Modelling Social Science Aspects in Fisheries
A Systematic Literature Review

Charlotte Teresa Weber, Michaela Aschan and Melania Borit
Norwegian College of Fishery Science,
UiT The Arctic University of Norway, Tromsø N-9037

/ Background
The science community has put considerable effort into fisheries research in order to give advice to managers and policy makers. Scientists have developed models to enhance their understanding of the fisheries system, reaching from simple single species models to complex simulations. 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).

A great number and high diversity of fisheries models are published every year. This makes it challenging to determine to what extent social aspects have been integrated into modelling approaches so far.

/ Preliminary results

/ Coding Scheme
What type of model was used?
Models were categorized by:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Methodology</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deterministic vs.</td>
<td>Statistical</td>
<td>C++</td>
</tr>
<tr>
<td>Stochastic</td>
<td>Agent-based</td>
<td>R</td>
</tr>
<tr>
<td>Continuous vs.</td>
<td>Bioeconomic</td>
<td>EWE</td>
</tr>
<tr>
<td>Descriptive vs.</td>
<td>Conceptual models</td>
<td>.......</td>
</tr>
</tbody>
</table>

/ What social attributes were modelled?
Examples of social attributes

Papers including social attributes in models

- fisherman’s welfare
- fisher’s compliance
- commitment and implementation
- management objectives
- social utility
- social impact and compensation mechanism
- stakeholder engagement
- stakeholder involvement in model building process
- fisher’s previous experience
- fisher’s choice to start and end fishing trip
- fishers choice of fishing ground
- fishermen choose optimal effort level
- fishermen choose coalition structure
- combining modelling with fishermen interviews to determine effects of new management option
- characteristics that influence fishermen’s perceptions and attitudes

/ Conclusions:

- Many lack clear description of model structure, method, platform
- Few mention assumptions and limitations
- Few include social attributes
- No clear distinction: social vs socio-economic vs. economic

/ Future work
Further develop Coding Scheme:
- Categories: Social attributes
- Model availability
- Model assumptions & limitations
Look deeper into social attributes modelled
- What?
- How?
- Why?

Relate my work to ongoing EU projects
- Presentation at MareFrame Meeting for Input, Advice and to gain insights on experiences
- What works in the «real world»?

/ Methods:

1. Systematic Literature Review:
   Select search engine, keywords and search criteria.
   Keywords: Model* AND fisheries AND “Common Fisheries Policy”

2. Establish Inclusion – Exclusion Criteria
   a. Document written in English
   b. Document published in scientific journal or conference proceedings
   c. Must refer to fisheries, modelling and the Common Fisheries Policy

3. Develop Coding Scheme
   to investigate research question(s)

/ Background

/ Aim of the study
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.

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