

FABIO BOSCHETTI - CURRICULUM VITAE

Summary. I am an applied mathematician with extensive multidisciplinary experience spanning numerical optimisation, complex system science, ecological and socio-economic modelling, information theory, statistical analysis, and machine learning applications. My work focuses on the management of natural resources and marine ecosystems, their interaction with human activities, and the development of AI-assisted approaches for evidence synthesis and decision-making in environmental management. Recent research includes integrated modelling to support marine social-ecological systems, sea surface temperature predictability using machine learning and applications of generative AI to model development and parameterisation.

Current Research. My research aims to improve our understanding of how to effectively model ecosystems and their interaction with human activities, and how to communicate these complex insights to diverse stakeholders. Ecological and human systems are inherently complex, requiring us to balance two competing demands: addressing complexity by accounting for multiple interacting phenomena across different scales, uncertainty, feedback cycles, and non-linear dynamics; while simultaneously simplifying our analysis to make it tractable and actionable. This challenge of finding workable compromises between comprehensiveness and usability is central to my research. Current work includes exploring AI and machine learning for ecosystem modelling and prediction, developing human-AI collaboration frameworks for evidence synthesis, examining climate change adaptation in fisheries and marine policy, and applying information-theoretic approaches to assess ecosystem resilience and sustainability.

Publications. I have published 100+ refereed publications, including 70+ fully-refereed journal papers and book chapters, in disciplines as diverse as numerical optimisation, philosophy of science, complex system science, environmental science and theoretical biology. A full list of papers together with the electronic copies of most of my publications is available at <http://www.per.marine.csiro.au/staff/Fabio.Boschetti/>

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Professional Experience

2004 – present: Research Scientist; CSIRO, Marine and Atmospheric Science, Australia
1996 – 2004: Research Scientist; CSIRO, Exploration and Mining, Australia
1990 – 1993: Project Manager, Research and Development; ITA 12, Italy (Consultancy group in environmental studies).
1989 – 1990: Consultant, Research and Development; CAP Gemini Sysgen, Italy (Software engineering).

Education

PhD in Mathematical Geophysics, University of Western Australia. 1995.
Honors in Earth Science, University of Genoa, Italy, 1988.

Approaches

