Researcher in statistical ecosystem modelling

Job description

Position as Researcher available at the Department of Biosciences, Centre for Ecological and Evolutionary Synthesis (CEES) and Section for Aquatic biology and toxicology (AQUA).

The position is for a period of 2 years and 6 months. Starting date no later than 01.12.2020.

We seek a quantitatively skilled ecologist, ecologically interested statistical modeller or equivalent to develop statistical state-space models for marine food web dynamics and apply these models to project possible ecological effects of climate change in the Arctic.

The position is part of the research project The Nansen Legacy. The Nansen Legacy is the Norwegian Arctic research community’s joint effort to establish a holistic understanding of a changing marine Arctic climate and ecosystem. The project will provide a scientific knowledge base needed for future sustainable resource management in the Arctic. It is a collaborative project between ten Norwegian research institutions, will run from 2018 to 2023 and will collect and analyse data from the marginal ice zone of the Barents Sea and the adjacent Arctic Basin.

The researcher will contribute to task 4-4 of the Nansen Legacy project, which is to develop, evaluate and use dynamic ecosystem models to simulate key ecosystem properties of the future living Barents Sea under various climate, harvesting and ecological scenarios. The hired researcher will work on statistical multispecies (Compertz) models, building on Bayesian state-space models developed at the Department of Biosciences. These models use time-series of selected key species and forcing variables, and quantify population regulation, species interactions and effects of climate and harvesting. A key challenge is to formulate these models so as to realistically constrain future trajectories. The model development will be done in collaboration with scientists at UiO as well as scientists at the other research institutions in the project, where different models are developed, compared and applied. The other models comprise ecosystem (NoBa Atlantis and EwE), bio-physical (Norwecom.E2E) and stochastic food web (NDND) models. Evaluation methods will include confrontation of model hindcasts with historical data using conventional likelihood approaches and cross validation techniques, comparison of observed and simulated ecological patterns following a pattern oriented modelling strategy and sensitivity analyses for the key assumptions and parameters required in each model. Furthermore, key ecosystem properties of the future living Barents Sea will be simulated. Relevant ecosystem properties to simulate include primary and ecosystem productivity, distribution, phenology, and stability of the future living Barents Sea.

The simulations will use down-scaled projections of environmental conditions from other parts of the project (including physical variables, but also possibly phytoplankton and zooplankton), and consider alternative harvesting scenarios. Outputs from the five models (i.e., including those developed at partner institutions) will be combined into multiple projections of the Barents Sea ecosystem states and trajectories.

Through the Nansen Legacy project, dedicated interdisciplinary summer schools and intensive courses are organized to strengthen national and international cooperation and integration of early career researchers. Furthermore, the project includes a mobility program to ensure national and international exchange.

The work will be done in close collaboration with Dr. Øystein Langangen (AQUA), Dr. Joël M. Durant (CEES) and Dr. Leif Chr. Stige (CEES).

The Department of Biosciences, including the two sections CEES and AQUA provides a stimulating research environment with many young international and Norwegian scientists working on a variety of theoretical and empirical topics within ecology and marine sciences, evolution, population genetics, genomics, phylogenetics, molecular biology, bio-economics and statistical methodology.

The person hired will be part of the marine ecology group at CEES, consisting of researchers and PhDs who address ecological questions around climate change and marine productivity through statistical analysis and interdisciplinary collaborations.

Information about the research group can be found at: http://www.mn.uio.no/cees/english/research/groups/marine-ecology/. The person will also be affiliated with the AQUA-section.

Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition is to be among Europe’s leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

- Applicants must hold a degree equivalent to a Norwegian doctoral degree in statistical ecology or other relevant field. Doctoral dissertation must be submitted for evaluation by the closing date. Appointment is dependent on the public defence of the doctoral thesis being approved.
- The candidate must document thorough expertise in statistical modelling.
- Fluent oral and written communication skills in English.

The following qualifications will count in the assessment of the applicants:

- Relevant publications in peer-reviewed international journals
- Research experience in modelling population- and ecosystem dynamics
- Research experience in investigating effects of climate and harvesting on marine populations and ecosystems
- Familiarity with Bayesian state-space modelling approaches, using programs such as STAN, JAGS or others
**Personal skills**

We seek a highly motivated, enthusiastic person with the ambition to gain insight and publish papers in leading international journals.

**We offer**

- Salary NOK minimum 523 200 - 605 500 per annum depending on qualifications in position as Researcher (position code 1109)
- Attractive welfare benefits and a generous pension agreement
- Professionally stimulating working environment
- Vibrant international academic environment
- Oslo’s family-friendly surroundings with their rich opportunities for culture and outdoor activities

**How to apply**

The application must include

- Cover letter (statement of motivation, summarizing scientific work and research interest). The cover letter should not exceed 2 pages and should include a pointwise explanation of how the applicant fits the qualification requirements and personal skills as detailed above.
- CV of maximum 4 pages (summarizing education, positions, research experience and other qualifying activity)
- Copies of educational certificates, academic transcript of records and letters of recommendation
- A complete list of publications and up to 5 relevant publications that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system. Foreign applicants are advised to attach an explanation of their University's grading system. Please note that all documents should be in English (or a Scandinavian language).

In assessing the applications, special emphasis will be placed on the documented, academic qualifications, as well as the candidates motivation and personal suitability. Interviews with the best qualified candidates will be arranged.

It is expected that the successful candidate will be able to complete the project in the course of the period of employment.

**Formal regulations**

According to the Norwegian Freedom of Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo has an agreement for all employees, aiming to secure rights to research results etc.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds.

**Contact information**

For further information please contact:

Ass. Prof. Øystein Langangen, phone: +47 228 54648, e-mail: oystein.langangen@ibv.uio.no

Dr. Joël M. Durant, phone: +47 228 54078, e-mail: joel.durant@ibv.uio.no, or Dr. Leif Chr. Stige, phone: +47 228 54608, e-mail: l.c.stige@ibv.uio.no

For questions regarding the recruitment system please contact: HR adviser Nina Holtan, phone: +47 228 54424, e-mail: nina.holtan@mn.uio.no

**About the University of Oslo**

The University of Oslo is Norway’s oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make Uio an important contributor to society.

Centre for Ecological and Evolutionary Synthesis (CEES) is a research centre and a section at the Department of Biosciences, University of Oslo. CEES combines a broad spectrum of disciplines (population biology, genomics, statistics, mathematical modelling) to foster the concept of ecology as a driving force of evolution via selective processes, with a corresponding influence of evolutionary changes on ecology. CEES has over 180 members (Professors (20), postdocs/researchers (60), PhDs (35), Master’s students (40) and technical and administrative staff) and many guest researchers. The members represent 30 nationalities and constitute a vibrant and creative research environment. CEES coordinate several international networks. The budget = 170 million NOK (about 55 externally funded research projects). CEES successfully completed its 10 year status of Centre of Excellence (CoE) in 2017.

Jobbnorge-ID: 186298, Søknadsfrist: 1. september 2020