

Short CV – Anders Nielsen

Degrees

- PhD (Statistics), Royal Vet. and Agricultural University, Denmark (2004).
- MSc (Statistics), University of Copenhagen, Denmark (2000).

Positions

- Senior Researcher, DTU Aqua, Technical University of Denmark (2012-present).
- Researcher, DTU Aqua, (2008-2011); Project Researcher, DTU Aqua (2004).
- Postdoc, University of Hawaii at Manoa, USA (2005-2008).
- PhD student, Royal Veterinary and Agricultural University, Denmark (2001-2004).
- Project Researcher, Research Assistant, Statistical Consultant, Danish Institute for Fisheries Research (DIFRES) (2004 & 2000-2001 & 1998-2000).
- Programming Assistant, Professor Michael Sørensen, Aarhus School of Business, Denmark (1999).
- Teaching Assistant, Project Supervisor and Course Writer, Royal Vet. and Agricultural University, Denmark (1996-2004).

Research area

Develop statistical methods for marine science. Statistical rigorous assessment models. Models for geolocation of archival tagged marine creatures. Ensure that modern statistical software can support the models needed in fisheries science (AD Model Builder and TMB).

Distinctions and awards

- The Ecological Society of America's 2010 Sustainability Science Award.
- Charles Boyden Prize 2013 Best paper published in Optimization Methods and Software.

Memberships of scientific committees, 2011-present

Member of the Danish Society for Theoretical Statistics; Founding member and board member of The AD Model Builder foundation (<http://www.admb-project.org>); Member of Center for Independent Experts (CIE) (<http://www.ciereviews.org/>)

Review, 2011-present

- Numerous manuscripts mainly for: Can. Jour. of Fisheries and Aquatic Sciences, Marine Ecology Progress Series, ICES Journal of Marine Science, and Fisheries Research.
- Independent review report for the Northern Cod Framework Meeting (2015); Benchmark stock assessment of Atlantic Menhaden (2014); Assessment of Gulf of Mexico Gag and Greater Amberjack (2014); Stock Assessment of Gulf of Mexico Red Snapper (2013); Stock Assessment of Yellowtail Snapper in the South Atlantic and Gulf of Mexico (2012).

Peer reviewed publications: >43. **Books and book chapters:** 3. **Reports:** >10. **International conferences:** >15.

Advisory tasks, 2011-present

Routinely participates in many ICES groups (e.g. WGMG, SISAM and WCSAM initiative, WGBFAS, WGNSSK, WKPand (chair in 2016), NIPAG, WKBALCOD, WKNSEA, WGWIDE, NWWG, WKMSYREF3, WKPELA, WBSS, WKBALT, WKCOD).

Educational tasks, 2011-present

- Courses in Model Development in Fish Stock Assessment (ADMB, TMB, and SAM): ICES HQ, 2-6 Nov 2015; Perth, Australian, 18-22 May 2015; Tromsø, Norway, 25-25 March 2015; Sete, France, 29-30 June 2014; ICES HQ. 2013; International Statistical Ecology Conference Finse, Norway, 30 Jun-1 Jul 2012; ICES HQ. 2013; Namibia, (5-day) December, 2011.
- Advanced data analysis and statistical modelling (full semester) at DTU Informatics. Spring 2011.
- R course for biologists (5-day) at DTU Aqua, Copenhagen. Spring 2011.

Supervision, 2011-present

PhD students: 1 (Main Supervisor); 3 (Co-supervisor).

Grants, 2011-present

- 2 NCEAS travel grants, 2 AD Model Builder travel grants. 1 AD Model Builder development grant.
- EMFF 2015: Assessment and management of linked stocks (39325, Project Leader).

Research collaboration with stakeholders, 2011-present

- Initiative to improve mackerel assessment via tagging data (39080).
- [Stockassessment.org](#): Web-portal for stakeholders to collaborate on assessments. Ensures transparency and traceability.

Five selected publications

Nielsen A, Berg CW. (2014). Estimation of time-varying selectivity in stock assessments using state-space models. *Fisheries Research*. 158, 96-101. doi:10.1016/j.fishres.2014.01.014.

Fournier DA, Skaug HJ, Ancheta J, Ianelli J, Magnusson A, Maunder MN, Nielsen A, Sibert J. (2012). AD Model Builder: using automatic differentiation for statistical inference of highly parameterized complex nonlinear models. *Optimization Methods and Software*. 27 (2), 233-249. <http://www.tandfonline.com/doi/abs/10.1080/10556788.2011.597854#>

Nielsen A, Sibert JR. (2007). State-space model for light-based tracking of marine animals. *Canadian Journal of Fisheries and Aquatic Sciences*. 64 (8), 1055-1068. <http://www.nrcresearchpress.com/doi/abs/10.1139/f07-064>

Bolker BM, Gardner B, Maunder M, Berg CW, Brooks M, Comita L, Crone E, Cubaynes S, Davies T, Valpine P, Ford J, Gimenez O, Kéry M, Kim EJ, Lennert-Cody C, Magnusson A, Martell S, Nash J, Nielsen A, Regetz J, Skaug H, Zipkin E. (2013). Strategies for fitting nonlinear ecological models in R, AD Model Builder, and BUGS. *Methods in Ecology and Evolution*. 4 (6), 501-512. <http://onlinelibrary.wiley.com/doi/10.1111/2041-210X.12044/full>

Kristensen K, Nielsen A, Berg CW, Skaug HJ, Bell H. (2016). TMB: Automatic differentiation and Laplace approximation. *Journal of Statistical Software*. 70 (5), 1-21. <http://dx.doi.org/10.18637/jss.v070.i05>

Selected software

Nielsen A. and Berg CW. (2009). Stockassessment.org: A state-space assessment model with a web-based user interface. The key feature is that the fish stock assessment model and the data going into the model can be customized online, which allows working groups to actually work together on providing the best assessment.