MARINE BIOLOGICAL FORECASTS

untapping the potential of species-environment relationships

ANNA KATHARINA MIESNER (Ph.D)

CV & RESEARCH INTERESTS

I have focused on developing an interdisciplinary research profile that combines expertise in climate and marine sciences with advanced statistical analysis of large datasets. As both an aquatic engineer and a data scientist, I work systematically and methodically, approaching challenges with a process- and solution-oriented mind-set.
In 2022 I successfully graduated with a Ph.D at Universität Hamburg and Helmholtz-Zentrum Hereon. In addition, I hold a Master of Science in Engineering in *Aquatic Science and Technology* from the Technical University of Denmark and a Bachelor of Science in *Environmental and Resource Management* from Brandenburg University of Technology.
I am keen to contribute to projects involving intriguing observational datasets; specifically, long biological time series or temporally and spatially resolved data related to marine organisms in the context of environmental or climate changes.

ABSTRACT

Marine biological forecasts - Untapping the potential of species-environment relationships. During the course of the presentation I will discuss some fundamentals of biological forecasts with specific emphasis of the marine biological environment. I highlight key elements for creating skilful biological forecasts and demonstrate how predictions of the physical marine environment (like temperature and salinity) can be converted into biological forecasts, which are directly meaningful for stakeholders, such as forecasting the distribution of marine organism. Moreover, I will discuss their limitations and usefulness in the pro-active management of marine resources and outline future research needs. To illustrate these concepts, I will draw upon examples from my own research connected to forecasting the spawning distribution of a North Atlantic fish called blue whiting and existing operational biological forecast products.

PUBLICATIONS

- Miesner, A.K. (2023) “Mit Fischschwärmen ist zu rechnen” https://klartext-preis.de/meldungen/mit-fischschwaermen-ist-zu-rechnen/
- Miesner A.K., Brune S., Pieper P., Koul V., Baehr J., Schrum C. (2022) “Exploring the potential of forecasting fish distributions in the North East Atlantic with a dynamic Earth System Model, exemplified by the suitable spawning habitat of Blue Whiting.” Frontiers in Marine Science 8.
- Miesner, A.K., Payne M.R. (2018) "Oceanographic variability shapes the spawning distribution of blue whiting (*Micromesistius poutassou*)." Fisheries Oceanography 2018: 1- 16.
- Payne, M.R., Hobday, A.J., MacKenzie, B.R., Tommasi, D., Dempsey, D.P., Fässler, S.M., Haynie, A.C., Ji, R., Liu, G., Lynch, P.D, Matei, D., Miesner, A.K., Mills, K.E., Strand, K.O., Villariono, E. (2017) "Lessons from the first generation of marine ecological forecast products." Frontiers in Marine Science 4: 289

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