Nicolas Azaña Schnedler-Meyer
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+45 6019 2328

Curriculum Vitae
Nicolas Azaña Schnedler-Meyer

Nationality: Denmark
Birthday: 02.02.1987

Positions:

2021- **PostDoc at Section for Freshwater fisheries and ecology, DTU Aqua**
Development and testing of optimal foraging theory in the Water Ecosystems Tool (WET, previously PCLake) model. Quantifying fish behavior from telemetric observations in a lake undergoing biomanipulation, as part of the *Lake Stewardship* multi-institutional project.

2018-20 **PostDoc at Institute for Bioscience, Lake Ecology section, Aarhus University**
Rewrote and updated the entire PCLake ecosystem model with emphasis on modularizing the code, and on development of detailed descriptions of fish population dynamics. Also worked with model calibration.

Education:

2014-17 **PhD from the Centre for Ocean Life, Technical University of Denmark**.
Thesis: The Lives and Times of Jellyfish. Modelling their population dynamics and ecological role.
Advisors: Patrizio Mariani & Thomas Kiørboe.

2012-14: **MSc in Aquatic Science and Technology at DTU-Aqua, Technical University of Denmark**
Thesis: Behavioral trade-offs between feeding and predation in Northern Pike (*Esox lucius*).
Advisors: Ken Haste Andersen, Uffe Høgsbroe Thygesen & Henrik Baktoft.

2007-11: **Bachelor in Biology from the University of Copenhagen**
Thesis: Management impacts and breeding ecology of the Red-Backed Shrike, *Lanius collurio*.
Advisors: Anders Peter Tøttrup & Carsten Rahbek.

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Research interests:

The study and description of the ecology of aquatic organisms, specifically in the study of how species interactions and behavior are affected by environmental conditions to shape communities and ecosystems. To this end I employ dynamical modelling and mechanistic process descriptions to form and test hypotheses and predictions. The key task in ecological modelling is always to select the necessary approach and level of complexity, so that a model is simultaneously as accurate and simple as possible.

Scientific Skillset:

General: Strong multidisciplinary skill, combining mathematics and programming with a high level of ecological, limnic and oceanographic understanding. Strong analytical skills, technical flair, and a high willingness (and eagerness) to pick up new skills and interests.

Models: Experienced in dynamic and steady state modelling of food-webs, stage-structured populations and (evolutionary) stable strategies, based on mechanistic descriptions of key processes. I also have experience with agent-based and spatial modelling, as well as in implementation of large-scale models integrating satellite data and requiring High Performance Computing (HPC).

Programming: Extensive experience in scientific programming, mainly in Python, MATLAB and FORTRAN90.

Empirical work: Some experience in the handling of biological samples and species identification (fish larvae), as well as in data collection in the field.

Statistics/ validation: Basic skills in statistics, and in the handling of large datasets. Experience with sensitivity and uncertainty analysis of complex models.

Teaching experience:

At DTU: **Teaching Assistant**, Mathematical Models in Ecology (DTU course 25328).
Teaching Assistant, Mathematical Biology (DTU course 25303).
Co-supervisor for a special course on modelling bacterial control in recirculation aquaculture systems.
In addition, I have successfully attended the first module of *Teaching and Learning* (university level teaching course).

At KU: I worked for four years as a teacher and teaching module developer at the School Service at the Biological Institute, communicating Science to 8th and 9th grade children and High School students, as well as developing and participating in general outreach activities at the Institute.

Other: I have taught various subjects professionally in Danish Primary schools (ages 6-16) as a substitute teacher, including a three-month period teaching biology as a substitute for a teacher on parental leave.

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Related Professional Experience:

2013-14: **Vice chair of the Study Board** at National Institute of Aquatic Resources, DTU, working among other things with course approval, accreditation of the educational programme, recruitment, and study environment.

2009-10: **Tutor** for new bachelor students at the Biological Institute (University of Copenhagen). The work in both years started in February and ran until October, and involved the planning, coordination and execution of various activities, including the organization of the study introduction programme for the new students.

Publications – peer reviewed:

Schnedler-Meyer, N.A., Andersen, T.K., Hu, F.R.S., Bolding, K., Nielsen, A. & Trolle, D. (*In review*): Water Ecosystems Tool (WET) 1.0 – a new generation of flexible aquatic ecosystem model. *Geoscientific Model Development*. *Vol. 15. DOI: 10.5194/gmd-15-3861-2022*

Schnedler-Meyer, N.A., Mariani, P. & Kiørboe, T. (2016): The global susceptibility of coastal forage fish to competition by large jellyfish. *Proceedings of the Royal Society B, vol. 283: DOI: 10.1098/rspb.2016.1931.*

