese mice: an attempt to clarify whether the Faroese mice are *mus musculus musculus* or *mus musculus domesticus*, if the mice are different between the islands and the origin of the mice. NVDRit 2007:07. ISSN 1601-9741.

PRESENTATIONS

1st international symposium on mucosal health in Aquaculture. Oslo, Norway 2019.

Poster Presentation: Using mucus to estimate cortisol levels to assess stress response in Atlantic salmon
Heidi S. Mortensen, Ása Jacobsen and Elin Jacobsen.

Annual Aquaculture Conference in the Faroe Islands 2019.

Presentation: Robust large post-smolt - a health screening project
Heidi S. Mortensen.

Annual Aquaculture Conference in the Faroe Islands 2020.

Presentation: Nitrite accumulation in large post-smolt Atlantic salmon
Heidi S. Mortensen.

ADVISORY/SUPERVISION WORK:

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| 2013 - 2018 | Faroese representative in the working Nordic Waste Group (NAG) under the Nordic Council of Ministers. |
| 2017 | Member of the waste strategy group in the municipality of Tórshavn. |
| 2018. | External master student supervisor. West Nordic Studies Program. The University of the Faroe Islands. |

VOLUNTEER WORK

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| 2007 - 2014 | Board member of the Faroese Biology society, and elected president from 2010-2014. |
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