

MODELING SOCIAL SCIENCE ASPECTS OF FISHERIES. A SYSTEMATIC REVIEW.

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Today, marine fisheries are one of the great concerns of our times, with many stocks depleted or overexploited. The science community has put considerable effort into fisheries research in order to give advice to managers and policy makers. A popular method to facilitate this knowledge transfer between researchers and policy makers is to develop a model of the fisheries system, reaching from simple mathematical models to complex simulations. This gives scientists the opportunity for a better understanding of fisheries dynamics, which might eventually lead to predictions of bio-economic and social indicators development.

However, the European Commission calls for a more 'ecosystem-based approach towards fisheries', challenging the science community to include a more holistic view of the fisheries system into their models (i.e. incorporating social, biological and economic aspects alike). Additionally, governmental institutions such as the Directorate-General for Maritime Affairs and Fisheries (DG MARE) as well as intergovernmental organizations such as the International Council for the Exploration of the Sea (ICES) ask for taking cognizance of social sustainability, implying the need to recognize social sciences as a vital factor when trying to improve fisheries management.

However, with a great number and high diversity of research concerning fisheries-modeling being published every year, the progress in integrated modelling methods appears difficult to assess. This makes it especially challenging to determine to what extent fisheries models have been integrating social science aspects so far.

Therefore, we conducted a systematic literature review on fisheries modeling, in order to establish an overview of (1) the models available, (2) the purpose of the models (explanation, prediction etc.), (3) the diversity of modeling tools used, and, most importantly, (4) to investigate what factors and aspects of the fisheries system have been included in models so far, especially in regard to integrating social science aspects.