Schnedler-Meyer, N.A., Pigolotti, S. & Mariani, P. (2018): Evolution of complex asexual reproductive strategies in jellyfish. *The American Naturalist, vol. 192, no.1, pp 72-80. DOI: 10.1086/697538.*

Schnedler-Meyer, N.A., Kiørboe, & T., Mariani, P. (2018): Boom and Bust: Life history, environmental noise, and the (un)-predictability of jellyfish blooms. *Frontiers in Marine Science. Vol. 5, pp 1-10. DOI: 10.3389/ fmars.2018.00257*

Pedersen, L., Schnedler-Meyer, N.A., Ekberg, P. & Tøttrup, A. (2018): Effects of forest management practices in clearings on breeding performance of the Red-backed Shrike (Lanius collurio). *Ornis Fennica. Vol. 95, pp 171-177.*

Nielsen, A., Hu, F.R.S., Schnedler-Meyer, N. A., Bolding, K., Andersen, T.K., Trolle, D. (2020): Introducing QWET – a QGIS-plugin for application, evaluation and experimentation with the WET model. *Environmental Modelling & Software. Vol. 135. DOI: 10.1016/j.envsoft.2020.104886*

Visser, A. W., Brun, P., Chakraborty, S., Dencker, T.S., van Denderen, P. D., van Gemert, R., van Someren Gréve, H., Heilmann, I., Holm, M.W., Jonasdottir, S. H., Kenitz, K., Kiørboe, T., Lindegren, M., Mariani, P., Nielsen, L. T., Pancic, M., Payne, M. R., Pecuchet, L., Schnedler-Meyer, N. A., Thygesen, U. H., Tornroos, A., and Andersen, K. H. (2020) Seasonal strategies in the world's oceans. (2020) *Progress in Oceanography. Vol. 189. DOI: 10.1016/j.pocean.2020.102466*

Publications – in preparation:

Schnedler-Meyer, N.A., and Andersen, T.K. Optimal foraging and habitat use by fish in a complex aquatic ecosystem model.

Andersen, T.K., Liu, Z., Schnedler-Meyer, N.A., Chen, D., Bolding, K., Jeppesen, E. & Trolle, D. (*in review*): Modelling fish and macrophytes response to external and internal restoration in a tropical, shallow lake: Huizhou West Lake, China, an example

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Awards:

Honorable Mention in the 2019 American Naturalist Student Paper Award for the paper, "Evolution of complex asexual reproductive strategies in jellyfish", selected from 70 papers by student authors.

Workshops and Conference Presentations:

Andersen, T.K., & Schnedler-Meyer, N.A. Aquatic Ecosystem Modelling Workshop, Hacking Limnology 2022, Day 3. Online Virtual Summit by AEMON-J and DSOS. July 2022

Schnedler-Meyer, N.A., Mariani, P. & Kiørboe, T. A model of fish and jellyfish competition. Poster presentation at the Trait-Based Approaches to Ocean Life workshop, Waterville Valley, NH, Oktober 2015.

Schnedler-Meyer, N.A., Mariani, P. & Kiørboe, T. Modelling global ecosystem susceptibility to ecosystem blooms. Oral presentation delivered at the 5th International Jellyfish Bloom Symposium, Barcelona, Spain, May-June 2016.

Schnedler-Meyer, N.A., Pigolotti, S. & Mariani, P. Evolution of complex asexual reproduction strategies in scyphozoan jellyfish. Oral presentation at the Biennial Nordic Society Oikos Denmark meeting, Aarhus, Denmark. March 2019.

Funding and grants:

Two Otto Mønsted travel grants, covering travel costs for conference attendances.

Outreach activities:

Presentations: Schnedler-Meyer, N.A., Mariani, P. & Kiørboe, T. The Lives and Times of Jellyfish. Invited talk at the Danish Society for Marine Biology, Copenhagen, Denmark, March 2018.

I gave an annual guest lecture at Tagensbo primary school in Copenhagen, at a 9th grade level 2015-2017.

Publications: Trolle, D., Andersen, T.K., Nielsen, A., Bolding, K., Schnedler-Meyer, N.A. (2022): SØENS DIGITALE TVILLING – et virtuelt laboratorium. Popular Science article in the Danish Science magazine *Aktuel Naturvidenskab*.

Schnedler-Meyer, N.A. & Kiørboe, T. (2016): Gelé i verdenshavene. Popular Science article in the science section of the Danish newspaper *Weekendavisen*.

Ida Eriksen (2016): Hvad skal jeg gøre, når jeg bliver brændt af en brandmand? Interview on Danish popular science news site *Videnskab.dk*.

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Other: Experience in Science communication for all audiences through my four years of work as a communicator and teaching module developer at the School Service at the Biological Institute, where I communicated Science to 8th and 9th grade children and High School students, as well as developing and participating in general outreach activities at the Institute directed at all audiences.

Review:

1 review conducted for the Journal of Plankton Research