

Short CV – Uffe Høgsbro Thygesen

Degrees

- PhD, Department of Mathematical Modelling, Technical University of Denmark (1999).
- MSc (Eng.), Department of Mathematical Modelling, Technical University of Denmark (1994).

Positions

- Associate Professor, DTU Aqua, Technical University of Denmark (2013-present).
- Researcher, then Senior Researcher, Danish Institute for Fisheries Research (DIFRES)/DTU Aqua (1999-2013).

Research area

Mathematical and statistical modelling of dynamics in marine ecology. Focus on behavioural ecology, individual-level processes and their implications for system-level dynamics. In particular optimal vertical strategies of animals, as they derive from the properties the water column, and their implications for encounter rates, growth, and mortality. Time series analysis, in particular of tag data from individual marine animals. Stochastic processes, in particular stochastic differential equations. Spatio-temporal dynamics.

Memberships of scientific committees, 2011-present

Co-chair of the ICES Working Group of Physical-Biological Interactions (2011-present).

Review, 2011-present

- 4 PhD assessment committees.
- 4 assessment committees for positions at Aarhus University (1 postdoc, 3 senior scientists).
- Various international journals, e.g. Ecology Letters, J. Mathematical Biology, J. Atmospheric Sciences.

Peer reviewed publications: 52. **Books and book chapters:** 3. **Reports:** 10. **International conferences:** 11.

Advisory tasks, 2011-present

The project EcoFish delivers advice to national Namibian and regional authorities about management of the Benguela Large Marine Ecosystem.

Educational tasks, 2011-present

Developed and taught courses 25303 Mathematical Biology and 25328 Mathematical Models in Ecology in the DTU AS&T programme, as well as 02425 Diffusions and Stochastic Differential Equations taught at DTU Compute. Coordinator of the AS&T programme 2011-2012. Member of the Institute Study Board (2013-present).

Supervision, 2011-present

PhD students: 1 (Main Supervisor); 9 (Co-supervisor). **Master students:** 3 (Main Supervisor).
Postdocs: 1 (Main Supervisor).

Grants, 2011-present

Velux Visiting Professorship awarded to Toby Patterson, CSIRO, Australia, in 2016, with UHT as host at DTU.

Research collaboration with stakeholders, 2011-present

The project EcoFish involves collaboration with national and regional stakeholders about the Benguela Large Marine Ecosystem.

Five selected publications

Thygesen UH, Sommer L, Evans K, Patterson TA. (2016). Dynamic optimal foraging theory explains vertical migrations of bigeye tuna. *Ecology* (to appear).

Thygesen UH. (2016). A Diffusion Approximation Based on Renewal Processes with Applications to Strongly Biased Run–Tumble Motion. *Bulletin of mathematical biology*, 7(3), 556-579.

Traving SJ, Thygesen UH, Riemann L, Stedmon CA, (2015). A model of extracellular enzymes in free-living microbes: which strategy pays off? *Applied and Environmental Microbiology*, 81(21), 7385-7393.

Jonsen ID, Basson M, Bestley S, Bravington MV, Patterson TA, Pedersen MW, Thomson R, Thygesen UH, Wotherspoon SJ. (2013). State-space models for bio-loggers: a methodological road map. *Deep Sea Research Part II: Topical Studies in Oceanography* 88, 34-46.

Kristensen K, Thygesen UH, Andersen KH, Beyer JE. (2013). Estimating spatio-temporal dynamics of size-structured populations. *Canadian Journal of Fisheries and Aquatic Sciences*, 71(2), 326-336.