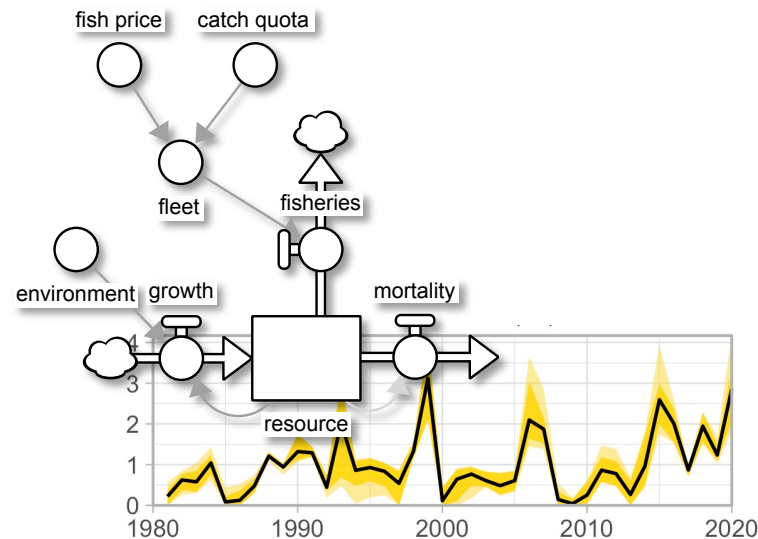


# Introductory course: Marine System Dynamics & Modeling

July 14-17, 2025 at Leibniz ZMT Bremen



 **Explore the dynamics and sustainability of marine systems!** 

Join a 4-day introductory course on the concepts and applications of System Dynamics for modeling tropical marine systems. A hands-on introduction to quantitative simulation and analysis, using the graphical modeling software *STELLA Architect*, without writing code.

Learn how to:

- Understand the dynamics and feedbacks in marine systems
- Use *STELLA* to build dynamic models for practical examples (fisheries resources, food webs, coral reefs, human user groups...) – bring your own project or topic if you like!

Open for all ZMT and collaborators (MSc/PhD/PostDoc) with an interest in marine systems – no prior modeling experience needed.

Limited spots available, please sign up: [Stefan.Koenigstein@leibniz-zmt.de](mailto:Stefan.Koenigstein@leibniz-zmt.de)

## Part I: Introduction to System Dynamics & *Stella Architect*

14.+15.07.2025

- Systems Thinking & System Dynamics concepts, cause-effect networks & loop analysis
- Building basic models in *Stella*
- Testing & understanding models, visualizing & communicating results

## Part II: Modeling marine systems

16.+17.07.2025

- Build marine (social-)ecological models for example cases
- Calibrate and fit to data
- Validation & sensitivity analysis
- Investigate adaptation & governance options

Daily schedule:

10-12h: interactive lecture (hybrid)

13:30-16h: hands-on modeling & group exercises  
(ZMT, seminar room F8)