Martin Andersson-Li

Curriculum vitae (CV)

Title: Ph.D., Senior consultant

Special merits: Aquatic ecology and data analyses

Research interests: Genetic surveys in aquatic environments

General description

Martin Andersson-Li has a research background in freshwater genetics, and most recently worked with data analysis and aquatic ecology within the Cementa CCS-project off the coast of Eastern Gotland.

His work includes analysis of data from assessments of the marine environment off the coast of Slite, Gotland, including sonar investigations, habitat modelling and remote sensing. His current and previous work also includes writing permit applications, e.g. Environmental Impact Assessments. Communication and coordination are important aspects of Martin's work, which aims to optimise operations and enable empirical decision-making.

Martin previously worked as an investigator of aquatic environments at AquaBiota Water Research, where he focused on analyses and investigations related to legal permitting processes for offshore wind energy projects. During his time at AquaBiota, Martin participated in environmental investigations for nine wind farms on behalf of clients including OX2, Sveavind, and WPD (Galatea Galene, Triton, Neptunus, Pleione, Aurora, Poseidon, Stor Grundet, Gretas klackar, and Eystralsalt).

Martin is currently the appointed leader of the development and automation group at Calluna, with a primary focus on identifying and optimizing work tasks through the use of programming languages such as Python, R, and JavaScript.

Professional experience

Marine investigator, Calluna.
Fulltime from June 2022.
Martin has primarily focused on data analysis, coordination, and aquatic ecology within the Slite CCS project. Additionally, he has participated in GIS projects and has taken on the role of leading the development and automation group at Calluna.

Aquatic ecologist, AquaBiota (2020–2023) (fulltime 2 ½ years, parttime ½ year)

Martin worked on investigations of aquatic environments in connection with planned offshore wind power projects, and was also responsible for the company's department for eDNA analyses.

The marine offshore section of his position focused on GIS and programming, but also writing of permit applications and reports, as well as field inventories. The eDNA section included two major research projects as well as many inventories utilizing different eDNA- methods across a wide range of aquatic environments.

Aquatic ecologist & GIS analyst, County Administrative Board of Östergötland (2018–2020)

Martin worked on two EU-funded LIFE projects focusing on marine environments, SeaBased and Coast4Us. He also participated in several freshwater projects, including wetland restoration and analysis of the priority of measures for dams within the county. He also carried out GIS analyses as part of several ecological investigations in the county. During his time as a GIS- analyst Martin used Python daily and developed a genuine interest in programming.

Ph.D studies in freshwater genetics (2013–2017)

Martin was employed as a Ph.D. student at Uppsala University, where his daily work focused on bioinformatic analysis of genetic surveys, often with research questions related to the turnover of organic molecules in lakes.

This included work with genetic pipelines and statistics, frequently utilizing the supercomputer Uppmax, and mainly coding in languages such as Bash, R, and Python. Metabarcoding was a commonly utilized technique, which today is the most frequently used method in eDNA surveys.

Education

2013-2017   Ph. D in Freshwater Genetics, Uppsala University.

2010–2012   M. Sc in Limnology, Uppsala University.

2007–2010   B. Sc in Ecology, Gotland University College.

Current Research Projects

ECWA-NOR research project (*E. coli* as indicator for sustainable water management) funded by the Swedish KK-stiftelsen (Knowledge Foundation) (2020 – 2023). The project aims to establish relationships between *E. coli* bacteria and environmental DNA (eDNA) that can be used to trace the origin of fecal pollution within watersheds of oligotrophic rivers in northern Sweden. The project identifies the sources and strains of *E. coli* by means of bacterial source-tracking using an experimental IGR method (intergenome region) developed by a research group at the University of Alberta in Canada. Martin was responsible for the bioinformatics in the project and is now working on publications of the scientific results, together with researchers from the Mid University, Sweden and the University of Alberta, Canada.

LIFE project DNAquatics financed by the Swedish Environmental Protection Agency (2020-2023). A four-year international research project on development of methodology and quality control for monitoring of aquatic animals in various habitats such as lakes, running waters and marine environments using environmental DNA (eDNA) and metabarcoding. The project aims to

support to authorities in the implementation of eDNA in national environmental monitoring programmes. Martin was project leader for DNAquatics up until the final report of the project in February 2023.

Reference assignments

MarinMedVind: Ekologiskt hållbar vindkraft i Östersjön.   2020 - 2022
Description: A research programme that studied the prerequisites for large-scale and ecologically sustainable offshore wind energy in Swedish waters of the Baltic Sea. The project was financed by the Swedish Energy Agency and the Swedish Environmental Protection Agency. The project considered the ecological impacts of offshore wind energy on the marine environment, the interests and preferences of the windpower industry, and conducted a legal assessment of the possibilities for establishing large-scale wind power.

- **Role in the project:** Martin's role focused on analysing the interests of the windpower industry and on modelling future scenarios for windpower establishment by using MaxEnt-modelling.

Bottenmiljöer i Kattegatt -Vindpark Galatea-Galene.   2020 - 2021
Description: Investigation of benthic (bottom) habitats in the vicinity of the proposed offshore wind park Galatea-Galene in the Swedish Exclusive Economic Zone off the coast of Falkenberg and Varberg in the Kattegat. The project focused on modelling benthic habitats in the area and the effects of sediment suspension. OX2 has recently (2023) been granted a permit to construct the Galatea-Galena offshore wind farm and plans to start construction in 2026.

- **Role in the project:** Martin's role focused on developing habitat models (using random-forest algorithm) for the benthic communities and describing the results of different scenarios, as a basis for the various permitting processes.

Utforskning av havsbotten söder om Slite (MKB – KSL-ansökan).   2022
Description: Investigation of the seabed south of Slite as a basis for the Cementa Slite CCS project and the OX2 windfarm off the coast of Gotland. The geotechnical surveys that are planned to be conducted in the coastal waters off Slite in Summer 2023 for these proposed infrastructure projects require an Environmental Impact Assessment and a permit application according to the Swedish Continental Shelf Act.

- **Role in the project:** Martin's role focused on compiling the descriptive surveys of the bathymetry, hydrography, macrophytes (aquatic plants), benthic (bottom) fauna, marine mammals and noise pollution, as well as producing associated diagrams and maps.

Other merits

- Nano-degree in data analysis from Udacity (Python, SQL and data base construction).
- Driver license
- Drone license A1-A3.